

**DETERMINANTS OF  
GRAPHICAL DISCLOSURE IN  
ANNUAL REPORTS OF LISTED  
COMPANIES IN THE ISE**

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Institute of Social Sciences

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in

Management

by

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## **AUTHOR DECLARATIONS**

The material included in this thesis has not been submitted wholly or in part for any academic award or qualification other than that for which it is now submitted.

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## **ABSTRACT**

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### **DETERMINANTS OF GRAPHICAL DISCLOSURE IN ANNUAL REPORTS OF LISTED COMPANIES IN THE ISE**

The purposes of the thesis are to investigate the graphical disclosure level of Turkish companies, to determine the correlation between graphical disclosure and the firm characteristics which are firm size, performance, auditor size, ownership structure, leverage, and sales growth, to investigate the reasons of not disclosing graphs in annual reports for the year 2005, 2008, and 2010.

The methodology of the thesis is content analysis of annual reports of the companies which are listed on the Istanbul Stock Exchange for the years 2005, 2008, and 2010. In this study, Pearson correlation analysis and Regression analysis techniques are used. As explanatory variables of graphical disclosure level, firm size, performance, auditor size, ownership structure, leverage, and sales growth will be used.

The major findings of the thesis are as follows. In 2005, 56.99 per cent of the companies disclose graphs in their annual reports. In 2008, 57.69 per cent of the companies disclose graphs in their annual reports. In 2010, 60.30 per cent of the companies disclose graphs in their annual reports. As the years pass, the firms tend to disclose more graphs. The average number of graphs disclosed in annual reports is 4.26 in 2005, is 5.22 in 2008, and is 5.56 in 2010. The most widely graphed variables are sales, production, others such as management, import, target, consumption, unit case volume, development, etc., profit, and share performance. There are no relationship between the graphical disclosure level and leverage, and performance, and ownership structure. There is a significant relationship between the graphical level and firm size, and auditor firm size, and sales growth. Additional

analyses were conducted to check whether there is a selective disclosure or not. As a result of these analyses, there is no selective disclosure among the firms which are listed manufacturing companies in the ISE. The reasons of not disclosing of the graphs are to prefer to disclose tables rather than graphs by the 72.7 per cent of the companies which do not disclose graphs in their annual reports, to think that the graphical disclosure is not important by the 18.2 per cent of the companies, to believe that the graphical disclosure is not beneficial for the investors and their stakeholders by the 18.2 per cent of the companies.

The findings of this study are based on the study conducted on the ISE for the manufacturing firms. The results are not generalized to non-listed companies and non-manufacturing firms. Based on the analyses, implications for the firms are explained as follows. During data collection and analysis, it is seen that some firms do not disclose any graphs in their annual reports. As it is mentioned the advantages of graphical disclosure in the third part, the firms should disclose graphs at least some key financial variables such as sales, performance, income, share performance, etc. in their annual reports.

**Key words:**

Graphical disclosure, annual reports, voluntary disclosure, firm size, performance, auditor firm size, ownership structure, leverage, sales growth, Turkey, ISE

## **KISA ÖZET**

**Esmâ KAVAK**

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### **İMKB'DE İŞLEM GÖREN FİRMALARIN FAALİYET RAPORLARINDA GRAFİKSEL SUNUM BELİRLEYİCİLERİ**

Tezin amaçları, İMKB'de işlem gören üretim firmalarının grafiksel sunum düzeyinin araştırılması, grafiksel sunum düzeyini etkileyen firma karakteristiklerinin belirlenmesi, faaliyet raporları üzerinde grafiksel sunum olmama nedenlerinin araştırılmasıdır

Bu çalışmanın metodu, İMKB' de işlem gören firmaların 2005, 2008 ve 2010 yıllarında yayınladıkları faaliyet raporları üzerinde içerik analizini kapsamaktadır. Çalışmada, Pearson korelasyon analizi ve Regresyon analizi yöntemleri kullanılmıştır. Grafiksel sunum düzeyinin açıklayıcı değişkenleri olarak, firma büyüklüğü, karlılık, denetçi firma büyüklüğü, sahiplik yapısı, borçluluk, ve satış büyümesi kullanılmıştır.

Tezin ana bulguları şu şekildedir. 2005 yılında incelenen firmaların, faaliyet raporlarında grafik sunma yüzdesi 56.99, 2008 yılında yüzde 57.69 ve 2010 yılında ise yüzde 60.3 oranındadır. Yıllara göre firmalar, daha fazla grafik sunma eğilimi göstermişlerdir. 2005 yılında faaliyet raporlarında kullanılan ortalama grafik sayısı 4.26 iken bu sayı 2008 yılında 5.22 ve 2010 yılında ise 5.56 olmuştur. Faaliyet raporlarında sıklıkla grafiklerde yer verilen değişkenler ise satış, üretim, karlılık, hisse performansı vb. olmuştur. Kullanılan analizlere göre grafiksel sunum ile karlılık, şirket performansı ve sahiplik yapısı arasında anlamlı bir ilişkiye rastlanmamıştır. Bununla birlikte, yine analizlerin sonucuna göre grafiksel sunum ile firma büyüklüğü, denetçi firma büyüklüğü, ve satış büyümesi arasında pozitif anlamlı bir ilişki gözlenmiştir. Yapılan analizlere ek

olarak taraflı raporlama yapılıp yapılmadığı da test edilmiş ve taraflı raporlama yapılamadığı da gözlenmiştir.

Faaliyet raporlarında grafiklere yer vermeyen firmaların yüzde 72.7'si faaliyet raporlarında tablo ile açıklama yapmayı tercih etmiş, yüzde 18.2'si grafik sunmayı önemsiz bulmuş, yüzde 18.2'si de grafiksel sunumun yatırımcı ve hissedarlar bilgi sunma açısından yararlı olmadığına inanmaktadır.

Bu tezin bulguları İMKB'de işlem gören üretim firmalarına ait olup İMKB'deki tüm firmalara genelleştirilmesi söz konusu değildir. Veri toplama ve analiz aşamasında bazı firmaların grafik sunmadığı görülmüştür. Grafiksel sunumun faydaları göz önünde bulundurduğunda, firmalar en azından bazı ana finansal değişkenleri grafik ile açıklayabilirlerdi.

### **Anahtar Kelimeler**

Grafiksel sunum, faaliyet raporları, gönüllü açıklama, firma büyüklüğü, karlılık, denetçi firma büyüklüğü, sahiplik yapısı, borçluluk, satış büyümesi, Türkiye, İMKB



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## **LIST OF ABBREVIATIONS**

ISE	Istanbul Stock Exchange
DPS	Dividend per Share
EPS	Earning per Share
ROCE	Return on Capital Employed
PDP	Public Disclosure Platform
CMB	Capital Markets Board
SMMM	Serbest Muhasebeci Mali Müşavir
IMKB	Istanbul Menkul Kıymetler Borsası

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## **INTRODUCTION**

There are two main streams of corporate reporting; mandatory corporate reporting, which includes financial statements, and voluntary corporate reporting including social, environmental, human resource, graphical disclosures and so on.

The main objectives of this study are threefold. The first is to investigate the graphical disclosure level of Turkish listed companies. The second is to determine the firm characteristics that influence graphical disclosure level. The third is to investigate the reasons of not disclosing graphs in annual reports. Proper presentation of graphs is very important for the report readers' understanding of the performance of the firms correctly.

This thesis consists of five parts. The first part gives information about framework of thesis and purposes. The second part is pertaining to corporate reporting including types, benefits, costs, and its framework. In the third part, literature review about graphical disclosure is provided. It also gives information about definition of graphical reporting including history and development of graphical disclosure, its benefits, and the reasons of not disclosing graphs in annual reports. In addition, the firm characteristics that influence the graphical disclosure level, such as firm size, performance, auditor size, ownership structure and leverage are reviewed. In the fourth research methodology, sample, analysis and results are provided. In the last part, results are interpreted, limitations and recommendations are stated.

Although there are several studies pertaining to graphical disclosure in annual reports, this study aims at extending previous researches in a few ways. This study investigates graphical disclosure in a longitudinal analysis including the years of 2005, 2008, and 2010. This will enable readers to see the change in disclosure patterns over years.

Secondly, this study investigates whether firms engage in selective graphical disclosure (i.e. presenting sales graphs are due to sales performance, presenting profitability graphs are due to high profit rate of the firm, and so on) or not.

Finally, the study examines the reasons about why some firms do not disclose any graphics in annual reports by surveying those firms.

# **CHAPTER 1**

## **CORPORATE REPORTING**

Corporate reporting is increasingly becoming important for decision-making of stakeholders. Therefore, firms attribute higher importance to the content, format, and timeliness of corporate reporting. In recent years, academic studies also have grown a lot about various aspects of corporate reporting.

Corporate reporting is a significant tool, while appraising whether the firms are successful or not (Villiers, 2006). The basic purpose and function of the corporate reporting is giving appropriate and accurate information to investors. It conveys both financial information, including profits, revenues, capital structure, stock returns, etc. and non-financial information such as environmental and social responsibilities, profiles of employees, board of directors, etc. (Uyar, 2009:423). Through corporate reporting, information is provided to stakeholders such as creditors, investors, general public, manager, employers, customer, and governmental bodies. Information regarding firms is shared and published in a variety of different forms using a wide range of media which includes written reports, newsletters, internet, web-sites, and advertising. There are a large number of participants involved in the firm's disclosure activities, particularly for publicly traded companies (Villiers, 2006).

### **1.1. Definition of Corporate Reporting**

Corporate reporting is to provide information to the firms' stakeholders in order to help them make decisions. In order to provide adequate and sustainable information, the company management must reply to the following key questions (Villiers, 2006):

1. Who are responsible for corporate reporting?
2. Who are you reporting to?
3. Why do they need information?
4. What information do they need from you?

Besides questions above, the other questions that should be answered are "How frequent do they need the information?" and "How does the business differentiate itself in the sector through the reporting?"

As a response to the first question asked above, while preparing corporate reports, company secretary, directors, non-executive directors, auditors can be thought as responsible for reporting and disclosing information to the stakeholders (Villiers, 2006). Secretary plays a role in assisting the board and in providing the flow of the right information between the management and the board (Plessis *et al.*, 2011). He or she is also responsible for governing the company's relations, maintaining the company's documents (Villiers, 2006).

During corporate reporting and disclosing process, directors, as well as non-executive directors have significant and the same roles, and there are no differences between their duties theoretically, but there are differences in practice. The differences are executive directors play a role in managing activities as full-time in the corporation and are expected to conduct law duties (Plessis *et al.*, 2011). Non-executives are accountable for supporting executives (Villiers, 2006). Besides these roles, Villiers stated that "Directors decide how to disclose and report information and they possess number of control over the disclosure process" (Villiers, 2006:57).

Apart from these groups, there is one more group, namely auditors, which is accountable for proper disclosure of information, reporting accounts of their clients, preparing reports (Villiers, 2006). The roles of the auditors are to check and verify the accounts, records, reports, and financial statements. They provide persuasion to investors and assurance on annual report in a formal way (Healy & Palepu, 2001). Furthermore, Healy and Palepu

(2001:415) stated that "Auditors are concerned about minimizing their legal liability, rather than enhancing the credibility of financial reports."

The second question which we need to answer is "who they are reporting to?". This kind of group includes creditors, employees, business group, rivals, government, agencies, public, and investors (Villiers, 2006). They need information about helping them to assess the firms' current and potential prospects, performance, activities, to make decision about whether they sell their existing stock or not, and to make decisions about taking risks for investment (Villiers, 2006). There are various theories arguing that the companies should disclose information. All of these theories supported that stakeholders, creditors, financial analysts etc. are required to be informed in order to make their investment decisions (Akhtaruddin, 2005).

The creditors consist of current and potential providers of short- term and long-term loans, including both secured and unsecured (Villiers, 2006). Creditors consist of two groups: the first group is providers of credits including banks and other financial institutions, second one is suppliers who provide the companies goods and services, and they are interested in continuity of the companies (Mallin, 2007). Suppliers make decision by reading annual reports and evaluating financial position whether to sell goods to the company, or provide services to the company. As well as short-term creditors, long-term creditors need to know how companies manage their cash, how much cash the businesses have, how the businesses' position in money market and what the businesses' strength and weaknesses in financial terms; they want to evaluate current and future situation of the firms regarding financial stability, reliability, viability, and in terms of market shares and sales volume in market, which the firms play an active role, perform the goods and services (Villiers, 2006).

Another group which is interested in the businesses' activities is customers. Customers are more interested in and aware of the businesses' social, environmental, ethical activities (Mallin, 2007). They care financial and

non-financial activities of the firms from whom they purchase goods and services. They evaluate the firms' both short-term and long-term services such as after-sale services, guarantee, assembling, and conducting after sale customer relationship etc.

The analyst adviser group consists of financial analysts, journalists, economists, statisticians, researchers, trade unions, stockbrokers and credit rating agencies (Villiers, 2006). They make the investors become aware of potential risks for investments and give them advice to other groups who are interested in the companies' activities. Financial analysts are accountable for gathering information from all financial sources, assessing the firms' current situation, performance and future or expected growth and prospects. According to these activities, they give recommendation and advices to stakeholders whether to invest or not (Healy & Palepu, 2001).

The employees consist of current, future and past employees. Existing employees are concerned about their salary, pension, working conditions and benefits, firms' long term growth and its prosperity and how the firms' current and future strategies impact on these benefits (Plessis *et al.* 2011). Employees need to be informed in terms of their security, ability and pay level of the other employees who work in the same position and have same workload, work conditions and so on (Villiers, 2006). And they also want information about the firms' future and current economic situation.

Governmental authorities consist of tax authorities, departments and agencies (Villiers, 2006). Government needs some significant reports and tools as protecting the stakeholders' right such as statistical information, surveys, tax collection. Government plays an important role for the environmental protection groups, local and legal supporters groups by regulating managerial activities, taking into considerations social, environmental, legal, and ethical practices (Mallin, 2007).

The community includes consumers, political parties, taxpayers, social groups such as environmental protection groups (Villiers, 2006). The more value for the society, the more success for the companies.

The reason why the information is needed is to provide a presentation of the firm's current situation, finances, and annual reports frankly. It is also able to build stakeholders' trust (Moll, 2009).

The information which is provided to the stakeholders can be classified into two aspects. The first is mandatory disclosures which include financial reporting required by laws and regulations. In a periodic disclosure, corporations are required to make more detailed, periodic disclosures of firm performance (Debreceeny & Rahman, 2005). Financial reporting is primary aspect of corporate reporting for the companies. It includes balance sheets, income statement, and statement of owner's equity and statement of cash flows. In contrast to mandatory disclosures, voluntary disclosures are not required by the laws and regulations. Displaying voluntary information in annual reports depends on the decision of a corporation. For example, while publishing financial statements is mandatory, environmental and social responsibility disclosures are voluntary disclosures. One of the important voluntary disclosure areas is graphical displays in annual reports.

The last question is how does the business differentiate itself in the sector through the reporting? In order to being different from its competitors, the firm should make changes the way in which they report, presentational style and the tool which they use, provide the rich information through their electronic reports<sup>1</sup>.

## **1.2. Benefits of Corporate Reporting**

Corporate reporting, which is published by the media, provides an effective communication between the firms and their stakeholders. Corporate

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<sup>1</sup> <http://www.youtube.com/watch?v=8anDeC5Rcek&feature=related>

reporting also facilitates and supports at building and creating image (Moll, 2009).

If the disclosure practices show greater transparency and clarity to investors and stakeholders, there are some benefits of corporate disclosure (Villiers, 2006). Corporate disclosure (1) improves market liquidity and lowers the cost of capital (Leuz & Wysocki, 2006:192), (2) improves corporate governance and managers' investment decisions (Leuz & Wysocki, 2006:192), (3) provides confidence for the stakeholders (Plessis *et al.*, 2011), (4) helps to ensure the efficiency of capital markets. An important aspect of the regulation of firms is to ensure the provision of adequate disclosure (Aljifri, 2008), (5) helps to provide better relationship between the company and the investors (Akhtaruddin *et al.*, 2009). Suitable disclosure helps to make the capital markets more efficient, both in operation and allocation of capital. If the capital markets are more efficient, this provides greater participation by borrowers and lenders (Aljifri, 2008).

Principles of corporate governance and corporate reporting processes increase efficiency of the firms, and protect the firms' stakeholders through providing rules and reinforce to operate within the framework conducted by the firms. Therefore, the companies which put the corporate governing process into practice have enhanced their performance, have been able to respond to economical crises, and could use the resources more effectively. As a consequence of these benefits, the firms accelerate the economic growth (Erdonmez, 2003:43). The biggest benefits of the suitable reporting might be strengthening of stakeholder and general public trust and confidence (Villiers, 2006).

In contrast to advantages of corporate disclosure, there are some disadvantages if information is not disclosed properly. For instance, good investment decisions cannot be made by investors without relevant and reliable information. For this reason, it is required to be provided predictions



and more details for the future projections by managers rather than only historical information. If the published information is too much technical, sophisticated, and complex, this occasion might cause disregarding even if the information is relevant for the decision. Furthermore, poor disclosure also causes participants not to manage the information effectively. These weaknesses might arise from inadequate decision which results in losing the participants or maybe collapsing the firm (Villiers, 2006).

There are also other problems because of the different types of disclosing information. For instance, social disclosure can be understood easily but there is a lack of comparability. As a result, it degrades its usefulness. On the other hand, financial disclosure is more sophisticated to understand and to read effectively.

### **1.3. Costs of Corporate Reporting**

Corporate disclosure has more importance over stakeholders and corporation. Conversely, it has also cost while preparing and presenting disclosure. For example, preparing, certifying and publishing information and disclosure cause direct cost of information disclosure. Besides direct cost, there are also indirect costs because of being used by competitors, employees, politicians, and regulators (Leuz & Wysocki, 2006). If the direct cost gets higher, this causes that the firm value reduces and the corporation is less desirable (Leuz & Wysocki, 2006). If the expected future gain exceeds expected cost of disclosing information in annual reports, the corporation decides to disclose information.

Healy and Palepu (2001:407) stated that there are some problems of disclosures. These problems are information and incentive problems. Despite these problems, disclosure and the institutions provide an important role between managers and investors in order to solve these problems.

The cost of information published in annual reports is related to presenting and gathering information. The firm discloses information in annual reports if the expected benefit exceeds the cost. In order to reduce the costs of corporate reporting, the corporation can use internet to give information to stakeholders (Uyar, 2012).

#### **1.4. Corporate Reporting Regulation in Turkey**

Good application of corporate reporting is beneficial for both country and firms. In order for firms to attract local and foreign investors, good corporate reporting is essential. Because investors make investment decisions by reading corporate reports of the firms. In other words corporate reports are the main communication tools of firms with stakeholders. In addition, better corporate reporting enables transparency of capital markets which may lead to increasing foreign investment.

Regulation of corporate reporting is operated by Capital Markets Board of Turkey (CMB). The CMB is the only authority for regulating and supervising, being in charge of the securities markets. According to regulation, it is required to make significant changes in contents of annual reports, especially in risk management. Moreover, publishing quarterly and annual reports are mandatory. By the help of this regulation, investors and stakeholder can easily access all information pertaining to the firm periodically (Deloitte, 2009).

According to rules of Capital Markets Board in Turkey, corporate reports should include some items<sup>2</sup>:

- Operation subject
- Information about sector and place of the firm in the sector
- Periodical financial statements

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<sup>2</sup> Capital Markets Board, Rules published in 11.10.2011. Serial: IV NO: 54

- Degree of succession in planning operations, analyzes and evaluation of financial position
- Internal control system and declaration of whether this control system works regularly or not by the board of directors.
- The opinion of independent audit firm about internal control system
- Policy of dividend
- Future expectations about sales, productivity, market share, revenue generation capacity, profitability, debt / equity ratio, etc.

The Communiqué Serial: IV, No: 54 introduce the inclusion of graphical and statistical information in annual reports (CMB, 2011). This regulation does not give detailed information about graphical disclosure. Therefore, regulatory bodies should make detailed arrangement for using graphs in annual report. The audit firms also can guide firms and help them to improve corporate reporting (Uyar, 2011). With the help of such regulation, it enriches the readers' understanding of the firms' performance.

### **1.5. Types of Corporate Reporting**

Corporate reporting in annual reports consists of two parts: the narrative part and financial part. The narrative part includes "the chairman's statement, the chief executive's review, and the operating and financial review, a director's report, a statement of directors' responsibilities, a remuneration report, and a corporate governance report" (Beattie, Dhanani & Jones, 2008:186) and also including "letter from the chairman and may include photographs of management personnel and corporate products and graphics related to financial performance, industry niche, source of raw materials, locations of factories, and so on" (Penrose, 2008:158). However, differentiating the corporate reporting as mandatory and voluntary depends on regulations, standards, and rules. Besides this, each type of corporate reporting should include/ include narratives and financial parts.

### **1.5.1. Mandatory Disclosure**

Mandatory disclosure is an information demand that is required by laws, regulatory bodies. Mandatory disclosure practices are ruled at regional and national level through organizations and governmental authorities (Binh, 2012). Companies should disclose their financial information properly, as required by governmental bodies, regulatory bodies, standards and laws UNCTAD (2006). If the financial reporting standards are carefully regulated and controlled, the firms are able to answer the shareholders' questions and they can make clear their suspects for their current and future investments. By regulating financial reports which include the financial statements, footnotes, management discussion and analysis, and other regulatory filings, the firms provide corporate disclosure (Healy & Palepu, 2001). It also includes an income statement, a statement of cash flow, a balance sheet and a statement of owners' equity. Especially, income statement is more important for investors, while the balance sheet and cash flow statements are required by bankers and creditors (Ho & Wong, 2001; Akhtaruddin, 2005).

Financial regulation for the companies is not only regulated by the rules, but is also regulated by the corporate governance and audit firms (Fearnley, Brandt & Beattie, 2002). Financial reporting, obeyed by regulators, provides an opinion about the perception and current and future health of the companies.

### **1.5.2. Voluntary Disclosure**

Voluntary disclosure is described as disclosures primarily outside the financial statements and other disclosures that are not required by the legislation. Voluntary disclosure practices provide better internal management, growth in market share, increase the profit, and share price,

and increase the transparency. Voluntary disclosure practices are also helpful to investors for making investment decisions. Many leading companies disclose more information in their annual reports voluntarily. This provides more effective communication with investors

The items of voluntary disclosures are categorized into research and development activities, employee information, social and environmental disclosures, general corporate information, chairman's statements, market related information, audit committee information, financial information, forward-looking information, board structure information and so on.

In addition to mandatory reporting through financial statements and their footnotes, firms present information voluntarily owing to the benefits which stem from disclosing the information from stakeholders exceed the costs during which the firm pay for disclosing process. Beattie, Dhanani and Jones (2008) concluded that there were 75 pages in annual reports in 2004, although annual reports consisted of 26 pages in 1965 and nowadays it exceeds 100 pages. Within 45 years number of pages increase, so it means that more information is provided for public and stakeholders. In these samples, the number of pages of annual reports range from 4 to 130 in 2005, the number of pages of annual reports range from 5 to 181 in 2008, and the number of pages of annual reports range from 5 to 219 in 2010.

## **CHAPTER 2**

### **GRAPHICAL DISCLOSURE**

Annual reports are significant tools of communication between companies and their stakeholders. They may display non-financial information including environmental, social responsibility, employees' profiles, board of directors, investments in research and development, plantation areas, total shareholders etc., and financial information such as revenue growth, earnings, return on assets, turnover, sales, dividend per share, capital structure (Uyar, 2009; Isa *et al.* 2006). In another study, it was indicated that corporate transparency, reliance, trust, being objective has been the primary focus in the annual reports (Akhtaruddin, 2005).

Prior studies give us information about the graphical usage percentage, graphic types, variables, and measurement distortions (Uyar, 2009: 426). A more suitable and effective way of giving information to stakeholders through annual reports is displaying graphics. With the help of graphics, readers can easily understand both financial and non-financial data.

In order to publish and/or represent managerial and financial data, graphics are generally used. Graphs are tools to give information to investors. As a matter of fact, disclosing graphs is voluntary reporting. It means that voluntary graphic disclosure is generated by the decision of management.

Graphical disclosures are used for two main purposes. The first is to analyze data, and the second is to communicate and display information to the public (Beattie & Jones, 1992b). Likewise to previous studies which focus on environmental and social disclosure, graphical disclosure is the growing research area within accounting literature.

The reasons of why graphical information should be disclosed were answered by Isa, Haron and Yahya (2006). According to results of their

study, five reasons were found which were inferred from the questionnaire. These reasons were ranked by the importance as follows (Isa *et al.* 2006):

1. Portray company's performance over time simply and effectively,
2. Summarize data & reduce information overload,
3. Facilitate user's understanding,
4. Capture & retain reader's attention,
5. Reveal patterns and underlying trends.

Jones (2011: 85) concluded that companies generally use the graphs while disclosing social and environmental information. The firms, which were examined by Jones (2011:80), primarily used graphics for environmental issues such as the air emissions, waste outputs, and energy usage.

## **2.1. History of Graphical Disclosure**

Graphs used in any areas, firstly were found by William Playfair. Line graphs and bar chart were invented in 1786, and pie chart and circle graph in 1801<sup>3</sup>. Graphs have been used for representing in technical and non-technical areas for over 200 years to provide more effective communication (Beattie & Jones, 2000). Especially in a business world, voluntary graphical disclosure is a growing field and widely used not only in large companies but also in small companies, in many countries including France, Germany, The Netherlands, Australia, United states, and United Kingdom (Beattie & Jones, 2001).

## **2.2. Frequency of Graphical Presentation**

Larger firms use more graphs in annual reports in order to represent such variables as sales, earning, earning per share and dividend per share (Beattie & Jones, 1992b, 1992).

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<sup>3</sup> [http://en.wikipedia.org/wiki/William\\_Playfair](http://en.wikipedia.org/wiki/William_Playfair)

Frequency of using graphs in annual reports is increasing (Beattie & Jones, 2008). According to a previous study which was conducted by Beattie and Jones (1992b), 79 percent of the companies presented graphs in annual reports in 1989.

The most popular financial variables graphed in annual reports are return on assets, dividend per share, turnover, sales, earnings, capital structure, etc (Uyar, 2009; Isa *et al.* 2006; Beattie & Jones, 2008). On the other hand, there are some differences between countries about presenting graphs. For example, in Turkey the most popular variables graphed in annual report are return on assets and total assets (Uyar, 2011). Besides, sales and earnings are mostly used in French annual reports; sales are used in German annual reports mostly (Beattie & Jones, 2001); sales, EPS, DPS are widely graphed in U.S and in U.K firms (Beattie & Jones, 2001).

### **2.3. Benefits of Graphical Presentation**

Graphs which are used in the annual reports are major form of the published information because graphs decrease the time and the efforts of the senior executives and managers. Companies use graphs while they publish financial and non-financial information. When the firms use graphical disclosures, they disclose some variables such as share performance, sales revenue, net income, sales volume, production, owners' equity, number of customers, ownership structure, energy consumption, water consumption, number of personnel (Uyar, 2011).

Voluntary graphical disclosure has been of importance for the companies in recent years because graphs are more user-friendly than tables (Beattie & Jones, 1997: 34). If the graphs are colorful; they are more attractive for the people who have ability to recall visual issues (Beattie & Jones, 1997).

While the annual reports' readers reading firstly scan the graphs quickly then discover the geometric pictures and shapes and finally they make



inferences about data (Beattie & Jones, 1999). Representing graphs in annual reports is the part of the impression management. Impression management can occur in three ways (Beattie & Jones, 1999):

1. Management can decide on an annual basis, whether or not to use graphs at all, and, if used, which specific variables to graph
2. Graphical construction techniques can be used to manipulate the message conveyed.
3. Graph design features can be used to enhance the message conveyed by the accounting numbers in an unwarranted way.

According to one another study, the best benefit is "to evaluate company's performance overtime" and the others are "to make comparison between company's performance with others", "to help users make informed investment decision" , "to predict expected income and earnings per share" , "to predict future dividends", "to portray company's performance over time simply and effectively", "to summarize data and reduce information overload", and " to reveal patterns and underlying trends" respectively (Isa *et al.* 2006:22), "to be effective for summarizing financial and non-financial information " (Fulkerson *et al.* 1999).

Some information can be explained by graphs rather than words. This helps to understand and read annual reports efficiently. The information which represented in annual reports can be converted into graphs to attract readers and help to remember data. It helps identifying and understanding the trend of financial information (Saad *et al.* 2011). It also makes the information more understandable and help saving time while analyzing data (Fulkerson & Frownfelter–Lohrke, 2001). Besides these benefits, Fulkerson and Frownfelter-Lohrke (2001: 338) asked some questions in order to find out whether using graphs in presenting financial data is abused or not. The following questions are: "Are companies using graphics to inform or to deceive stockholders and other financial statement readers?" and "Should

such graphics be improved or regulated by the profession?" (Fulkerson and Frownfelter-Lohrke, 2001:338). When these questions are considered; regulations, law, and standards have importance (Fulkerson & Frownfelter-Lohrke, 2001).

## **2.4. Types of Graphs Used in Annual Reports**

The firms use graphs in the shape of pie charts, line graphs, column, bar graphs, and histograms in their annual reports when they display graphical information. Which type of graphs needed to use depends on the objectives of the firm. Namely, what the firms are intended to tell via the graphs (Coles & Rowley, 1997). For example, if the scatter type is used, it examines the relationship between two continuous variables (Coles & Rowley, 1997). Other type is line graphs. This type of graph represents how the variables are related to (Coles & Rowley, 1997). Bar graphs are used if graphs are based on a single scale, and they are presented horizontally (Isa *et al.* 2006). Pie chart consists of a sub division of a whole which are related to each other.

According to some previous studies, line, bar, and pie graphs are widely used in annual reports (Uyar, 2009; Beattie & Jones 1992b, 1997). Zhang (1998:377) stated that "Bars are well understood by people, including decision-makers". In another study, Fulkerson & Frownfelter-Lohrke (2001) worked on 2.270 graphs and found that there are six types of graphs. These are bar/column (62 percent), line (15 percent), pie or proportional (14 percent), stacked bar/column (7 percent), area (1 percent), and combination line-bar (2 percent) by the percentage respectively.

In contrast to Zhang (1998), Uyar (2009), Beattie & Jones (1192b, 1997), Fulkerson & Frownfelter-Lohrke (2001), Jones (2011) revealed that the vertical column are most popular in order to present time trends and the other types of graphs preferred, are pie chart and line chart. In another

study, Beattie and Jones (1997) stated that the mostly used type of graphs in annual reports in US is bar/column by %79 proportion.

## **2.5. Improperly Drawn Graphs**

Some previous studies showed that there are improperly drawn graphs in the annual reports of firms (Beattie and Jones 1992a, 1992b; Steinbart 1989). There are some question asked by Arunachalam, Pei and Steinbart (2002). The first is "whether improperly designed graphs affect choices". The other is "whether such graphs affect decision making". According to their result while making decision it is affected by improperly drawn graphics. On the other hand, in the process of disclosing graphs or shaping graphs, some major rules should be obeyed for the better graphs as follows (Beattie & Jones, 1997:38):

- the use of financial graphs should not be contingent upon financial performance
- the physical measures on the surface of the graph should be in direct proportion to the underlying numbers
- axes' scales should be chosen so that the slope parameter approximates  $45^\circ$ . thereby maximizing judgment accuracy
- backgrounds should be non-obtrusive
- all specifies in time series graphs should be drawn with equal emphasis
- axes' scales should start at zero and be equally spaced, and
- labeling should be horizontal and consistent.

## **2.6. Firm Characteristics that Impact Level of Graphical Disclosure**

In an empirical research, Uyar (2011) tested the influence of the firms' characteristics on disclosure of graphs in annual reports and proposed four hypotheses. According to the result of the study, there is a positive significant relationship between auditor size and graphical disclosure level and there is also a positive significant relationship between firm size and graphical disclosure level. On the other hand, there is no significant relationship between profitability and ownership structure, and graphical disclosure.

According to the conclusion of study conducted by Beattie, Dhanani and Jones (2008), there was a strong association between the performance of the company and uses of graphs in annual reports. Indeed, if the company represents graphs in its annual reports, its performance is higher than the companies which do not use graphs.

The study which was conducted by Uyar (2011) offered certain implications for the firms. Some firms do not have graphical disclosure in their annual reports. According to his study the firms should display graphics at least some key financial variables including sales, income, share performance, etc.

Beattie and Jones (1992a, 1992b) studied 240 listed companies' annual reports for the year 1989 which had the most detailed information in the United Kingdom. Sales, profit before tax, earnings per share (EPS) and dividend per share (DPS) were graphed by seventy-nine percent of all companies

Beattie and Jones (2001) compared six countries according to the usage of graphs in their annual reports and revealed that over 25 per cent of the companies for each country represented graphs which identified sales,

earnings, DPS, EPS, ROCE, and cash flow. According to another study, there is no meaningful relationship between graphic disclosure and the variables open-to-public ratio and firm performance (Uyar, 2009). In contrast to this conclusion, Uyar (2009) revealed that there are significant association between graphical disclosure and the variables; firm size, profitability.

## **2.7. Hypotheses**

It is primarily focused on some hypothesis that six main factors may affect the extent of graphical disclosure such as firm size, performance, audit firm size, leverage, ownership structure, and sales growth.

### **2.7.1 Firm Size**

The firm size is a frequently investigated variable in disclosure studies because it is likely to impact disclosure level. Previous studies (Uyar, 2009; Uyar, 2011; Uyar, 2012; Hossain & Hammami, 2009; Hossain 2008; Bonson & Escobar, 2006; Abdullah & Ku Ismail, 2008; Adelopo, 2011; Raffournier, 1995) found a positive association between the firm size and voluntary disclosure level. There are some reasons for this relationship. For the large companies, disclosing information is less costly because they already accumulate to disclose information through information system and this process matches with the company's objectives. Thus, the following hypothesis is developed:

***H<sub>1</sub>**: There is a positive association between the firm size (as measured by total assets) and graphical disclosure level in annual reports.*

## **2.7.2 Performance**

Performance is a measure of how well and effective the firm uses its assets and generates profits. Performance is also used for measuring the firm's current financial health over a given period of time and it helps comparing firms and the sector or industry.

There are many tools in order to measure performance of firms such as profit margin, earnings per share, return on assets, return on equity etc. If the return on investment is high, corporation has a tendency to disclose more detailed information in order to give more information about their current financial position and remuneration. Conversely, if the return on investment is less, the corporation prefers to disclose less information (Raffournier, 1995). The use of graphical presentation for financial variables and the choice of which variables are graphed depend on performance of the firm.

Regarding the previous studies, it is found that there is a significant relationship between the graphical disclosure and profitability (Mather *et al.*, 2000; Steinbart, 1989). On the other hand, no significant relationship was found between the voluntary disclosure level and performance by Beattie and Jones (1992a, 1992b), Uyar (2009, 2012), Adelopo (2011), Hossain and Hammam, (2009); Saad, Yahya, and Hussain (2011). Thus, the following hypothesis is formulated:

***H<sub>2</sub>**: There is a positive association between performance of the firm and graphical disclosure level in annual reports.*

In this study, performance is measured by return on assets.

## **2.7.3 Auditor Size**

Another hypothesis, about whether the audit firms impact graphical disclosure level or not. It is examined whether the firms which are audited by

Big4 or Non-Big4, disclose more graphs in their annual reports or not. In previous studies, there is a relationship between voluntary disclosure level and audit firm size (Bonson & Escobar, 2006; Adelopo, 2011).

Audit firms provide the assurance for the financial statements of the firms' stakeholders, members, and clients. According to Reynolds and Francis (2001), the audit firms are more careful and conservative in process of auditing larger companies. Because the larger companies have more reputation in society and money market, they have better corporate governance and have lower operation risk. It can be referred from the combination of the first hypothesis and the explanation above; the firm size affects a graphical disclosure level, audit firm is correlated with the firm size. Consequently, auditor size is associated with the graphical disclosure level.

In Turkey, there are the members of each of Big4. Namely, DRT Bagimsiz Denetim ve S.M.M.M A.S is the member of Deloitte; Basaran Nas Bagimsiz Denetim ve S.M.M.M A.S is affiliated with PricewaterhouseCoopers; Güney Bagimsiz Denetim ve S.M.M.M A.S is the member of Ernst & Young; Akis Bagimsiz Denetim ve S.M.M.M A.S is the member of KPMG (Wikipedia, 2011).

Based on previous studies, there is a positive significant relationship between the auditor size and the voluntary disclosure of graphs in annual reports (Uyar, 2011). Thus, the hypothesis is developed as follows:

***H<sub>3</sub>:** There is a positive association between audit firm size and graphical disclosure level in annual reports.*

#### **2.7.4 Ownership Structure**

Ownership structure gives more detailed information about managerial power, disclosure policies, financial and investment decisions of the firms (Jiang *et al.*, 2011).

Ownership structure can be classified into two aspects. The first is concentrated or family ownership and the second is diffused ownership. If all

shareholders own large number of shares and have the sizable percentage of the company's shares, it is defined as ownership concentration. Especially in some countries with poor investor protection, the firms are controlled by concentrated ownership (Brink, 2011). According to some previous studies, there is an inverse relationship between the firm's concentrated ownership structure and investors' protection rules (Brink, 2011; Burkart & Panunzi, 2006). On the other hand, if the company's shares are held by the large number of shareholders with the small percentage of shares it is called ownership diffusion.

The absence of the ownership diffusion requires lower level disclosure practices. For example, family-controlled firms disclose less information to the public since the need of disclosing information for the public is relatively weak in the family-owned companies, compared to the firms whose ownership structure is diffused (Chau & Gray, 2002).

According to some previous studies, there is no significant association between the ownership structure and the voluntary graphical disclosure level in the annual reports (Uyar, 2011; Raffournier, 1995). Hence, the hypothesis is developed as follows:

***H<sub>4</sub>:** There is a positive association between ownership diffusion and graphical disclosure level in annual reports.*

### **2.7.5 Leverage**

Leverage can be described as the firm's financial structure and measured as the firm's long-term debt (Abdullah & Ku Ismail, 2008). In this thesis, leverage is defined as the ratio of total liabilities to total assets of the firm. According to agency theory, there is a positive relationship between voluntary disclosure and leverage (Abdullah & Ku Ismail, 2008). However, some studies found that there is no significant relationship between



voluntary disclosure level and leverage (Abdullah and Ku Ismail, 2008; Adelopo, 2011; Raffournier, 1995).

***H<sub>5</sub>**: There is a positive association between leverage and graphical disclosure level in annual reports.*

### **2.7.6 Sales Growth**

Sales growth measures the increase in sales relative to previous year. High growth firms are more inclined to signal their performance to their stakeholders. Therefore, they are expected disclose more information to their stakeholders. Thus, the following hypothesis is developed:

***H<sub>6</sub>**: There is a positive association between sales growth and graphical disclosure level in annual reports.*

## **CHAPTER 3**

### **RESEARCH METHODOLOGY AND ANALYSIS**

#### **3.1. Scope and Methodology**

The sample of this thesis is the manufacturing firms which are publicly listed in the Istanbul Stock Exchange (ISE) for the years 2005, 2008, and 2010. In order to reach the confidential results, 2005, 2008, and 2010 were selected as a sample. Electronic versions of annual reports for the years 2005, 2008, and 2010 were downloaded from the corporate websites of the companies. Out of 134 companies, annual reports of 11 corporations could not be reached for the year 2005, annual reports of 4 corporations could not be reached for the year 2008, and annual reports of 3 corporations could not be reached for the year 2010.

In this thesis, content analysis was conducted on the corporate annual reports of the manufacturing firms which were publicly listed in the ISE. Annual reports were analyzed to determine the number of graphs and the type of graphs disclosed by each firm.

The research model consists of one dependent variable TOTGRAPHS (total number of graphs represented by the firms in annual reports) and six independent variables: FSIZE (firm size which is measured by total assets), PERF (performance of the firms which is measured by return on assets), AUDSIZE (audit firm is either a member of Big4 or Non-Big4), OWNERSHIP (ownership structure which is measured by the percentage of shares held by unknown shareholders), LEVERAGE (measured by debt-to-assets ratio), and SGROWTH (Sales growth which is measured by the increase in sales relative to previous year). The explanation of variables is presented in Table 1.

In order to investigate the determinants of voluntary graphical disclosure level in the annual reports, the following model was set up:

$$\text{TOTGRAPHS} = \beta_0 + \beta_1\text{FSIZE} + \beta_2\text{PERF} + \beta_3\text{AUDSIZE} + \beta_4\text{OWNERSHIP} + \beta_5\text{LEVERAGE} + \beta_6\text{SGROWTH} + \varepsilon$$

**Table 1:** Explanation of Dependent and Independent Variables

<b>Variable</b>	<b>Explanation</b>
<b>Dependent Variable</b>	
TOTGRAPHS	Total number of graphs disclosed in annual report
<b>Independent Variables</b>	
FSIZE	Firm size which is measured by total assets
PERF	Performance which is measured by return on assets (that is, net income/total assets)
AUDSIZE	Type of the auditor (that is, 1 for the Big-4, 0 for non-Big-4)
OWNERSHIP	Ownership structure of the firm (that is, the percentage of shares held by unknown shareholders)
LEVERAGE	Leverage which is measured by debt-to-assets (that is, total liabilities/ total assets)
SGROWTH	Sales growth which is measured by the increase in sales relative to previous year.

## **3.2. Research Findings**

### **3.2.1. Descriptive Statistics**

Table 2, 3, & 4 present the descriptive statistics for the years 2005, 2008, and 2010 respectively. Table 5 gives descriptive statistics for the three years together. In 2005, 53 companies out of 123 (43.01 per cent) do not disclose any graphs in their annual reports. In 2008, 55 companies out of 130 (42.31 per cent) do not disclose any graphs in their annual reports. In 2010, 52 companies out of 131 (39.7 per cent) do not disclose any graphs in their annual reports. On average, firms disclose 4.26 graphs per annual report in

2005, 5.22 graphs in 2008, and 5.56 graphs in 2010. This shows that firms disclose more graphs increasingly from year to year.

A similar trend is observed for audit firms. The percentages of firms who work with Big4 auditing firms were 0.5, 0.52, and 0.53 in 2005, 2008, and 2010 respectively. Thus, firms working with Big4 are increasing from year to year.

Out of these 123 companies, 61 companies worked with Big4 auditing firm, while 62 companies worked with non-Big4 auditing firms in 2005. Out of these 130 companies, 68 companies worked with Big4 auditing firm, while 62 companies worked with non-Big4 auditing firms in 2008. Out of these 131 companies, 69 companies worked with Big4 auditing firm, while 62 companies worked with non-Big4 auditing firms in 2010. As a conclusion, the importance of working with Big4 increases from year to year.

**Table 2:** Descriptive Statistics for the Year 2005

	N	Minimum	Maximum	Mean	Std. Deviation
TOTAL	123	0	32	4.26	6.16
ASSETS	123	6,285,767	7,190,977,304	544,847,359.1	1,101,724,425
SALES	123	7,431,962	14,844,803,951	700,474,461.5	1,920,671,177
ROA	123	-36.41	31.11	4.21	9.54
LEVERAGE	123	5.74	119.89	39.88	19.45
GROWTH	123	-66.79	502.76	16.68	65.39
OWNERSHIP	123	%1.96	%100	%35.40	%19.07
AUDITOR	123	0	1	0.50	0.502

**Table 3:** Descriptive Statistics for the Year 2008

	N	Minimum	Maximum	Mean	Std. Deviation
TOTAL	130	0	43	5.22	7.96
ASSETS	130	8,629,145	11,941,143,767	790,848,242.8	1,650,054,637
SALES	130	4,842,489	30,456,399,000	1,017,824,010	3,239,686,225
ROA	130	-53.02	47.52	0.55	13.37
LEVERAGE	130	2.94	129.24	46.69	25.36
GROWTH	130	-85.56	1,593.24	19.91	141.05
OWNERSHIP	130	%2.56	%99.9	%35.34	%19.00
AUDITOR	130	0	1	0.52	0.501

**Table 4:** Descriptive Statistics for the Year 2010

	N	Minimum	Maximum	Mean	Std. Deviation
TOTAL	131	0	49	5.56	8.18
ASSETS	131	8,260,97	13,918,037,000	926,848,584.17	2,015,259,122.69
SALES	131	4,090,31	26,218,720,000	1,035,191,345.0	2,941,449,492.29
ROA	131	-26.76	43.16	3.98	8.64
LEVERAGE	131	-31.22	142.42	21.19	22.66
GROWTH	131	2.42	103.56	43.95	22.75
OWNERSHIP	131	%0.72	%100	%34.85	%20.30
AUDITOR	131	0	1	0.53	0.501

**Table 5:** Descriptive Statistics for 3-year

	N	Minimum	Maximum	Mean	Std. Deviation
TOTAL	384	0	49	5.03	7.51
ASSETS	384	6,285,767	13918,037,000	758,447,034.52	1,645,261,685.12
SALES	384	4,090,310	30,456,399,000	922,097,776.78	2,769,503,739.91
ROA	384	-53.02	47.52	2.89	10.83
LEVERAGE	383	-31.22	142.42	35.85	25.09
GROWTH	384	-85.56	1593.24	27.07	91.59
OWNERSHIP	384	%0.72	%100	%35.19	%19.43
AUDITOR	384	0	1	0.52	0.5

### 3.2.2. Variables Graphed

Companies disclose financial and non-financial graphs in their annual reports to inform their stakeholders and readers. In previous studies, Uyar (2009) found that sales, earnings, market share, ownership structure, share performance, credits, assets, etc. were mostly graphed for Turkish companies. According to Beattie and Jones (1992a, 1992b), sales, profit before tax, earnings per share (EPS), and dividend per share (DPS) were mostly graphed by 240 listed companies. In another study worked by Beattie and Jones (2001), mostly graphed variables are sales, earnings per share (EPS), dividend per share (DPS), return on capital employed (ROCE), and cash flow.

Analysis of graphed variables is given in Table 6. The table provides number of graphs presented for each variable for the years 2005, 2008, and 2010 and total of three years. "Others" category includes the variables whose number of graphs is less than 9. The results indicate that the most frequently graphed variables in three years are sales (823 graphs), production (288 graphs), profit (162 graphs), share performance (105 graphs), and employee (70 graphs).

Sales are mostly graphed for 3 years, but there is no increase over years. Profit, total costs, share performance, ownership structure, and equity graphs increase from 2005 to 2010.

Total number of graphs disclosed in annual reports in 2005, 2008, and 2010 is 524, 678, and 729 respectively. Thus, firms disclose more and more graphs in annual reports every year.

**Table 6:** Total number of graphs for 3 years

	2005	2008	2010	TOTAL
SALES	215	312	296	823
PRODUCTION	100	102	86	288
OTHERS	65	44	82	191
PROFIT	33	50	79	162
SHARE PERFORMANCE	22	41	42	105
EMPLOYEE	18	27	25	70
SOCIAL RESPONSIBILITY	13	26	26	65
ASSETS	17	21	21	59
OWNERSHIP STRUCTURE	10	14	29	53
TOTAL COST	10	14	16	40
EQUITY	10	14	15	39
LIABILITY	11	13	12	36
TOTAL	524	678	729	1931

### **3.2.3. Correlation Analysis**

Table 7 represents the results of Pearson correlation analysis between total number of graphs and firm characteristics such as sales, return on assets (ROA), leverage, growth, ownership structure, and auditor firm size. The results indicate that there are significant correlation between graphical disclosure level, the variables; sales (at 0.01 level), growth (at 0.05 level), and auditor firm size (at 0.05 level). This means that the larger companies have a tendency to disclose more graphs in their annual reports. In addition, as the firms' sales increase year by year, the firms prefer to present graphs in their annual reports. Furthermore, the firms which work with Big-4 auditing firms are more likely to disclose graphs. On the other hand, there are no relationship between graphical disclosure level and the variables; leverage, performance of the firm, ownership structure, and year.

**Table 7: Correlation Analysis**

	TOTGRAPHS	FSIZE	PERF	AUDITOR	OWNERSHIP	LEVERAGE	SGROWTH	YEAR
TOTGRAPHS	1	0.547**	0.045	0.122*	-0.050	-0.017	0.120*	0.070
FSIZE	0.547**	1	0.067	0.198**	-0.055	0.051	0.021	0.049
PERF	0.045	0.067	1	0.015	-0.061	-0.375**	0.063	-0.006
AUDITOR	0.122*	0.198**	0.015	1	-0.394**	-0.030	0.009	0.025
OWNERSHIP	-0.050	-0.055	-0.061	-0.394**	1	-0.024	0.016	-0.012
LEVERAGE	-0.017	0.051	-0.375**	-0.030	-0.024	1	-0.113*	0.308**
SGROWTH	0.120*	0.021	0.063	0.009	0.016	-0.113*	1	0.122*
YEAR	0.070	0.049	-0.006	0.025	-0.012	-0.308**	0.122*	1

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

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



### **3.2.4. Regression Analysis**

In order to test the hypotheses Ordinary Least Square regression analysis was conducted. Table 8 & 9 show the results of the multiple regression analysis for 3 years in the study. Regression has been used in many previous researches (e.g. Ho and Wong, 2001; Chau and Gray, 2002; Raffournier, 1995; Uyar, 2011). The table shows the association between graphical voluntary disclosure and experimental variables. The results indicate an adjusted R-square of 0.355 and F-value of 31.064 which is significant at the 0.000 levels. According to Table 8, these values suggest that a 35.5 per cent of the variation in graphical voluntary disclosure can be explained by set of independent variables. The findings indicate that firm size which is measured by total assets has positive significant impact on graphical disclosure level (at 0.01-level). The result suggests that larger firms have a tendency to disclose more graphs in their annual reports. This result is similar to that of Uyar (2011); Uyar, 2009; Hossain and Hammami (2009); Hossain (2008). Thus, H<sub>1</sub> is accepted.

H<sub>2</sub> states that there is a positive association between performance of the firm and graphical disclosure level in annual reports. As shown in Table 8, the coefficient of PERF is not significant. Hence, H<sub>2</sub> is rejected.

H<sub>3</sub> states that there is a positive association between audit firm size and graphical disclosure level in annual reports. As shown in Table 8, the coefficient of AUDSIZE is not significant. Hence, H<sub>3</sub> is rejected.

H<sub>4</sub> states that there is a positive association between ownership diffusion and graphical disclosure level in annual reports. As shown in Table 8, the coefficient of OWNERSHIP is not significant. Hence, H<sub>4</sub> is rejected.

H<sub>5</sub> states that there is a positive association between leverage and graphical disclosure level in annual reports. As shown in Table 8, the coefficient of LEVERAGE is not significant. Hence, H<sub>5</sub> is rejected.

H<sub>6</sub> states that there is a positive association between sales growth and graphical disclosure level in annual reports. As shown in Table 8, the coefficient of SGROWTH is significant at 0.05-level. Hence, H<sub>6</sub> is accepted.

In Table 9, assets were replaced with sales revenues and the regression was run again. In this analysis, it is indicated an adjusted R-square of 0.30 and F-value of 24.440 which is significant at the 0.000 levels. According to Table 9, these values suggest that a 30 per cent of the variation in graphical voluntary disclosure can be explained by set of independent variables. However, the significant variables did not change. According to this model, firm size (at 0.01-level), and sales growth (at 0.05-level) were significant and other variables were not.

Moreover, regression analyses were run for each year separately. The result of multiple regression analysis for the year 2005 is presented in Table 10. The table shows the association between graphical voluntary disclosure and experimental variables in 2005. The results indicate an adjusted R-square of 0.136 and F-value of 4.201 which is significant at the 0.001 levels. These values suggest that 13.6 per cent of the variation in graphical voluntary disclosure can be explained by the variations in the whole set of independent variables. The result suggests that larger firms had a tendency to disclose more graphs in their annual reports in 2005. As the sales of the firms increased, they disclosed more graphs in their annual reports in 2005.

Table 11 shows the results of multiple regression analysis for the year 2008. The results indicate an adjusted R-square of 0.29 and F-value of 9.762 which is significant at the 0.000 levels. These values suggest that 29 per cent of the variation in graphical voluntary disclosure can be explained by the variations in the whole set of independent variables. The result suggests that larger firms had a tendency to disclose more graphs in their annual reports in 2008. As the sales of the firms increased, they disclosed more graphs in their annual reports in 2008.

Regression analysis was run for the year 2010. The results indicate an adjusted R-square of 0.381 and F-value of 14.212 which is significant at the 0.000 levels as shown in Table 12. These values suggest that 38.1 per cent of the variation in graphical voluntary disclosure can be explained by the variations in the whole set of independent variables. The result suggests that larger firms had a tendency to disclose more graphs in their annual reports in 2010. As a result of these, the firm size has a significant impact on graphical disclosure level for the year 2005, 2008, and 2010. Although sales growth was impact on graphical disclosure level in 2005, and 2008, there is no relationship found between graphical disclosure level and sales growth in 2010. However, the other independent variables which are performance of the firm, auditor firm size, ownership structure, and leverage have no significant impact on graphical disclosure level for each year.

**Table 8:** Regression Analysis for 3 years (Dependent Variable TOTGRAPHS graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	3.942	1.458		2.705	0.007	
FSIZE(ASSETS)	2.759E-009	0.000	0.064	14.038	0.000	1.098
PERF	-0.014	0.031	-0.021	-0.459	0.647	1.211
AUDSIZE	-0.703	0.697	-0.047	-1.009	0.314	1.273
OWNERSHIP	-0.014	0.017	-0.037	-0.823	0.411	1.200
LEVERAGE	-0.006	0.014	-0.021	-0.446	0.656	1.332
SGROWTH	0.009	0.003	0.105	2.535	0.012	1.024
YEAR	-0.054	0.408	-0.006	-0.132	0.895	1.153

Dependent Variable: TOTGRAPHS

Adjusted R<sup>2</sup>: 35.5%

F<sub>Value</sub>: 31.064

Significance: 0.000<sup>b</sup>

**Table 9:** Regression Analysis for 3 years (Dependent Variable=TOTGRAPHS graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	3.646	1.517		2.403	0.017	
FSIZE(SALES)	1.476E-009	0.000	0.544	12.341	0.000	1.062
PERF	-0.007	0.033	-0.010	-0.218	0.827	1.209
AUDSIZE	0.070	0.715	-0.005	0.097	0.923	1.237
OWNERSHIP	-0.008	0.018	-0.021	-0.445	0.657	1.197
LEVERAGE	-0.009	0.015	-0.031	-0.623	0.534	1.338
SGROWTH	0.008	0.004	0.103	2.379	0.018	1.024
YEAR	0.193	0.423	0.021	0.455	0.649	1.145

Dependent Variable: TOTGRAPHS

Adjusted R<sup>2</sup>: 30%

F<sub>Value</sub>: 24.440

Significance: 0.000<sup>b</sup>

**Table 10:** Regression Analysis for the year 2005 (Dependent Variable=TOTGRAPHS graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	2.596	2.038		1.274	0.205	
FSIZE(SALES)	1.332E-009	0.000	0.415	4.747	0.000	1.080
PERF	-0.041	0.064	-0.063	-0.643	0.521	1.374
AUDSIZE	0.420	1.152	0.034	0.365	0.716	1.243
OWNERSHIP	0.037	0.030	0.115	1.258	0.211	1.178
LEVERAGE	-0.014	0.031	-0.045	-0.463	0.644	1.341
SGROWTH	-0.003	0.008	-0.031	-0.359	0.720	1.068

Dependent Variable: TOTGRAPHS

Adjusted R<sup>2</sup>: 13.6%

F<sub>Value</sub>: 4.201

Significance: 0.001<sup>b</sup>

**Table 11:** Regression Analysis for the year 2008 (Dependent Variable=TOTGRAPHS graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	5.745	2.352		2.443	0.016	
FSIZE(SALES)	1.304E-009	0.000	0.531	6.854	0.000	1.090
PERF	-0.003	0.058	-0.006	-0.058	0.954	1.694
AUDSIZE	-0.194	1.363	-0.012	-0.142	0.887	1.338
OWNERSHIP	-0.036	0.035	-0.087	-1.044	0.299	1.252
LEVERAGE	-0.015	0.030	-0.047	-0.483	0.630	1.681
SGROWTH	0.011	0.004	0.186	2.484	0.014	1.022

Dependent Variable: TOTGRAPHS

Adjusted R<sup>2</sup>: 29%

F<sub>Value</sub>: 9.762

Significance: 0.000<sup>b</sup>

**Table 12:** Regression Analysis for the year 2010 (Dependent Variable=TOTGRAPHS graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	4.114	2.304		1.786	0.077	
FSIZE(SALES)	1.763E-009	0.000	0.634	8.688	0.000	1.110
PERF	0.018	0.080	0.019	0.225	0.822	1.488
AUDSIZE	-0.220	1.253	-0.013	-0.176	0.861	1.218
OWNERSHIP	-0.015	0.031	-0.038	-0.486	0.628	1.241
LEVERAGE	-0.005	0.025	-0.015	-0.208	0.836	1.030
SGROWTH	0.007	0.030	0.19	0.228	0.820	1.422

Dependent Variable: TOTGRAPHS

Adjusted R<sup>2</sup>: 38.1%

F<sub>Value</sub>: 14.212

Significance: 0.000<sup>p</sup>

After conducting above four main regression analyses, additional analyses were conducted to check whether there is a selective disclosure or not. For this purpose, the dependent variable TOTGRAPHS were replaced by the sub-graph types (e.g. PRODUCTION, SALES, PROFIT, LIABILITY, ASSETS, TOTAL COSTS, SHARE PERFORMANCE, OWNERSHIP STRUCTURE, EQUITY, EMPLOYEE, and SOCIAL RESPONSIBILITY). The results of this regression analysis are provided in Appendices (Table 15, Table 16, Table 17, Table 18, Table 19, Table 20, Table 21, Table 22, Table 23, Table 24, and Table 25).

Table 15 shows the results of the multiple regression analysis for 3 years in the study to determine the relationship between production graphs level and the experimental variables. The results indicate an adjusted R-square of 0.211 and F-value of 15.560 which is significant at the 0.000 levels. According to Table 15, these values suggest that a 21.1 per cent of the variation in production graphs can be explained by set of independent variables. The findings indicate that firm size which is measured by total assets has positive significant impact on production graphs (at 0.01-level). The result suggests that larger firms have a tendency to disclose more production graphs in their annual reports.

In Table 16, it is shown the relationship between sales graphs and the experimental variables. The results indicate an adjusted R-square of 0.107

and F-value of 7.528 which is significant at the 0.000 levels. According to Table 16, these values suggest that a 10.7 per cent of the variation in sales graphs can be explained by set of independent variables. The findings indicate that firm size which is measured by sales revenues has positive significant impact on sales graphs (at 0.01-level). The result shows that the firms which have more sales revenues have a tendency to disclose more sales graphs in their annual reports.

In Table 17, it is shown the relationship between profit graphs and the experimental variables. The results indicate an adjusted R-square of 0.179 and F-value of 12.870 which is significant at the 0.000 levels. According to Table 17, these values suggest that a 17.9 per cent of the variation in profit graphs can be explained by set of independent variables. The findings indicate that firm size which is measured by total assets has positive significant impact on profit graphs (at 0.01-level), sales growth has positive significant relationship between profit graphs (at 0.05-level), but there is a negative significant relationship between ownership structure and profit graphs (at 0.05-level). In other words, the firms whose ownership structure is not diffused, they present more profit graphs in their annual reports.

In Table 18, it is shown the relationship between liability graphs and the experimental variables. The results indicate an adjusted R-square of 0.091 and F-value of 6.491 which is significant at the 0.000 levels. According to Table 18, these values suggest that a 9.1 per cent of the variation in liability graphs can be explained by set of independent variables. The findings indicate that firm size, which is measured by total assets, and sales growths have positive significant relationship between liability graphs (at 0.01-level). The result shows that the firms which have more sales revenues have a tendency to disclose more liability graphs in their annual reports.

In Table 19, it is shown the relationship between assets graphs and the experimental variables. The results indicate an adjusted R-square of 0.028 and F-value of 2.599 which is significant at the 0.013 levels. According to

Table 19, these values suggest that a 2.8 per cent of the variation in assets graphs can be explained by set of independent variables. The findings indicate that firm size, which is measured by total assets have not relationship between assets graphs (at 0.01-level). The result shows that the firms which have more assets did not disclose assets graphs in their annual reports. It is concluded from this, there is no selective disclosure for the firms which have more assets. In this table, there is only relationship between sales growth and assets graphs. Thus, the firms which have more sales revenues in comparison with previous year have a tendency to disclose more assets graphs in their annual reports.

In Table 20, it is shown the relationship between total costs graphs and the experimental variables. The results indicate an adjusted R-square of 0.191 and F-value of 13.862 which is significant at the 0.000 levels. According to Table 20, these values suggest that a 19.1 per cent of the variation in total costs graphs can be explained by set of independent variables. The findings indicate that firm size, which is measured by total assets have relationship between total assets graphs (at 0.01-level). In other words, the larger firms disclose more total costs graphs.

In Table 21, it is shown the relationship between share performance graphs and the experimental variables. The results indicate an adjusted R-square of 0.01 and F-value of 1.557 which is significant at the 0.147 levels. According to Table 21, these values suggest that a 1 per cent of the variation in share performance graphs can be explained by set of independent variables. The findings indicate that firm size, which is measured by total assets have relationship between share performance graphs (at 0.01-level). As a result, the larger companies disclose more share performance graphs.

In Table 22, it is shown the relationship between ownership structure graphs and the experimental variables. The results indicate an adjusted R-square of 0.053 and F-value of 4.081 which is significant at the 0.000 levels. According to Table 22, these values suggest that a 5.3 per cent of the

variation in ownership structure graphs can be explained by set of independent variables. The findings indicate that auditor firm size, which is measured by Big-4 or non-Big-4 companies have significant relationship between ownership structure graphs (at 0.01-level). Thus, the firms which work with Big-4 auditor firms have a tendency to disclose more ownership structure graphs in their annual reports. The other valid variable is year (at 0.05-level). It can be concluded that the firms present more ownership structure graphs in 2010 rather than in 2008, and present more ownership structure graphs in 2008 rather than 2005.

In Table 23, it is shown the relationship between equity graphs and the experimental variables. The results indicate an adjusted R-square of -0.004 and F-value of 0.785 which is significant at the 0.600 levels. According to Table 23, these values suggest that a -0.4 per cent of the variation in equity graphs can be explained by set of independent variables. The findings indicate that sales growth, which is measured by increasing in sales have significant relationship between equity graphs (at 0.05-level).

In Table 24, it is shown the relationship between employee graphs and the experimental variables. The results indicate an adjusted R-square of 0.141 and F-value of 9.938 which is significant at the 0.000 levels. According to Table 24, these values suggest that a 14.1 per cent of the variation in employee graphs can be explained by set of independent variables. The findings indicate that larger firms presented more employee graphs (at 0.01-level).

In Table 25, it is shown the relationship between social responsibility graphs and the experimental variables. The results indicate an adjusted R-square of 0.301 and F-value of 24.509 which is significant at the 0.000 levels. According to Table 25, these values suggest that a 30.1 per cent of the variation in social responsibility graphs can be explained by set of independent variables. The findings indicate that larger firms presented more social responsibility graphs (at 0.01-level).



As a result of all these additional regression analyses, there are no selective disclosure practices. These additional regression analyses support the main regression analysis. In other words, the firm size has significant relationship between graphical disclosure level according to main regression analysis, and the firm size has significant relationship between experimental variables such as production, sales, profit, liability, total costs, etc.

### **3.2.5. The reasons of Not Disclosing Graphs**

The sample of this thesis is the manufacturing firms which are publicly listed in the Istanbul Stock Exchange (ISE) for the years 2005, 2008, and 2010. In 2005, 53 companies out of 123 (43.01 per cent) did not disclose any graphs in their annual reports. In 2008, 55 companies out of 130 (42.31 per cent) did not disclose any graphs in their annual reports. In 2010, 52 companies out of 131 (39.7 per cent) did not disclose any graphs in their annual reports. As a result, companies which did not disclose graphs in their annual reports are almost same for the three years. In order to find out the reasons of not disclosing graphs in their annual reports, a survey was conducted on these companies. The survey contains three questions. The first question is whether the companies are aware of the regulation issued by CPM (Table 27) regarding disclosure practices. The first question was evaluated on a Yes/No basis. The second question is the reasons of not disclosing graphs in their annual reports. The second question was evaluated based on a Likert scale of 1 to 5 (1: Totally Disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Totally Agree). The last question is what extent do the firms agree the advantages of graphical presentation in annual reports. The last question was evaluated based on a Likert scale of 1 to 5 (1: Totally Disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Totally Agree). In order to determine the answers of the companies, these companies were phoned and send the survey via e-mail. Although it is reached to all companies, only 15 companies out of 73 companies answered the survey questions. According the result of

the questionnaire, all companies are aware of the legislation issued by CPM. According to Table 13, the companies do not prefer to present graphs. The other reasons of not disclose graphs are to think that the graphical disclosure is not important, to believe that the graphical disclosure is not beneficial for the investors and the stakeholders, to not want to provide more information against their competitors, the reporting and analyzing are not taken into account by the firms, and to have poor performance.

According to Table 14, the advantages of graphical disclosure are:

- Graphs make the information more understandable.
- They are more comparable.
- They are easily recalled by annual report readers.
- They are more user-friendly than tables.
- They are more attractive.
- They are effective for summarizing financial and non-financial data.

**Table 13:** The Reasons of Not Disclosing Graphs in Annual Reports

<b>The Reasons of Not Disclosing Graphs in Annual Reports</b>	<b>Mean</b>
It is preferred to present tables rather than graphs.	3.38
It is thought that the graphical disclosure is not important.	2.38
It is not believed that the graphical disclosure is not beneficial for the investors and their stakeholders.	2.15
It is not wanted to provide more information against their competitors.	1.54
Reporting and analyzing are not taken into account by the firms.	1.31
Having poor performance.	1.23

**Table 14:** What Extent Do You Agree the Advantages of Graphical Presentation in Annual Reports

<b>What Extent Do You Agree the Advantages of Graphical Presentation in Annual Reports</b>	<b>Mean</b>
Make the information more understandable.	4.2
More comparable	4.2
Easily recalled by annual report readers.	4.13
More user-friendly than tables.	4.07
More attractive	3.93
Effective for summarizing financial and non-financial data.	3.8

## **CONCLUSION, IMPLICATIONS, LIMITATIONS**

Although there are a lot of voluntary disclosure studies, there are a few voluntary graphical disclosure studies. This thesis aims to investigate the graphical disclosure level of Turkish listed companies, to determine the firm characteristics that influence graphical disclosure level, and to investigate the reasons why some firms do not disclose graphs in annual reports.

This study presents an empirical study of voluntary graphical disclosure in annual reports of manufacturing companies listed in ISE. According to the findings of analysis:

- 56.9 percent of the companies represented graphs in their annual reports in 2005, 57.69 percent of the companies represented graphs in their annual reports in 2008, and 60.3 percent of the companies represented graphs in their annual reports in 2010. As the years pass, the firms tend to disclose more graphs.
- The average number of graphs disclosed in annual reports is 4.26 in 2005, is 5.22 in 2008, and is 5.56 in 2010.
- The most widely graphed variables are sales, production.

According to the results of Pearson correlation analysis, there are significant correlation between graphical disclosure level, and assets (at 0.01 level), and sales (at 0.01 level), and growth (at 0.05 level), and auditor firm size (at 0.05 level). This means that the larger companies have a tendency to disclose more graphs in their annual reports. In addition, as the firms' sales increase year by year, the firms prefer to present graphs in their annual reports. Furthermore, the firms which work with Big-4 auditing firms are more likely to disclose graphs. On the other hand, there are no relationship between graphical disclosure level and leverage, and performance of the firm, and ownership structure.

In order to test the influence of firm characteristics on voluntary disclosure of graphs in annual reports, six hypotheses were proposed. The results of multivariate analyses showed that the firm size has significant relationship

between graphical disclosure level at 0.01-level, and sales growth has significant relationship between graphical disclosure level at 0.05-level. On the other hand, opposite of the expectations, performance, auditor firm size, ownership structure, and leverage do not have any significant association with graphical disclosure level.

The results of other additional regression analyses provided that whether there is a selective disclosure or not. As it is seen in the results of analyses, there is no selective disclosure among the firms which are listed manufacturing companies in the I.S.E.

In order to determine the reasons of not disclosing graphs, a survey was conducted. According the answers of the survey the companies prefer tables over graphs. The other reasons of not disclose graphs are to assume that the graphical disclosure is not important, to believe that the graphical disclosure is not beneficial for the investors and the stakeholders, not to want to provide more information against their competitors, the reporting and analyzing are not taken into account by the firms, and to have poor performance. Meanwhile, all respondents agree on the advantages of graphical presentation, such as making the information more understandable, more comparable, more recallable, user-friendly, and more attractive.

This thesis offers certain implications for the firms. During data collection and analysis, it is seen that some firms do not disclose any graphs in their annual reports. As it is mentioned the advantages of graphical disclosure in the third part, the firms should disclose graphs in their annual reports. Furthermore, Capital Markets Board of Turkey is the governmental regulatory and supervisory body for the capital markets. The Communiqué Serial: IV, No: 54 introduce the inclusion of graphical and statistical information (3.2.3, p.18). Regardless of this rule, in 2005, 53 companies out of 123 (43.01%) not disclose any graphs in their annual reports. In 2008, 55 companies out of

130 (42.31%) not disclose any graphs in their annual reports. In 2010, 52 companies out of 131 (39.7%) not disclose any graphs in their annual reports. According to this regulation, companies should disclose at least sales, income, share performance, profit, or production graphs in their annual reports.

This thesis has its limitations. The sample of this study is the manufacturing firms which are listed in ISE for the year 2005, 2008, and 2010. The findings and results may not be valid for non-listed manufacturing firms and the all listed companies in ISE.

## APPENDICES

### Appendix 1: Regression Analyses

**Table 15:** Regression Analysis for 3 years (Dependent Variable=PRODUCTION graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	1.095	0.375		2.919	0.004	
FSIZE(Assets)	5.185E-01	0.000	0.488	10.249	0.000	1.098
PERF	0.002	0.008	0.015	0.291	0.771	1.211
AUDSIZE	-0.318	0.179	-0.091	-1.771	0.077	1.273
OWNERSHIP	-0.002	0.004	-0.025	-0.508	0.612	1.200
LEVERAGE	-0.003	0.004	-0.040	-0.767	0.444	1.332
SGROWTH	0,000	0,001	-0,006	-0,122	0,903	1,024
YEAR	-0,196	0,105	-0,091	-1,871	0,062	1,153

Dependent Variable: PRODUCTION

Adjusted R<sup>2</sup>: 21.1%

F<sub>Value</sub>: 15.560

Significance: 0.000<sup>p</sup>

**Table 16:** Regression Analysis for 3 years (Dependent Variable=SALES graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	1.815	0.839		2.163	0.031	
FSIZE(Sales)	4.272E-01	0.000	0.322	6.459	0.000	1.062
PERF	-0.021	0.018	-0.061	-1.142	0.254	1.209
AUDSIZE	0.176	0.395	0.024	0.444	0.657	1.237
OWNERSHIP	-0.009	0.010	-0.050	-0.940	0.348	1.197
LEVERAGE	-0.002	0.008	-0.015	-0.262	0.793	1.338
SGROWTH	0.004	0.002	0.091	1.857	0.064	1.024
YEAR	0.106	0.234	0.024	0.455	0.650	1.145

Dependent Variable: SALES

Adjusted R<sup>2</sup>: 10.7%

F<sub>Value</sub>: 7.528

Significance: 0.000<sup>p</sup>

**Table 17:** Regression Analysis for 3 years (Dependent Variable=PROFIT graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	0.340	0.221		1.537	0.125	
FSIZE(Assets)	2.440E-01	0.000	0.397	8.173	0.000	1.098
PERF	0.004	0.005	0.038	0.744	0.457	1.211
AUDSIZE	-0.170	0.106	-0.084	-1.610	0.108	1.273
OWNERSHIP	-0,007	0.003	-0.127	-2.499	0.013	1.200
LEVERAGE	-0.001	0.002	-0.017	-0.317	0.751	1.332
SGROWTH	0.001	0.001	0.102	2.169	0.031	1.024
YEAR	0.099	0.062	0.079	1.591	0.112	1.153

Dependent Variable: PROFIT

Adjusted R<sup>2</sup>: 17.9%

F<sub>Value</sub>: 12.870

Significance: 0.000<sup>b</sup>

**Table 18:** Regression Analysis for 3 years (Dependent Variable=LIABILITY graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	0.146	0.103		1.421	0.156	
FSIZE(Assets)	5.091E-01	0.000	0.187	3.665	0.000	1.098
PERF	-0.001	0.002	-0.018	-0.332	0.740	1.211
AUDSIZE	-0.075	0.049	-0.084	-1.527	0.128	1.273
OWNERSHIP	-0.001	0.001	-0.043	-0.797	0.426	1.200
LEVERAGE	1.269E-005	0.001	0.001	0.013	0.990	1.332
SGROWTH	0.001	0.000	0.275	5.575	0.000	1.024
YEAR	-0.026	0.029	-0.047	-0.901	0.368	1.153

Dependent Variable: LIABILITY

Adjusted R<sup>2</sup>: 9.1%

F<sub>Value</sub>: 6.491

Significance: 0.000<sup>b</sup>

**Table 19:** Regression Analysis for 3 years (Dependent Variable=ASSETS graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	0.181	0.103		1.757	0.080	
FSIZE(Assets)	1.727E-011	0.000	0.066	1.247	0.213	1.098
PERF	0.000	0.002	0.006	0.110	0.913	1.211
AUDSIZE	-0.036	0.049	-0.042	-0.741	0.459	1.273
OWNERSHIP	-0.001	0.001	-0.030	-0.543	0.587	1.200
LEVERAGE	0.000	0.001	-0.010	-0.174	0.862	1.332
SGROWTH	0.001	0.000	0.203	3.978	0.000	1.024
YEAR	-0.010	0.029	-0.019	-0.351	0.726	1.153

Dependent Variable: ASSETS

Adjusted R<sup>2</sup>: 2.8%

F<sub>Value</sub>: 2.599

Significance: 0.013<sup>b</sup>

**Table 20:** Regression Analysis for 3 years (Dependent Variable=TOTAL COSTS graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	0.049	0.074		0.673	0.502	
FSIZE(Assets)	9.185E-011	0.000	0.447	9.264	0.000	1.098
PERF	-0.002	0.002	-0.060	-1.182	0.238	1.211
AUDSIZE	0.018	0.035	0.027	0.519	0.604	1.273
OWNERSHIP	0.000	0.001	-0.009	-0.177	0.860	1.200
LEVERAGE	0.000	0.001	-0.025	-0.471	0.638	1.332
SGROWTH	3.427E-005	0.000	0.009	0.199	0.842	1.024
YEAR	-0.001	0.021	-0.003	-0.053	0.958	1.153

Dependent Variable: TOTAL COSTS

Adjusted R<sup>2</sup>: 19.1%

F<sub>Value</sub>: 13.862

Significance: 0.000<sup>b</sup>

**Table 21:** Regression Analysis for 3 years (Dependent Variable=SHARE PERFORMANCE graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	-0.039	0.227		-0.171	0.865	
FSIZE(Assets)	7.969E-011	0.000	0.139	2.602	0.010	1.098
PERF	0.004	0.005	0.047	0.842	0.400	1.211
AUDSIZE	-0.033	0.109	-0.018	-0.305	0.760	1.273
OWNERSHIP	0.002	0.003	0.045	0.815	0.416	1.200
LEVERAGE	0.001	0.002	0.033	0.567	0.571	1.332
SGROWTH	0.000	0.001	0.037	0.724	0.470	1.024
YEAR	0.060	0.064	0.052	0.949	0.343	1.153

Dependent Variable: SHARE PERFORMANCE

Adjusted R<sup>2</sup>: 1%

F<sub>Value</sub>: 1.557

Significance: 0.147<sup>b</sup>

**Table 22:** Regression Analysis for 3 years (Dependent Variable=OWNERSHIP STRUCTURE graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	-0.115	0.094		-1.224	0.222	
FSIZE(Assets)	1.729E-011	0.000	0.071	1.359	0.175	1.098
PERF	0.001	0.002	0.019	0.345	0.730	1.211
AUDSIZE	0.145	0.045	0.181	3.222	0.001	1.273
OWNERSHIP	0.001	0.001	0.033	0.611	0.542	1.200
LEVERAGE	0.000	0.001	0.008	0.142	0.887	1.332
SGROWTH	0.000	0.000	0.094	1.859	0.064	1.024
YEAR	0.061	0.026	0.124	2.320	0.021	1.153

Dependent Variable: OWNERSHIP STRUCTURE

Adjusted R<sup>2</sup>: 5.3%

F<sub>Value</sub>: 4.081

Significance: 0.000<sup>b</sup>



**Table 23:** Regression Analysis for 3 years (Dependent Variable=EQUITY graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	0.073	0.088		0.828	0.408	
FSIZE(Assets)	-1.023E-011	0.000	0.000	-0.009	0.993	1.098
PERF	0.001	0.002	0.037	0.656	0.512	1.211
AUDSIZE	0.005	0.042	0.006	0.111	0.911	1.273
OWNERSHIP	-0.001	0.001	-0.030	-0.528	0.598	1.200
LEVERAGE	0.000	0.001	0.018	0.306	0.760	1.332
SGROWTH	0.000	0.000	0.106	2.044	0.042	1.024
YEAR	0.010	0.025	0.022	0.393	0.695	1.153

Dependent Variable: EQUITY

Adjusted R<sup>2</sup>: -0.4%

F<sub>Value</sub>: 0.785

Significance: 0.600<sup>p</sup>

**Table 24:** Regression Analysis for 3 years (Dependent Variable=EMPLOYEE graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	0.168	0.161		1.043	0.298	
FSIZE(Assets)	1.784E-010	0.000	0.409	8.230	0.000	1.098
PERF	-0.003	0.003	-0.047	-0.909	0.364	1.211
AUDSIZE	-0.093	0.077	-0.065	-1.207	0.228	1.273
OWNERSHIP	0.001	0.002	0.030	0.571	0.569	1.200
LEVERAGE	-0.001	0.002	-0.052	-0.945	0.345	1.332
SGROWTH	-7.482E-005	0.000	-0.010	-0.199	0.842	1.024
YEAR	-0.023	0.045	-0.026	-0.515	0.607	1.153

Dependent Variable: EMPLOYEE

Adjusted R<sup>2</sup>: 14.1%

F<sub>Value</sub>: 9.938

Significance: 0.000<sup>p</sup>

**Table 25:** Regression Analysis for 3 years (Dependent Variable=SOCIAL RESPONSIBILITY graphs)

	B	Stn. Error	Beta	t	Sig.	VIF
Constant	0.081	0.211		0.384	0.701	
FSIZE(Assets)	3.651E-010	0.000	0.575	12.831	0.000	1.098
PERF	0.001	0.005	0.014	0.291	0.771	1.211
AUDSIZE	-0.178	0.101	-0.085	-1.767	0.078	1.273
OWNERSHIP	-0.002	0.003	-0.028	-0.603	0.547	1.200
LEVERAGE	-8.044E-005	0.002	-0.002	-0.039	0.969	1.332
SGROWTH	9.558E-005	0.000	0.008	0.194	0.847	1.024
YEAR	-0.023	0.059	-0.018	-0.391	0.696	1.153

Dependent Variable: SOCIAL RESPONSIBILITY

Adjusted R<sup>2</sup>: 30.1%

F<sub>Value</sub>: 24.509

Significance: 0.000<sup>p</sup>

## Appendix 2: Questionnaires

Dear Contributor,

These surveys are intended to determine the reasons of not disclosing graphical disclosure, to understand whether the firms which did not disclose graphs in their annual reports are aware of the legislation or not, and to understand whether the firms know the benefits of the graphs or not. This study will be used for a master degree thesis in Fatih University Institute of Social Sciences. The answers which are given by you honestly will affect the reality of these questionnaires.

Thank you for your participation.

**Table 26: Question 1**

<b>Is the company aware of the legislation issued by CPM?</b>	<b>Yes</b>	<b>No</b>
The Communiqué Serial: IV, NO:54 3. Disclosing financial tables and annual reports for public 3.2. Annual reports should be prepared in details. 3.2.3. It should be disclosed statistical data and graphics in annual reports.		

**Table 27: Question 2**

<b>The reasons of not disclosing graphs in annual reports</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
It is thought that the graphical disclosure is not important.					
It is not wanted to provide more information against their competitors.					
It is not believed that the graphical disclosure is not beneficial for the investors and their stakeholders.					
It is preferred to present tables rather than graphs.					
Reporting and analyzing are not taken into account by the firms.					
Having poor performance.					

1=Totally disagree, 2= Disagree, 3=Neutral, 4=Agree, 5=Totally agree

**Table 28: Question 3**

<b>What extent do you agree the advantages of graphical presentation in annual reports</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
More user-friendly than tables.					
Decrease the decision time for investors.					
Easily recalled by annual report readers.					
More comparable.					
More attractive.					
Make the information more understandable.					
Effective for summarizing financial and non-financial data.					

1=Totally disagree, 2= Disagree, 3= Neutral, 4=Agree, 5=Totally agree

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