YAŞAR UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
BUSINESS ADMINISTRATION
DISSERTATION FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

VALUE RELEVANCE OF ACCOUNTING MEASURES IN PRE- AND POST-FINANCIAL CRISIS PERIODS: TURKEY CASE

ŞEVİN GÜRARDA

Co-Supervisor: Assist. Prof. Dr. M. Gürol Durak
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YEMİN METNİ

Doktora Tezi olarak sunduğum "Value Relevance of Accounting Measures in Pre- and Post-Global Financial Crisis Periods: Turkey Case" adlı çalışmanın, tarafımdan bilimsel ahlak ve geleneklere aykırı düşecek bir yardıma başvurmaksızın yazıldığını ve yararlandığım eserlerin bibliyografyada gösterilenlerden oluştuğunu, bunlara atıf yapılarak yararlanılmış olduğunu belirtir ve bunu onurumla doğrularım.

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ABSTRACT
PhD Thesis

VALUE RELEVANCE OF ACCOUNTING MEASURES IN PRE- AND POST- GLOBAL FINANCIAL CRISIS PERIODS: TURKEY CASE

Şevin GÜRARDA

Yaşar University
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Value relevance is a major area in capital market research where the minority of studies enhances value relevance and financial crisis. Therefore, it might shed light on the subject of value relevance to investigate the impact of the most disastrous global financial crisis in the human history on financial statements through accounting measures as employed in this dissertation. The current study investigates the value relevance of earnings and book values on market returns for pre, during and post-financial crisis period evaluating ISE-100 listed firms for the period 2006-2011.

Empirical results support a large number of previous studies suggesting that accounting information is value relevant by yearly analysis. In yearly analysis, in pre-global financial crisis period, book value per share is more relevant compared to earnings per share, but in the crisis time, earnings becomes value relevant by controlling negative earnings.

Additionally, ratios such as debt to equity, doubtful trade receivables to total trade receivables, goodwill impairment to total goodwill are value relevant in post-crisis period.

The present literature on value relevance shows that the effect of above ratios on market returns has not been sufficiently examined to date. Thus, this study significantly contributes to the value relevance literature as a leading study in Turkey that considers the above mentioned variables.

Key words: Value Relevance, Global Financial Crisis, Goodwill Impairment, Debt to Equity Ratio

Özet

Doktora Tezi
MUHASEBE KALEMLERİNİN GLOBAL FİNANSAL KRİZ ÖNCESİ VE SONRASI DÖNEMLERDE DEĞERLİLİĞİ: TÜRKİYE ÖRNEĞİ

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Yaşar Üniversitesi
Sosyal Bilimler Enstitüsü
İşletme Doktora Programı

Değer ilişkisi kavramı Sermaye Piyasası Çalışmalarında finansal kriz ve değer ilişkisi alanında az çalışmanın yapıldığı önemli bir alandır. Bu yüzden bu tez tarihteki en ağır küresel finansal krizin finansal tablolar üzerine etkisini muhasebe rakamları aracılığı araştırarak değer ilişkisi kavramına ışık tutmaktadır.Bu çalışmada öncelikle 2006-2011 yılları arasında kazanç ve özkaynağın hisse senedi getirilerindeki değer ilişkisi finansal kriz dönemi, öncesi ve sonrası IMKB-100 şirketleri değerlendirilerek yapılmıştır

Ampirik sonuçlar daha önce bu konu ile ilgili muhasebe bilgisinin ihtiyaca uygun olduğu sonucuna varan çalışmaları yıl bazında desteklemektedir. Yıl bazındaki kılırımda, kriz öncesi dönemde hisse başına düşen özkaynak kalemi, hisse başına düşen kazanca göre daha değerli bulunmasına karşın kriz döneminde hisse başına düşen kazanç zararların kontrol edilmesi ile istatistiksel olarak anlamlı hale gelmektedir.

Ek olarak, borcun özkaynağa oranı, şüpheli ticari alacakların toplam ticari alacaklara oranı ile şerefiye değer düşüklüğünün toplam şerefiyeye oranı da kriz sonrası dönemde hisse senedi getirilerinde etkilidir.

Değer ilişkisi ile ilgili literatür taramasında bu oranların hisse senedi getirisi üzerindeki etkisini inceleyen çalışmaya rastlanmamıştır. Bu nedenle bu tez Türkiye için değer ilişkisini bu değişkenleri göz önünde bulundurarak inceleyen ilk çalışma olması nedeniyle literatüre katkı yapmaktadır.

Anahtar kelimeler: Değer İlişkisi, Global Finansal Kriz, Şerefiyede Değer Düşüklüğü, Borç Özkaynak Oranı

VALUE RELEVANCE OF ACCOUNTING MEASURES IN PRE- AND POST-FINANCIAL CRISIS PERIODS: TURKEY CASE

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LIST OF ABBREVIATIONS

AccRec	Accounts Receivables
AICPA	American Institute of Certified Public Accountants
BVPS	Book Value Per Share
CDO	Collateralized Debt Obligation
CMB	Capital Markets Board of Turkey
DoubtRec	Doubtful Receivables
EPS	Earnings Per Share
EU	European Union
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GWI	Goodwill Impairment
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
ISE	Istanbul Stock Exchange
TASB	Turkish Accounting Standards Board
TDebt	Total Debt
TEquity	Total Equity
TGW	Total Goodwill

INTRODUCTION

Accounting, as defined by the American Institute of Certified Public Accountants (AICPA) is, "the art of recording, classifying, and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of financial character, and interpreting the results thereof". As a result of this recording, classifying and summarizing process, accounting provides information to decision makers in the form of financial statements. Analysis of these financial statements, which is the product of accounting information system, is the basis of decision making for information users such as present and potential investors, creditors, managers, customers, regulators and public.

Investors need information that enables them to make future forecasts of the firm while allocating their capital resources based on these forecasts. Creditors also benefit from the accounting information by using information for their risk assessment process. Managers need information about the company's past performance and about the resources available for future performance. At this point, relevant and faithfully presented information is of great importance for their decisions. Hence, following questions recur to the mind. Is the accounting information useful for decision makers? Does accounting information influence the economic decisions of users by helping them to evaluate past, present and future performance? Or could we say that accounting information is related to market value?

Macroeconomic instability seen in crisis period may accelerate the financial collapse, which consequently has an impact on value relevance of accounting information. Many researchers investigate the association between financial health and value relevance of accounting information, but there are limited numbers of studies investigating value relevance of accounting measures during the Global Financial Crisis (GFC), which starts with the collapse of Lehman Brothers in 2008 that sent a wave of fear around World financial markets, including Turkish Financial Market.

In addition to the above mentioned questions, the following questions are also sought; what are the effects of GFC on the accounting information and its influence on decision makers? Do decision makers interpret accounting information as value relevant while global markets experience severe liquidity shortage and recession?

To some extent, the GFC is still unfolding. Therefore, there is limited empirical evidence addressing value relevance in the GFC period. Most studies that examine value relevance during the financial crisis period investigated the regional crises such as Asian Financial Crisis and Mexican Crisis. When recovery periods are compared, the recovery period of global financial crisis is expected to be longer than other regional crises because regional crises are recovered with the support of International Monetary Fund. But the GFC affects many countries, especially developed economies of the U.S. and European countries. Therefore, investigating the impact of the most disastrous financial crisis in the human history on financial statements through accounting figures as employed in this dissertation may shed light on the subject of value relevance.

In this study, we first investigate the value relevance of earnings and book values on market returns for pre, during and post-financial crisis period using ISE-100 listed firms for the period 2006-2011. The valuation model employed is based on Ohlson's (1995) valuation model. In the first phase of empirical research, the value relevance of primary summary measures of balance sheet and incomes statement such as book value per share (BVPS) and earnings per share (EPS) are investigated by controlling negative earnings and book values on market returns. Then, ratios used for assessment of risk such as debt to equity ratio, doubtful receivables to total trade receivables and goodwill impairment to total goodwill are employed as dependent variables. These ratios are added by analyzing comments of independent auditors' reports, new communiques announced by the Capital Markets Board of Turkey and the researcher's observation and involvement in the preparation of financial statements of an international company. Therefore, this kind of analysis in this study differs from the work of other scholars in that it employs ratios becoming important in Turkish Market after 2007.

From an academic point of view, this study contributes to the value relevance literature as the first comprehensive Turkish study to date that investigates the impact of GFC on the value relevance. Unlike traditional value relevance studies, this study takes the value relevance of negative book values and earnings into account during the empirical analysis. The current literature on value relevance shows that the effect of ratios such as doubtful receivables to total trade receivables, goodwill impairment to total goodwill on value relevance have not been thoroughly examined before. Hence, this is the first study to use above mentioned ratios in the analysis of value relevance for the Turkish market. From the practical point of view, this study is expected to provide valuable insights for investors, regulators, standard setters and other participants in the Turkish Capital Market by enhancing the understanding of how a change in investors' perception triggered by the GFC affects the value relevance of accounting information.

The dissertation proceeds as follows. The next section gives brief information about GFC the impact of the GFC in Turkey. The second section presents the concept of value relevance, while third section discusses the previous literature. The fourth section describes research design, data, methodology and analyses. The final section draws conclusions and summarizes the contribution of the study to the literature.

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CHAPTER 1

GLOBAL FINANCIAL CRISIS

1.1. The Rising of the Global Financial Crisis

Many economists and analysts classify The Global Financial Crisis as the worst economic downturn that has happened since the Great Depression of the early twentieth century. The financial crisis is the result of unregulated mortgages and credit boom that were pushed by the low interest rate.

According to Banyte and Raisyte (2009), commercial banks increased their borrowing heavily because of the profitable results of leveraging, and investors also wanted to benefit from this situation. The benefit is set as connection of the mortgage lenders and investors through an investment bank, which obtains the mortgages and adds them up into collateralized debt obligation (CDO). With the low risk rate of credit risk agencies such as Moody's, Standard & Poor, investors started to demand more CDOs. Investment bankers contacted mortgage lenders asking for more mortgages. Brokers underestimated the new home-buyers' ability to repay and new financial instrument was created, thus leading to sub-prime mortgages being issued, which required no down-payment and no evidence of permanent income. This increased the risk of the instruments, during which process when lenders failed to pay, thereby causing the houses to become the asset of banks. However, more and more lenders failed to pay their debts and the supply of houses exceeded the demand. This caused considerable decrease in the selling of CDOs, and investors found themselves with worthless financial instruments. Therefore, mortgage lenders recognized the risk they were experiencing. All parties experienced heavy losses. With the collapse of Lehman Brothers in September 2008, the fear spread into world financial markets.

1.2. The Impact of the Global Financial Crisis in Turkey

The mortgage crisis and the bursting of other real estate bubbles around the world led to recession in the U.S. and a number of other countries in late 2008 and 2009.

As known, this crisis started with the problems in the payback of mortgage credits in the U.S. Market and increased when its effect was felt all around the world in a short period of time.

Its first influence was observed on the financial sector and spread to real sector. The global capital market experienced severe liquidity shortage, where the confidence of investors significantly declined and most of stock exchanges around the world fell down. In addition, the amount of Gross Domestic Product (GDP), decreased, and unemployment rates and bankruptcies of well-known companies including Lehman Brothers, Merill Lynch increased. The problems arising in the developed markets inevitably spilled over to the rest of the world and began to undermine the real sector activities. The pressure on real sector with increased costs affected their productivity, thus causing many businesses to adopt measures in order to reorganize their activities and reduce their costs. These adverse events, which were felt all around the world, definitely influenced Turkish Economy.

The Turkish Stock Exchange Market was unavoidably affected by Global Financial Crisis due to its integration with Global Economy. The ISE-100 index hit a bottom of 21.228 in November, 2008; it was 54.708 at the beginning of 2008. In Table 1, there is a summary of selected macroeconomic indicators of Turkey from 2001 to 2011.

Table 1
Selected Economic Indicators of Turkey

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
CPI Inflation, year / year (1) (%)	68,5	29,7	18,4	9,35	7,72	9,65	8,39	10,06	6,5	6,4	10,4
GDP Growth (%)	-5,7	6,2	5,3	9,4	8,4	6,9	4,6	0,7	-4,8	9,3	8,5
Nominal GDP (billion TL)	240,2	350,5	454,8	559	648,9	758,4	843,2	950,5	952,6	1098,1	1294,9
Gross Public Debt (% GDP)	78,9	73,3	65,4	59,5	54,1	48,2	42,2	42,9	48,9	45,2	42,2
Export, fob (mln. $) (2)	34.703	40.666	52.318	68.444	78.174	92.915	114.332	136.313	104.617	117.94	140.58
Import, fob (mln. $)	37.103	45.701	63.285	87.773	107.053	130.086	156.142	187.72	132.138	173.887	225.213
Capacity Utilization Rate (%)	71,7	76,2	78,5	81,5	80,3	81	80,2	76,7	65,2	72,6	75,4
Industrial Production y-o-y (%)	-8,7	9,4	8,8	9,8	5,5	7,9	7,2	-0,6	-8,9	13,3	9,1
Capital Adequacy Ratio (standard) (%)		25,1	30,9	28,2	23,7	21,9	18,9	18	20,6	19	16,5
Consumer Confidence Index			110,3	106,7	100,1	95,6	94,4	78,2	79,4	86,9	92,8
Real Sector Confidence Sector							111,4	90,1	87,4	110,3	110,5
T-Bill Rate (%) (3)	99,6	62,7	46	24,7	16,3	18	18,3	19,1	11,4	8,2	8,8
TRLIBOR (%) (O/N)	44,1	45,1	27,6	20,2	15,1	18	15,8	15	6,5	6,5	7,5
ISE National-100 (4)	13.783	10.37	18.625	24.972	39.778	39.117	55.538	26.864	52.825	66.004	51.267
Unemployment Rate (5)	8,4	10,3	10,5	10,3	10,3	9,9	10,3	11	14	11,9	9,8

Source: World Bank Main Macroeconomic Indicators of Turkey
(1)After January 2005, CPI basket and base index replaced with 2003=100 (2) fob means free on board, (3) Weighted average of Treasury auction, (4) Equity Office Stock Price, January 1986=1(5) After January 2005, employment indicators based on moving averages of three months.

After Economic Crisis in 2001, Turkey enjoyed positive growth in gross domestic product (GDP) until 2009 and also a decline in public debt, as a percentage of GDP. This positive growth depended mainly on improvements in macroeconomic policies and the strengthening of financing sector. After 2001 Financial Crisis, banking sector and supervision in this sector were enhanced. Therefore, these improvements starting after 2001 Economic Crisis partially decreased the effect of 2009 Global Financial Crisis. Another positive impact on investor's confidence for Turkish Market is the improvement in the relationship with European Union that is combined with more stable macroeconomic and political environment compared to the one in 2001.

Prior to the Global Financial Crisis, Turkey showed some signs of growth in moderation, more specifically a growth of 7.3% between 2002 and 2005, however, GDP growth gradually decelerated to 4.6% in 2007.

Rawdanowicz (2010) states that this slowdown was particularly related to investment, and to a lesser extent to private consumption, and reflected a combination of three factors. The first factor was the "ongoing deterioration in the competitiveness of traditional labor–intensive export sectors" (notably the clothing industry). The second one was that monetary policy was tightened in the second half of 2006, following the inflationary shock stemming from exchange rate depreciation and higher food prices. The last was that in 2007, Turkey was hit by the oil price shock, which was particularly acute given its relative high energy intensity and a large dependence on imported energy.

The deterioration in the international environment and large uncertainties, combined with competitiveness losses before the peak of the crisis, led to sharp loss in consumer confidence index.

The main reasons for this decrease are listed by Rawdanowicz (2010) as follows:

i) the reaction of companies may have been affected by a combination of uncertainties about rolling over their debts in the face of the global liquidity squeeze,

ii) foreign investors’ risk appetite

iii) the cautious reaction of domestic banks in extending credit

In the second half of 2008, the Turkish lira depreciated by around 15% in effective terms, whereas in the past crises depreciation had been around 35% on average. In the course of 2009, the Turkish lira broadly stabilized against the euro and appreciated somewhat against the US dollar. The volatility of the Turkish lira also declined relative to currencies of other emerging markets, so limited nominal exchange rate changes and significantly lower inflation resulted in a much stronger real effective exchange rate (OECD, 2010).

In contrast to past experiences of Turkey, inflation increase was around 2% year-on-year analysis form 2007 to 2008. In 2009, it even declined compared with the one in 2008. This may be mainly related to monetary policy framework and small depreciation of the nominal effective exchange rate.

Export figures in 2009, show a decline by 23% compared to those of 2008, while the import figures decreased by 29%. Decline in domestic demand and foreign demand may be considered to be the reasons for this trend.

As in Table 1, the capacity utilization rate has declined from 80% to 66 % in one year. Decline in demand is one of the reasons for this decline.

Lastly, unemployment rate increased to 14 % in 2009, which is mainly related to decline in industrial production as well as in GDP Growth.

CHAPTER 2

VALUE RELEVANCE

This part introduces the concept of value relevance of accounting information starting with the economic consequences of financial accounting information followed by relevance concept and value relevance according to the conceptual framework of International Accounting Standards Board (IASB), definitions of value relevance.

2.1. Economic Consequences of Financial Accounting

According to Beaver (1998; cited in Hellström, 2009), eight potential economic consequences of financial reporting are as follows:

i) Adequacy of financial reporting and access to financial information has effect on the allocation of wealth among individuals and investors in their investment decisions process. Since financial information determines the distribution of investors' resources, allocation of the risk and the aggregate level of risk are affected.

ii) With the help of information, investors and individuals can decide whether to consume today or invest for future. So, financial information has an effect on the total consumption and production.

iii) Financial reporting affects the allocation of resources among firms.

iv) Financial reporting affects the use of resources devoted to the production, certification, processing, analysis and interpretation of financial information.

v) Financial reporting affects the use of resources in the development, compliance, enforcement and litigation of regulations.

vi) Financial reporting affects the use of resources in search for information.

vii) Financial reporting can affect management’s action. The information could change the incentives of management to undertake certain projects due to competitive disadvantage of disclosure.

Thus principally, economic consequences can be classified under three classes:

i) Valuation of companies (decision makers are investors)

ii) Credit and loan giving (decision makers are creditors)

iii) Management, control and incentive systems (decision makers are the managers)

When three potential economic consequences are taken into account, for an investor, high quality accounting information enables better allocation of resources as mentioned in the first consequences. Investors evaluate the information presented by financial reporting. Creditors also benefit from a high quality accounting information concerning whether to give a loan to a company.

Management and employees have to be informed about previous performance of the company and should also be given information about the resources that will be used for future decisions and for future performance. Thus, the management must be sure that the information is correct and relevant for their decisions.

2.2. Accounting Information and the Users of Accounting Information

Accounting is the information system that measures business activity, processes the data into reports and communicates the results to decision makers. The key product of accounting output is a set of reports called financial statements. These financial statements providing information for decisions should meet the common needs of users.

In IASB Framework approved in 1989, users are defined as present and potential investors, employees, lenders, suppliers and other trade creditors, customers, governments and their agencies and the public. Their needs can be summarized as follows:

(i) Investors need information to help them determine whether they should buy, hold or sell.

(ii) Employees need information about the stability and profitability of their employers.

(iii) Lenders need information whether their loans and interest related to the loan will be paid when due.

(iv) Suppliers and other trade creditors need information that enables them to determine whether the amounts owed to them will be paid on time

(v) Customers have an interest in information about the continuance of the company.

(vi) Government and agencies need information for determining taxes, regulating the activities of enterprises.

(vii) Public need information about the trends and recent developments in the prosperity of the enterprise and the range of its activities.

2.3. Concept of Relevance and Value Relevance According to the IASB Framework

As known, main objectives of IASB is to develop, in the public interest, a single set of high quality, understandable and enforceable global accounting standards that require high quality, transparent and comparable information in financial statements and other financial reports to help users of the information to make economic decisions. The IASB achieves this objective primarily by developing and publishing international financial reporting standards (IFRS) and by promoting the use of these Standards in general purpose financial statements and other financial reports. Other financial reports include information not provided in financial statements that assists in the interpretation of a complete set of financial statements or improves users' ability to make accurate economic decisions.[1]

According to Conceptual Framework for Financial Reporting (2010)[2], relevance and faithful representation are defined as the fundamental qualitative characteristics of useful financial information. Comparability, verifiability, timeliness and understandability are defined as qualitative characteristics that enhance the usefulness of information that is relevant and faithfully represented.

The IASB Framework for the Preparation and Presentation of Financial Statements states in paragraph 26 that the information is relevant "when it influences the economic decisions of users by helping them evaluate past, present or future events or confirming, or correcting, their past evaluations." FASB Concepts Statement No. 2, Qualitative Characteristics of Accounting Information, states in paragraph 47 that, to be relevant,

Accounting information must be capable of making a difference in a decision by helping users to form predictions about the outcomes of past, present, and future events or to confirm or correct expectations. Financial information is useful when it is relevant and represents faithfully what it purports to represent.

According to IASB framework, paragraph 31,

To be useful, information must also be reliable. Information has the quality of reliability when it is free from material error and bias and can be depended upon by users to represent faithfully that which it either purports to represent or could reasonably be expected to represent.

[1] The IASB Framework was approved by the IASB Board in April 1989and adopted by IASB in 2001 so this version is quated in this thesis because this version has been in use, now.

[2] The Conceptual Framework project is currently paused by the IASB. Objectives and qualitative characteristics part is completed and this part was issued on 28 September 2010.

The IASB framework paragraph 43 states that

If there is undue delay in the reporting of information it may lose its relevance. Management may need to balance the relative merits of timely reporting and the provision of reliable information. To provide information on a timely basis it may often be necessary to report before all aspects of a transaction or other events are known, thus impairing reliability. Conversely, if reporting is delayed until all aspects are known, the information may be highly reliable but of little use to users who have had to make decisions in the interim. In achieving a balance between relevance and reliability, the overriding consideration is how best to satisfy the economic decision-making needs of users.

In other words, while it can be suggested that the speed of information for financial statements increases the value relevance, reliable information requirement should also be taken into account. Besides, it will be highly reliable information that is not affecting decisions of investors due to lack of timeliness.

Briefly, timeliness is the ability of financial statements to capture value-relevant events in the same time period as they occur.

So, financial information is useful when it is relevant and represents faithfully what it purposes to present. The usefulness of financial information is improved if it is comparable, verifiable, timely and understandable.

2.4. Definitions of Value Relevance

In line with the description above, users of financial statements need assistance of financial reports in valuing a company. If there is no association between accounting figures presented in financial statements and the company value, accounting information cannot be claimed to be value relevant. Many studies investigate the relationship between capital markets and accounting information presented in the financial statements. Empirical research analyzing the relationships between capital markets and financial statements are generally referred to as capital market-based accounting research (CMBAR). According to Beisland (2008), modern CMBAR originated with the articles of Ball and Brown (1968) and Beaver (1968).

Ball and Brown (1968) studied the association between earnings and share prices and concluded that the earnings have information value on share price.

Beaver (1968) directed the attention to investor's reaction to earnings announcements, as reflected in the volume and price movements of common stocks in the weeks surrounding the announcement date. Beaver (1968) stated that the earnings announcement period is characterized by an increased flow of information compared to a non-earnings announcement period.

According to Barth et al. (2001), although the literature examining such associations dates back to more than 30 years like the study of Miller and Modigliani (1966), the term value relevance was firstly used by Amir et al. (1993). Amir et al. (1993) used this term while comparing US versus Non-U.S. GAAP accounting figures. They use the value relevance term while evaluating the associations between accounting earnings and security returns. According to Beaver (2002), the study of Miller and Modigliani (1966) is the oldest earnings approach that characterizes value as the present value of permanent future earnings.

Another definition belongs to Francis and Schipper (1999) who defined value relevance as "the ability of earnings to explain annual market-adjusted returns; and the ability of earnings and book values of assets and liabilities to explain market values of equity".

According to Beaver (2002), Ohlson (1995) and Barth et al (2001), an accounting number is termed as "value relevant" if it is significantly related to the market value.

As seen, there are many definitions, and definitions of value relevance can be interpreted in many ways.

In line with the literature on value relevance, this study defines accounting information as value relevant if it is related to market return of the firm.

CHAPTER 3

LITERATURE REVIEW

3.1. Value Relevance Literature

One of the objectives of financial statements is to assist investors, lenders and creditors who evaluate the accounting information to make decisions about buying, selling or holding equity or providing a loan. Therefore, accounting measures stated on financial statements should be related to the current company value. If there is no association between accounting numbers and the company value, accounting information cannot be termed as value relevant and financial reports are unable to fulfill one of their primary objectives.

Testing the usefulness of accounting information on financial statements is one of the main objectives of this thesis because the usefulness of accounting information is the focus of value relevance.

The value relevance on accounting literature is extensive and diverse. For example, Barth et al. (2001) simply state that “value relevance research examines the association between accounting numbers and equity market values”.

Many other studies also differ in their value relevance perspectives either by focusing on accounting measures, new regulations or in the research methods applied.

Francis and Schipper (1999) consider four different interpretations on studying the value relevance of accounting information. The first interpretation is that financial statement information influences stock prices by capturing intrinsic share values. Then, value relevance will be measured as the profits generated from implementing accounting-based trading rules. Under the second interpretation, Francis and Schipper (1999) state that financial information is value relevant if it contains the variables used in a valuation model. Thus, the value relevance of earnings for a discounted dividend valuation model or a discounted cash flow valuation model might be measured by the ability of earnings to predict future dividends, future cash flows. The third and fourth interpretations are based on value relevance that is indicated by a statistical association between financial information and stock prices or returns. Under the third interpretation, the statistical association measures whether investors actually use the information in setting stock prices. Finally, the fourth interpretation is that accounting information and market values are correlated over a long window perspective. Under this view, regardless of source value relevance is measured by the ability of financial statement information to capture information, which affects share values.

By referring to Francis and Schipper (1999), Nilsson (2003) defines approaches in his study as:

i) the fundamental analysis view of value relevance,

ii) the prediction view of value relevance,

iii) the information view of value relevance

iv) the measurement view of value relevance.

According to Holthausen and Watts (2001), value relevance studies are divided into three categories. These are:

i) Relative association studies: they compare the association between stock market values or changes in values and alternative bottom line measures. These studies usually test for differences in the R^2 (the coefficient of determination) using different bottom line accounting numbers. With the greater R^2 is being more value-relevant accounting number.

ii) Incremental association studies: They usually use regressions to investigate whether the accounting number of interest is helpful in explaining value or returns (over long windows) given other specified variables. If the estimated regression coefficient of accounting number is significantly different from zero, it is defined as value relevant.

iii) Marginal information content studies: They investigate whether a particular accounting number adds to the information set available to financial information users. They typically use event studies to determine if the release of an accounting number is associated with value changes.

Beaver (2002) introduced five perspectives in capital market research for the last decade. The perspectives represent research areas which have greatly contributed to accounting knowledge. These areas are:

i) Market efficiency,

ii) Feltham-Ohlson modeling,

iii) Value relevance,

iv) Analyst's behavior,

v) Discretionary behavior.

Beaver (2002) characterizes the first two areas as the fundamentals of understanding accounting in capital markets. The last three areas implicitly introduce some form of accounting structure or individual behavior.

Beaver (2002) states that value relevance research in capital markets has two distinctive characteristics. The first characteristic represents the requirement of an in-depth knowledge about accounting institutions, accounting standards, and the specific features of the reported numbers. The second characteristic is timeliness. Value relevance studies focus on the stock price reaction over short windows of time surrounding the announcement date. On the other hand, timeliness characterizes market value at a point in time as a function of a set of accounting variables, such as assets, liabilities, revenues, expenses and net income. So the timing of the information is of primary concern in the event-study value relevance research design.

When the international literature is taken into account, the literature represents a variety of studies. Therefore, in line with the objective of this thesis, we classify the value-relevance studies into four categories. These categories are:

i) Value relevance of earnings and book values

ii) Value relevance of international accounting standards

iii) Value relevance of goodwill and goodwill accounting

iv) Value relevance of other accounting measures

3.2. Value Relevance of Earnings and Book Values

As known, earnings and book value are primary summary measures of income statement and balance sheet. The book value of equity is considered the bottom line of balance sheet, whereas earnings per share are the bottom line of income statement. These two figures attract the attention of many value relevance researchers.

Most related studies have employed explanatory powers of book values and earnings. Either book value or earnings or both of them have been selected as independent variables.

Book value may figure into the price to pay for a closely-held company, whose stock is not publicly traded. Some investors compare the book value of a company with its market value. The idea is that a stock selling below its book value is a good choice to buy. But the book value/market value relationship is far from clear (Horngren, et al., 2010). Some investors assume that the market value is the expectation of investors related to the company’s future transactions.

Investigating the relationship between book value and market value has been the main interest of researchers for many years. Also there have been numerous studies comparing value relevance of book value and earnings. For instance, Collins et al. (1997) decompose the combined explanatory power of earnings and book values into three components. The first component is the incremental explanatory power of earnings, while the second one is the incremental explanatory power of book values and the third one is the explanatory power common to both earnings and book values.

The common component takes into account that, to some extent, earnings and book values act as substitutes for each other in explaining prices. Collins et al. (1997) report three primary findings. First, contrary to the previous literature Lev (1997) and Ramesh and Thiagarajan (1995) which report a steady decline in the value relevance of earnings, the combined value-relevance of earnings and book values did not decline for the period 1953-1993 in the U.S. market. Second, while the incremental value relevance of earnings declined, it was replaced by increasing value relevance of book values. Finally, much of the shift in value-relevance from earnings to book values can be explained with reference to the increasing frequency and magnitude of one-time items, the increasing frequency of negative earnings, and changes in average firm size and intangible intensity across time.

While Collins et al. (1997) report that the value relevance of earnings has been replaced by increasing value relevance of book values for the years 1953-1993, Lev and Zarowin (1999) indicate that the usefulness of reported earnings, cash flows, and book values of the equity deteriorated over the 1978-1996 period in the U.S. Market.

Francis and Schipper (1999) investigate the popular claim that financial accounting information became less value relevant over time, by taking exchange-listed and NASDAQ firms over the period 1952-94. They divide sample as high-tech and low-technological firms. Their tests indicate that the explanatory power of earnings have significantly decreased over time. In contrast, the test of the explanatory power of book values of assets and liabilities for market equity values provides no evidence of a decline.

Easton and Harris (1991) provide evidence that beginning price-deflated earnings is associated with stock returns for the period 1969-1986 in the U.S. market In cross-sectional regressions of annual returns on both the levels and the change variables, the coefficient on earnings levels is statistically significant in all years, while the coefficient on earnings changes is significant in less than half of the years.

In another research, Easton et al. (1992) analyzes the association between market returns and earnings for long return intervals. They hypothesize that the longer the intervals over which earnings are aggregated, the higher the cross-sectional correlation between earnings and returns. The empirical findings support their hypothesis.

Graham et al. (2000) examine the relation between stock prices, earnings and book values of equity in six Asian countries: Indonesia, South Korea, Malaysia, the Philippines, Taiwan, and Thailand for the period 1992-1997. They address two questions: (i) Are there systematic differences across countries in the value relevance of accounting and are these differences related to accounting differences? (ii) Are there systematic differences in the incremental and relative information content of book value per share (BVPS) and residual earnings per share (REPS) across the countries, and are such differences related to accounting differences? They find differences across the six countries in the explanatory power of BVPS and REPS for firm values. Explanatory powers for Taiwan and Malaysia are low, while those for Korea and the Philippines are relatively high. These differences are generally consistent with differences in accounting practice since Korean accounting practice is strongly influenced by tax law. The second result is that in all six countries REPSs have less explanatory power than BVPSs in most years. For their sample, the highest correlation between market and accounting number is observed when comparing prices at year-end, which shows that they also provide evidence for the sensitivity of the timing.

While Graham et al. (2000) provide evidence on the differences in the value relevance of earnings and book values across six Asian countries with different accounting systems, Ibrahim and Kamarudin (2005) examine the value relevance of earnings and book values in two Asian countries with a similar accounting system. This study provides evidence on the relative value relevance of earnings and book value in explaining market value of equity in Malaysia and Singapore. Results of the study indicate that the relative value relevance of book value is greater than that of earnings in both countries.

Ryan and Zarowin (2003) investigate the reasons for the declining contemporaneous linear relation between annual stock returns and accounting earnings for the years 1966-2000 in the U.S. market. They report this decline as earnings increasingly reflecting news with a lag relative to stock prices and earnings increasingly reflecting good and bad news in an asymmetric manner. They find that earnings have a weaker association with current price changes and a stronger association with lagged price changes over time. They also state that annual earnings reflect price increases less strongly, but price decreases more strongly over time.

The results of Ryan and Zarowin (2003) may also be valid in Turkey Case because there is a lag in financial reporting. In Turkey, if listed in Istanbul Stock Exchange, the companies have ten weeks in consolidated case or eight weeks in stand- alone case to announce their year-end financial statements.

Ozkan and Balsarı (2010) investigate the value relevance of earnings and book value during 1992-2007 for non-financial firms listed in the Istanbul Stock Exchange. The sample period also covers two major economic crises that Turkey experienced. Their results suggest that both earnings and book values are value relevant when the whole sample is included in the analysis. When the 1994 crisis is introduced to the model, a decrease in value relevance of earnings is observed whereas increase in value relevance of book values is experienced. In the 2001 crisis, the significance of interaction between book values and crises diminished, crises interaction shows decline in value relevance of earnings. This shows that the 1994 crisis had a positive impact on return, but the 2001 crisis had a negative impact. This might be due to the different characteristics of these two economic crises.

Michalis et al. (2012) examine the impact of earnings and book values on the formulation of stock prices on a sample of 38 companies listed in the Athens Stock Market during the 1996-2008 periods. The resulting evidence suggests that the joint explanatory power of above parameters in the formation of stock prices increases over time. However, the impact of earnings diminishes, compared to the book value, while investors strive to analyze the fundamental parameters of businesses.

3. 3. Value Relevance of International Accounting Standards

The financial reporting practices of companies in different countries vary. This leads to great complications for those preparing, consolidating, auditing and interpreting financial statements. In order to deal with these complications, organizations in different parts of the world have to harmonize or standardize accounting.

Undoubtedly, globalization makes universal accounting standards inevitable. Investors are naturally attracted by the markets that they understand and have confidence in. Besides, investors, analysts, employees, creditors, suppliers, customers, lenders and non-governmental organizations collectively express their needs of comprehensive information to give their decisions. They desire to compare the accounting information produced by a target company with its competitors located in its home country or other parts of the world. Therefore, countries which adopt internationally recognized accounting standards for financial reporting will be positioned at a significant advantage over those that do not.

According to Ball (2006), the advantages of International Financial Reporting Standards (IFRS) for investors are as follows;

i) More accurate, comprehensive and timely information compared to the national standards they replace in the countries adopting them.

ii) Increase in the quality of financial reporting that allows decrease in the risk.

iii) Elimination of many international differences in accounting standards and a standard reporting formats -which makes a company’s financial statements more internationally comparable.

iv) Reducing the cost of processing financial information and increasing the stock market efficiency by reflecting this information on prices.

v) With the decrease in international differences, removing barriers for potential cross-border acquisitions and mergers, thereby providing investors with increased takeover advantages.

In 2003, Capital Markets Board of Turkey (CMB) declared a communiqué serial XI, No: 25. With this communiqué, CMB announced that firms listed on Istanbul Stock Exchange (ISE) would be required to report their financial statements according to IAS/IFRS starting from 2005. The adoption of IAS/IFRS was discretionary starting from 2003 but in 2005 it became mandatory. Then IFRS was enforced in Turkey for the listed companies in the stock exchange with reporting periods of January 2005 onward. Currently all listed firms are preparing their financial statements and related disclosures in accordance with the Communiqué Serial: XI, No: 29 "Basis for Financial Reporting in the Capital Markets" ("Communiqué No: XI-29") issued by CMB which is published at 9 April 2008. In accordance with the fifth paragraph of the Communiqué No: XI-29, the companies are required to prepare their financial statements in accordance with the International Financial Reporting Standards as accepted European Union (EU GAAP). However, until Turkish Accounting Standards Board (TASB)[3] publishes the differences between the European Union accepted IAS/IFRS and International Financial Reporting Standards issued by International Accounting Standards Board (IASB), IAS/IFRS has to be applied by the companies in the application of the fifth paragraph.

Another crucial development in Turkey regarding financial reporting is the New Turkish Commercial Code. Once it is put into practice in 2013, companies in Turkey, listed or not, will adopt Turkish Financial Reporting Standards (TFRS) – IFRS in Turkish acronym while preparing their financial reports which will be presented to third parties.

[3] Public Supervision, Accounting and Auditing Standards Agency is established in November, 2011 and the aforementioned duty about TASB will be performed by this board.

With adoption of internationally recognized accounting standards for financial reporting, an increase in accounting information quality is expected, because one of the main objectives of firms using IFRS is to report high quality, transparent and comparable information in financial statements. These requirements and considerations have been motivated many researchers for investigating the perception of investors who have adopted IFRS. One of the methods to measure this perception is testing value relevance of accounting information before and after the IFRS adoption. Researchers in this area test the ability of financial statements to capture changes in share values.

Harris and Muller (1999) investigate the market valuation of earnings and book value amounts prepared under IAS and US-GAAP for the years 1992-1996. They find evidence that the US-GAAP earnings reconciliation amounts are value-relevant after controlling for IAS amounts for market value and return models. They also find that earnings reconciliation amounts under IAS are more highly associated with price-per-share than US-GAAP amounts, and that US-GAAP amounts are more highly associated with security returns than IAS amounts.

Niskanen et al. (2000) examine the value relevance of earnings under Local Accounting Standards and their voluntarily disclosed reconciliations to the International Accounting Standards in Finland during 1984-1992. The findings suggest that earnings under Local Accounting Standards have significant value relevance to both domestic and foreign investors. Even after the earnings being controlled under Local Accounting Standards, the aggregate reconciliation of Local Accounting Standards to IAS earnings does not provide significant value relevance.

Bartov et al. (2005) investigate the comparative value relevance of earnings reported under German GAAP, US-GAAP and IFRS. The research sample included 417 German companies listed in local stock markets during the period 1998–2000. According to their sample, value relevance of US-GAAP based earnings is higher than that of IFRS based earnings, which in turn is more relevant than those produced under the German GAAP.

Lin and Chen (2005) investigate the incremental value relevance of the reconciliation of accounts from the Chinese Accounting Standards to the International Accounting Standards by those Chinese listed companies that have simultaneously issued A shares and B shares[4] for the period 1995-2000. Their study shows that earnings and book values of equity determined under Chinese Stock Market Rules. The reconciliation of earnings and book values from Chinese Accounting Rules to IAS is partially value-relevant, mainly to stock prices in the B-share market, while the earnings reconciliation is generally not value-added to stock returns in either the A- or the B-share market. So the study of Lin and Chen (2005) suggests that accounting numbers based on Chinese Stock Market Rules in contrast to IAS are more value-relevant.

Focusing on adoption of IFRS in EU, Horton and Serafeim (2006) examine the market reaction to reconciliation adjustments of UK companies in the transition to IFRS in 2005. The authors employ an event study methodology and a market value model. They find the reconciliation adjustment from UK GAAP to IFRS to be value relevant with respect to earnings but not to shareholders' equity. They also find statistically significant negative abnormal returns for firms reporting a negative reconciliation adjustment on UK GAAP earnings.

Schiebel (2006) examines the value relevance of IFRS and German GAAP for the period 2002-2004. He finds that German GAAP are significantly more value relevant than IFRS.

Another study in this area belongs to Gjerde et al.(2007). They test the value relevance of financial statements in Norway for 40 years between 1965-2004. In this period, Norwegian General Accepted Accounting Principles has been shaped by four major accounting events; the Accounting Act of 1977, open asset reserves in 1984, deferred taxes in 1992, and the Accounting Act of 1998, as well as by several minor changes through standard setting. They find that the time trend of overall value relevance has increased significantly after controlling for potential value relevance drivers such as firm size, intensity of losses and intangible assets, as well as the level and volatility of stock market return. Neither the value relevance of the balance sheet

[4] A-shares are issued in China under Chinese law, B-shares are foreign invested shares issued domestically by PRC's companies according to International Standards.

nor earnings have declined over time. The most significant event, Accounting Act of 1998, has contributed both to increased balance sheet and to earnings relevance.

Callao et al. (2007) investigate the impact of IFRS for 35 firms listed in the IBEX (Spanish Exchange Index) in 2005. The study reveals that local comparability is negatively affected if both IFRS and local accounting standards are applied in the same country at the same time. They also find that there has been no improvement in the relevance of financial reporting because the gap between book and market values is wider when IFRS are applied.

Paglietti (2009) analyzes the impact of IFRS on accounting quality in Italy from 2002 to 2007. The findings indicate that accounting quality after IFRS adoption decreases with respect to earnings management. Empirical evidence shows an increase in earnings smoothing and a decrease in earnings timeliness On the other hand, results of value relevance tests highlight an improvement in the ability of accounting numbers to make a decision. Findings of Paglietti (2009) have important implications. For example moving towards to high quality accounting standards is not sufficient, so there should also be a guarantee for improvement in accounting quality.

3.4. Value Relevance of Goodwill and Goodwill Impairment

The issue of goodwill impairment has been debated in many countries throughout the world. Adoption of IFRS introduced fundamental changes in accounting and impairment methods for goodwill. Since global stock markets declined in 2008, there has been much debate over the issue of goodwill impairment in US and European Stock Exchange Markets especially on how large the write-downs should be.

With the adoption of IFRS, one of the expectations of financial statement users is higher level transparency and more useful information for decision making. All of these expectations are related to fair presentation in financial statements. One of the standards that contribute fair value is International Accounting Standards 36, Impairment of Assets.

The objective of IAS 36 (IASB, 2003) is to prescribe the procedures by which an entity is applied to ensure that its assets are carried at no more than their recoverable amount. An asset is carried at more than its recoverable amount if its carrying amount exceeds the amount to be recovered through use or sale of the asset. If this is the case, the asset is described as being impaired, and the Standard requires the entity to recognize an impairment loss. This standard also specifies when an entity should reverse an impairment loss and prescribe disclosures.

Although the main principles of IAS 36 are very clear, the practical application of IAS 36 has always been challenging, and problems have emerged during the recent economic uncertainty.

During financial crisis in 2008, 68% of public companies in the US wrote down goodwill by taking impairment charges. Total charges were $260 billion according to a report issued by financial advisory firm Duff & Phelps and the Financial Executives Research Foundation (Holtzman et al. 2009). The report examined financial statements of nearly 6,000 publicly-held companies for the year 2008.

Goodwill and asset impairment charges are considered to be non-cash because they affect earnings rather than cash flows. However, large goodwill impairments decrease earnings and equity concomitantly. Therefore, this causes increase in debt to equity ratios.

According to the report of Ernst & Young (2011), goodwill impairment disclosure is a requirement as well as an opportunity and a threat. The key question is whether sufficient disclosure has been made about the uncertainty of the impairment calculation.

Among the studies analyzing the effect of goodwill impairment on stock prices or value relevance of goodwill impairment, Dahmash et al. (2009) examine the value relevance and reliability of reported goodwill and identifiable intangible assets under Australian GAAP from 1994 to 2003. Their findings suggest that for the average Australian company the information presented with respect to both goodwill and identifiable intangible assets is value relevant but not reliable. In particular, goodwill tends to be conservatively reported while identifiable intangible assets are aggressively reported.

Li et al. (2010) test whether the market reacts negatively to the announcement of a goodwill impairment loss by calculating cumulative abnormal returns over a three-day window centered on the announcement date of financial statements during the period 1996-2006. Their evidence shows that investors as well as financial analysts revise their expectations downward on the announcement of a goodwill impairment loss, and this downward revision is related to the magnitude of the loss. According to their indirect evidence, some of these firms may have used their managerial discretion to avoid taking an impairment loss.

Oliveira, et al. (2010) assess the value relevance of the amounts for identifiable intangible assets and goodwill reported in the financial statements of all non-financial companies listed in the Portuguese Stock Exchange from 1998 to 2008. They find that net earnings, reported goodwill and other intangible assets are highly significantly associated with stock price. With the consideration of the subclasses of identifiable intangible assets in the study, evidence is found on the increase in value relevance of goodwill, other intangible assets, and research and development expenditures.

By taking into account all firm-year observations with goodwill impairment charges recognized between 2003-2006 in the US, Xu et al. (2011) find out that goodwill charges are negatively assessed by investors, on average, but financial health moderates the relation.

Abughazaleh, et al. (2012) assess the value relevance of goodwill impairment losses following the adoption of IFRS No. 3 “Business Combinations” for the top 500 UK listed firms for 2005 and 2006. Empirical results reveal a significant negative association between reported goodwill impairment losses and market value, suggesting that these impairments are perceived by investors to reliably measure a decline in the value of goodwill and incorporated in their firm valuation assessments. This study reinforces the argument that managers are more likely to use their discretion to convey privately held information about the underlying performance of the firms.

Another issue about goodwill and its impairment process is the intention of the management. Do managements of firms believe that asset write-offs will signal less profitability or that they are aware of assets with low performance and they clear these assets by write-offs? Elliott and Shaw (1988) observe the period from 1982 to 1985 using a sample of 240 US companies that have disclosed an asset write-down. They measure financial performance in terms of returns on assets and returns on equity. They find that those companies with write-downs perform worse than those without write-downs.

Zucca and Campbell's (1992) results confirm that write downs are being used to manage earnings. They also find no significant evidence of positive stock market reaction to the write down announcement.

According to Zucca and Campbell (1992) there are two possible patterns earnings management during the period in which the write down is announced: income smoothing and big baths. Income Smoothing describes an earnings pattern to maintain a steady rate of earnings growth. For maintaining steady growth, the management may try to record discretionary gains, losses or accruals. A second form of earnings management is referred to as big bath. Management might undertake a big bath to signal investors that bad times will be followed by better times through booking accruals or saving up discretionary losses.

3.5. Value Relevance and Crisis

The mortgage crisis and the bursting of other real estate bubbles around the world have led to recession in the U.S. and in a number of other countries in the late 2008 and 2009. The global credit market has experienced severe liquidity shortage, the confidence of investors significantly declined, thus causing most of stock exchanges around the world to experience dramatic falls.

There is limited number of studies investigating value relevance of accounting measures during the Global Financial Crisis. Most studies in value relevance area in financial crisis period investigated regional crises such as Asian Financial Crisis, Mexican Crisis. When recovery periods are compared, the recovery period of the GFC is expected to be longer than other regional crises because regional crises are recovered with the support of International Monetary Fund. However, Global Financial Crisis affected many countries, especially developed economies.

Graham, et al. (2000) examine the turbulent time for Thailand in 1997 for the value relevance of accounting information. In 1997, currency of Thailand lost over one-half of its value relative to the US dollar. They find that in 1997 the value relevance of book values increased relative to the value relevance of earnings. When they focus on Thailand's economy before and after its collapse, they find that the turmoil did not adversely affect the relation between accounting values and market values in Thailand.

Swanson and Juarez-Valdes (2001) investigate the value relevance of accounting information by using financial statement data for Mexican companies listed on the Mexican Stock Exchange during the period 1992-1998. They find that their fundamental signals provide value relevant information about the effects of the December 1994 currency devaluation on the market's expectation about changes in future cash flows.

Vazquez et al. (2006) aim to provide evidence of the ability of Mexican Accounting numbers to summarize the information underlying stock prices by taking firms listed in Mexican Stock Market from 1991 to 2003. They find that book value and earnings are value relevant. They also add earnings before tax, depreciation and amortization, (EBITDA), cash flows from operations, net cash flow and dividends but these variables cannot provide the same power as explanation of earnings.

Davis-Friday et al. (2006) examines the value relevance of earnings and book values in four Asian countries, Indonesia, South Korea, Malaysia and Thailand, in the period surrounding the Asian financial crisis. Specifically, they examine the impact of the economic environment on the value relevance of book values and earnings. They also examine the effects of corporate-governance mechanisms and the type of accounting system together with the economic environment on the value relevance of accounting numbers. Their results indicate that the value relevance of earnings in Indonesia and Thailand were significantly reduced during the Asian financial crisis while the value relevance of book values increased. In Malaysia, the value relevance of both earnings and book values decreased during the crisis. In Korea, neither book value nor earnings was significantly impacted by the crisis. They also indicate that accounting systems (i.e., IAS or tax-based) also affect the extent of changes in the value relevance of book value resulting from the crisis.

Ibrahim et al. (2009) show that the ability of accounting numbers to account for the relationship between accounting numbers and stock prices has deteriorated over the past four decades in Malaysia and Singapore. The findings of this study also suggest that the accounting earnings and book value are capturing most of the information that is relevant to the assessment of the values of firms. They also evidence that earnings and book values are more valued during the financial crisis as compared to the period after the financial crisis.

Navdal (2010) investigates the value relevance of accounting information during the financial crisis in 2008 in Norwegian Market. His study shows that the total value relevance has significantly increased, which can be attributed to a substantial increase in the explanatory power of book value. He also reports a considerable increase in the explanatory power of book value and a decrease in the explanatory power of earnings. This situation is also described in Barth, et al. (1998). When financial health decreases, the explanatory power of book value increases and the explanatory power of earnings decreases. Decision makers become more likely to value firms based on their liquidation values rather than their potential earnings.

From the perspective of value relevance of accounting measures, Choi, et al. (2011) investigate whether and how the information values of reported earnings and their components changed around the Asian financial crisis by examining 10,406 firm-years from nine Asian countries from 1995 to 2000. They state that the value relevance of discretionary accruals significantly declined, but the crisis had no significant impact on the value relevance of non-discretionary earnings components such as cash flows from operations and nondiscretionary accruals. They observe the decrease in the value relevance of discretionary accruals during the crisis was more severe for firms in countries with weak institutions than for those in countries with strong institutions.

Lim and Lu (2011) investigate the value relevance of earnings components during the GFC with a sample of 500 Australian firm-year observations across the financial years 2005 and 2009. They have taken discretionary accruals, non-discretionary accruals and cash flows from operations as components of earnings and examine whether the information value of earnings components is significantly different between the pre-GFC period (financial years 2005-06 and 2006-07) and the GFC period (financial years 2007-08 and 2008-09). Although Australia is a less affected country with more developed institutional settings, it can be said the value relevance of discretionary accruals and cash flows from operations is significantly lower in the GFC period than in the pre-GFC period.

3.6. Value Relevance of Other Accounting Measures

Having discussed the literature review on value relevance of book values, earnings, adoption of IFRS and goodwill impairment, this part will present a brief literature overview for value relevance of other accounting measures such as accruals, cash flows, intangible assets and dividends are introduced. The relationship between stock prices and earnings has been one of the main interests of researchers in many papers, while another is accrual and cash components of current earnings. Some researchers accept these components, such as cash flows item and accruals, as signs for future earnings.

Dhillon and Johnson (1991) test the impact of dividend changes on both the stock and bond markets. Their results provide evidence of positive reaction to large dividend increases in the stock market and a negative price reaction to the bond market.

Sloan (1996) investigates whether stock prices reflect information about future earnings contained in the accrual and cash flow components of current earnings by taking 40,679 firm-year observations of 30 years for the period 1962 - 1991. In this study, stock prices are found to fail to reflect sufficient information contained in the accrual and cash flow components of current earnings until that information impacts on future earnings.

Cheng, et al. (1996) assess the incremental power of cash flows from operations and earnings in explaining stock returns They use earnings, cash flows from operations, prices of US firms for the period between 1988 to 1992. They find that the incremental information content of earnings decreases, and the incremental information content of cash flows from operations increases, Hand and Landsman (2000) study the assessment of the pricing of dividends in stock prices U.S. firms over the period 1974-1996. They find that dividends are materially positively priced. They also find that the positive pricing of dividends is at least three times larger for loss firms than for profit firms. Their explanation for these results is that managers of loss firms use dividends to signal future profitability.

Brief and Zarowin (2000) compare the value relevance of book value and dividends versus book value and earnings by covering US firms listed in the period 1978-1997. They find that when earnings are transitory and book value is a poor indicator of value, dividends have the greatest explanatory power of these three variables.

By employing Ohlson's (1995) accounting-based equity valuation technique, Habib (2004) investigates whether dividends are value relevant in Japan using a sample of 17,900 firm-year observations over the period 1976 to 1999. He provides evidence that dividends are not priced in equity valuation.

Misund et al. (2005) investigate the value relevance of cash flows and accruals in the international oil and gas industry by examining 15 of the largest international oil and gas companies in the period 1990-2003. Their results show that accounting figures calculated before the expensing of depreciation are more value-relevant than net figures. This indicates that investors have more confidence in profits before depreciation and in cash flows than they have in net. They also find that the size of petroleum reserves is crucial to explaining the market valuation of the largest international oil and gas firms.

CHAPTER 4

DATA AND METHODOLOGY

Value-relevance research provides evidence as to whether the accounting numbers relate to value in the predicted manner (Beaver, 2002). The main idea of value relevance research is to determine whether the accounting information is useful to the investor in their decision making process.

Financial health and its effects on value relevance of accounting information have been analyzed by covering the Regional Crisis such as Asian Crisis and Global Crisis (Graham et al. 2000; Davis-Friday and Gordon, 2005; Navdal, 2010). Davis-Friday and Gordon (2005) examine Mexican Crisis, whereas Navdal (2010) investigates the Global Financial Crisis, and Graham et. al (2000) focus on Thailand Crisis. Davis-Friday and Gordon (2005) indicate that the valuation of book value does not significantly change during the crisis period but the explanatory power of earnings decline during the crisis period due to the presence of negative earnings. Graham et. al (2000) examine the turbulent time for Thailand in 1997 and provide evidence of the increase in the explanatory power of book value per share. Navdal (2010) reports a considerable increase in the explanatory power of book value but a decrease in that of earnings for 2008 Financial Crisis in Norway Market.

In line with the literature on value relevance, earnings per share and book value per share are expected to be value relevant to investors in Turkish Stock Exchange and consistent with Graham et. al (2000), Davis-Friday and Gordon (2005) and Navdal (2010). It is expected that the value relevance of earnings will decrease while value relevance of book values will increase during the financial crisis. Based on these arguments, two hypotheses are developed and tested. These are:

Hypothesis 1: Accounting information proxied by book value of equity and earnings explains the variability in stock returns.

Hypothesis 2: Value relevance of earnings will decrease while the value relevance of book values will increase during the Global Financial Crisis.

4.1. Data

In this thesis, the objective is to provide empirical evidence about the value relevance of accounting information pre-post and during crisis periods for the Turkish Capital Market. We seek to answer how macroeconomic instability caused by the GFC affects value relevance of earnings and book value of equity.

The collapse of US subprime mortgage began in February 2007. However, the Turkish Stock Exchange Market index was 41.431 points at the end of February 2007 and in those days the market was following an upward trend. The collapse in the Turkish Stock Exchange was seen in November 2008. Thus, financial statements prepared as of 31 December 2007 and 2008 might not have been significantly affected by the Global Financial Crisis. In the literature, 2007/2008 Global Financial Crisis term is generally used but according to the significant changes in macroeconomic values in Turkey, the effect of financial crisis is significantly observed in the last quarter of 2008 and 2009. For the purposes of this thesis, the pre-Global Financial Crisis (GFC) period refers to the financial years 2006 and 2007; whereas the GFC period refers to the financial years 2008 and 2009. 2010 and 2011 are classified as post-GFC period.

Accounting data used in tests for regression models are collected from the financial statements announced in the web sites of the Istanbul Stock Exchange and Public Disclosure Platform. For accounting items such as doubtful receivables and goodwill impairment annual reports are read and data are manually collected from year-end financial reports.

Table 2
Sample Selection Procedure

Firms listed in ISE-100 Index (2006-2011)	154
exclude companies from Financial Institutions Sector	53
exclude companies without a 31st December reporting date	8
exclude companies mergered & acquired	4
Final sample size (firms included)	**89**
Firm-year observations	**500**

Table 2 displays the sample selection procedure. ISE-100 firms listed in 2006 are taken, and firms added into ISE-100 classification are added into the sample for following years (2007-2008-2009-2010-2011). 53 firms from the Financial Institutions are excluded from the sample because they are subject to different accounting regulations which would significantly affect comparability. The subsectors under Financial Institutions are banks and special financial corporations, insurance companies, financial leasing and factoring companies, holding and investment companies, real estate investment trusts, investment trusts, brokerage houses. Eight firms with reporting dates different from 31st December are also dropped since the results of this thesis are sensitive to timing. These firms are sports services and firms applying special period for being in line with their headquarters in abroad. 4 firms are excluded since they are involved in merger and acquisition activities. This may cause duplication of data. In 2009, firms represent 54% of market capitalization and hence contribute to the generalizability of inferences drawn from this thesis.

Table 3
Division of Sample by Subsectors

Subsectors	**number of firms**
Other Manufacturing Industry	1
Textile, Wearing Apparel and Leather Industries	2
Electricity, Gas and Water	4
Communication	2
Manufacture of Food, Beverage and Tobacco	9
Construction and Public Works	2
Manufacture of Paper and Paper Products, Printing and Publishing	8
Manufacture of Chemicals and of Chemical Petroleum, Rubber and Plastic products	15
Restaurants and Hotels	2
Mining	1
Basic Metal Industries	6
Manufacture of Fabricated Metal Products, Machinery and Equipment	12
Consumer Trade	6
Defense	1
Manufacture of Non-Metallic Mineral Products	11
Information Technology	2
Wholesale Trade	2
Transportation	3
Total	**89**

Table 3 exhibits the subsector classification of the sample. Firms from the Manufacture of Chemicals and of Chemical Petroleum, Rubber and Plastic Products subsector has the highest observations of the sample and Manufacturing Sector occupies more than 50 per cent of the observations in the final sample.

4.2. Methodology

In a crisis period, expectations about future will decline due to uncertainty about country's response and firms' response to the crisis. Therefore it is expected that the value relevance of earnings during the crisis period will be lower, thus implying that future abnormal earnings are expected to be lower as indicated in the prior studies (Collins et al.,1997 ; Navdal, 2010; Graham et. al 2000)

According to the valuation theory, two valuation models are commonly used in value relevance studies, namely the price and return models. Kothari and Zimmerman (1995) reviewed some studies that illustrate the price and return models' advantages and disadvantages. According to Kothari and Zimmerman, the return models have less serious econometric problems than price models do (Kothari and Zimmerman, 1995, Christie, 1987). Therefore, return models have been chosen.

According to regulations of Capital Markets Board of Turkey, listed companies in Turkish Stock Exchange have to undergo an audit by an independent auditing firm. The audit of companies usually takes some time depending on complexity of business and on the existence of consolidated financial statements. Whether consolidated or not, the time for announcement varies between 8 weeks to 10 weeks. Therefore, different announcement dates for financial statements exist in the Istanbul Stock Exchange. For the sake of the announced financial statements to be incorporated into market valuations, return values have been calculated by taking end-of-March values that take any announcement deadline into consideration (Lim and Lu, 2011).

To test the hypotheses presented, the valuation model developed by Ohlson (1995) is used in which the market value of equity is considered to be a function of book values and equity.

$$MV_{it} = \beta_{0t} + \beta_{1t} BV_{it} + \beta_{2t} E_{it} + \varepsilon_{it},$$

where MV_{it} is the market value of firm i in year t in the fiscal year end, BV_{it} is the book value of equity per share of firm i at year end t, and E_{it} is the earnings in firm i at year end t.

We run the function in which the return of shares is considered to be a function of book value of equity and earnings.

The main emphasis in this thesis is examining if accounting variables can explain the variability in market variables. In order to estimate the relationship between return and earnings and book value of equity, multiple regressions are conducted:

$$R_i = \propto_0 + \propto_1 EPS_i + \propto_2 BVPS_i + \varepsilon_i \qquad (1)$$

R_i is annual stock returns for firm i for the 12-month period ending three months after the reporting date, calculated as ($Stock\ Price_t$-$Stock\ Price_{t-1}$)/$Stock\ Price_{t-1}$, EPS_i is the earnings per share of firm i, $BVPS_i$ is the book value per share of firm i at the year-end , and ε_{it} is the error term indicating other information for firm i.

Furthermore, the explanatory powers of book values and earnings are separately estimated, since equity contains the income number. This decomposition is also applied to avoid multicollinearity problems (Collins et. al. 1997;Navdal 2010; Graham et. al 2000; Davis-Friday and Gordon, 2005) .

$$R_i = \propto_0 + \propto_1 BVPS_i + \varepsilon_i \qquad (2)$$

$$R_i = \propto_0 + \propto_1 EPS_i + \varepsilon_i \qquad (3)$$

As mentioned in the theoretical review, Davis-Friday and Gordon (2005) and Navdal (2010) claimed that the inconsistent results of the value relevance of earnings and book values during a time of financial distress were due to the lack of controlling negative earnings in the empirical analysis. Therefore, a test and control for the non-linearity caused by negative earnings are applied. For more control over negative earnings, a dummy variable is employed.

$$R_i = \propto_0 + \propto_1 EPS_i + \propto_2 BVPS_i + \propto_3 EPS_i \times D + \varepsilon_i \qquad (4)$$

$$R_i = \propto_0 + \propto_1 EPS_i + \propto_2 EPS_i \times D + \varepsilon_i \qquad (5)$$

where D=1 when EPS<0, otherwise 0

In addition to these regressions, a dummy variable for negative book values is also employed. In the sample there are firm-year observations with negative book values. The use of dummy variable for negative book values has not been seen in the literature reviewed for this thesis. In case of being significant dummy variable, the effect will be the sum of $\propto_1$ and $\propto_2$.

$$R_i = \propto_0 + \propto_1 BVPS_i + \propto_2 BVPS_i \times D + \varepsilon_i \qquad (6)$$

where D=1 when BVPS<0, otherwise 0

Table 4 shows the empirical distribution of the three variables return, earnings per share and book share per share. Median book values per share are lower than the mean book values per share, indicating that the distribution is skewed to the right and standard deviation of BVPS is comparatively higher. Median earnings per share are lower than the mean earnings per share.

Table 4
Descriptive Statistics (n=500)

	BVPS	EPS	RETURN
Mean	7.5085	0.6884	0.1831
Median	2.3232	0.1653	(0.0690)
Maximum	200	29.6697	6.0856
Minimum	(8.8335)	(14.6136)	(0.8456)
Std. Dev.	23.2217	2.2642	0.8470

The percentage of sample firms that reported negative earnings is 20.4% and the percentage of sample firms that reported negative book values is % 1.6.

Table 5 displays correlation matrices for the variables applied in the regression analyses for hypothesis 1 and 2.

Table 5
Correlation Matrix between EPS, Return and BVPS

	EPS	RETURN	BVPS
EPS	1.0000	0.0576	(0.0058)
RETURN	0.0576	1.0000	(0.0037)
BVPS	(0.0058)	(0.0037)	1.0000

It is interesting to discover negative correlations between return and BVPS and between BVPS and EPS. As expected, earnings and return are positively correlated. The low correlation between book value and earnings is an indicator of no collinearity problem. The reason of negative correlation between return and BVPS is thought to be negative BVPS. In the case of using the sample without negative book values per share, return and BVPS shows a positive correlation (0.0294).

Table 6
Value Relevance of EPS and BVPS

Year	**N**	α_0	α_1	α_2	R^2
2006	79	-0.0307	-0.0002	0.0000**	0.0013
		(0.4544)	(0.8585)	(0.0141)	
2007	83	0.0073	-0.0004***	0.0000*	0.0111
		(0.9432)	(0.0846)	(0.0000)	
2008	82	0.4105*	0.0001	0.0000*	0.0427
		(0.0000)	(0.3610)	(0.0000)	
2009	84	1.3364*	0.0023*	0.0000	0.0339
		(0.0000)	(0.0000)	(0.8847)	
2010	84	0.2604*	0.0000	0.0000*	0.0030
		(0.0000)	(0.8903)	(0.0000)	
2011	88	-0.1018	0.0000	0.0000*	0.0029
		(0.0006)	(0.8769)	(0.0000)	

$R_i = \alpha_0 + \alpha_1 EPS_i + \alpha_2 BVPS_i + \varepsilon_i$

Note: *,**,*** denote statistical significance at 1%, 5 % and 10 %, respectively. P-values are in parentheses.

Table 6 contains results of the first hypothesis without any consideration of negative earnings and book values. In this table, Equation 1 is tested. The regression result shows regression coefficients, as well as the total explanatory power from the return regressions yearly. The result shows that the coefficient of BVPS is significant in 2007, 2008, 2010 and 2011, while the coefficient of EPS is significant only in 2007 and 2009. These results imply that balance sheet items capture more relevant information than income statement items in 2008. But in 2009 EPS is significant. The explanatory power of regression increases starting from 2006 to 2008 and then declined.

Table 7 and 8 illustrate decomposed regression. In these tables, individual role of book value per share and earnings per share are seen.

Table 7
Value Relevance of BVPS

Year	N	α_0	α_1	R^2
2006	79	-0.0318	0.0000**	0.0010
		(0.4240)	(0.0144)	
2007	83	0.0025	0.0000*	0.0100
		(0.9800)	(0.0000)	
2008	82	-0.4114*	0.0000*	0.0403
		(0.0000)	(0.0000)	
2009	84	1.3652*	0.0000	0.0000
		(0.0000)	(0.7671)	
2010	84	0.2612*	0.0000*	0.0029
		(0.0000)	(0.0000)	
2011	88	-0.1016*	0.0000*	0.0029
		(0.0005)	(0.0000)	

$R_i = \propto_0 + \propto_1 BVPS_i + \varepsilon_i$

Note: *,**,*** denote statistical significance at 1%, 5 % and 10 %, respectively. P-values are in parentheses.

Table 8:
Value Relevance of EPS

Year	N	α_0	α_1	R^2
2006	79	-0.0295	-0.0002	0.0002
		(0.4647)	(0.8608)	
2007	83	-0.0026	-0.0003***	0.0010
		(0.9792)	(0.0913)	
2008	82	0.4040*	0.0001	0.0026
		(0.0000)	(0.3430)	
2009	84	1.3362*	0.0022*	0.0339
		(0.0000)	(0.0000)	
2010	84	0.2636*	0.0000	0.0001
		(0.0000)	(0.8992)	
2011	88	0.1033*	0.0000	0.0000
		(0.0004)	(0.8539)	

$R_i = \propto_0 + \propto_1 EPS_i + \varepsilon_i$

Note: *,**,*** denote statistical significance at 1%, 5 % and 10 %, respectively. P-values are in parentheses.

Table 7 and 8 contain estimates of the individual role of earnings and book values and support and complement the results in Table 6. Coefficients on earnings per share shown in Table 8 report significant results in 2007 and 2008. Coefficients on book value in Table 7 are significant except 2009 during the sample period. In Table 7, the coefficient of book value per share is negative in 2007 and 2011, but the coefficients are close to zero in four digits. Earnings coefficients vary in the period and make it difficult to identify any trend, while book value coefficients seem to be quite stable throughout the sample period. R^2 is higher in 2008 and 2009 for EPS for BVPS highest R^2 is seen in 2008. In 2009, explanatory power of EPS is higher than BVPS. So this result indicates that investors turn to income statement information rather than balance sheet during 2009.

Table 9

Value Relevance of EPS and Negative EPS

Year	N	α_0	α_1	α_2	R^2
2006	79	-0.0162	-0.0003	0.1492***	0.0202
		(0.7015)	(0.7812)	(0.0663)	
2007	83	0.0046	0.00040***	0.04147***	0.0029
		(0.9645)	(0.0899)	(0.0788)	
2008	82	-0.3988*	-0.0007*	0.0009*	0.0159
		(0.000)	(0.0000)	(0.0000)	
2009	84	1.3362*	0.0023*	-0.0001	0.0339
		(0.0000)	(0.0000)	(0.9997)	
2010	84	0.2742*	0.0000	0.4586	0.0053
		(0.0000)	(0.9445)	(0.3878)	
2011	88	-0.0964*	0.0000	0.0048*	0.0362
		(0.0010)	(0.3645)	(0.0000)	

$$R_i = \propto_0 + \propto_1 EPS_i + \propto_2 EPS_i \times D + \varepsilon_i$$

Note: *,**,*** denote statistical significance at 1%, 5 % and 10 %, respectively. P-values are in parentheses.

Table 9 presents results from a re-run of the regressions to control for negative earnings as Davis-Friday and Gordon, (2005) recommend. The results support previous evidence where researchers suggest that an adjustment for negative earnings strengthen the explanatory power of variability in market values (Davis-Friday and Gordon, 2005; Navdal, 2010). When the model controls for negative earnings, EPS is becoming significant in 2008. The coefficient of earnings is negative and significant, while the coefficient of negative earnings is positive and significant, suggesting that firms earnings are value relevant with positive effect. In 2009, to control negative earnings has no impact on value relevance, so there is positive relationship between earnings and returns and controlling negative earnings does not change the level of explanatory power.

Table 10

Value Relevance of BVPS and Negative BVPS

Year	N	α_0	α_1	α_2	R^2
2006	79	-0.0309	0.0000***	0.0000***	0.0016
		(0.4465)	(0.0174)	(0.0730)	
2007	83	-0.0068	-0.0000*	-0.2501*	0.0188
		(0.9461)	(0.0000)	(0.0000)	
2008	82	(0.4147)*	0.0000*	-0.0353*	0.0510
		(0.0000)	(0.0000)	(0.0000)	
2009	84	1.3315*	-0.0000	-0.8567	0.0868
		(0.0000)	(0.9965)	(0.7671)	
2010	84	0.2548*	0.0000*	-0.3157*	0.0150
		(0.0000)	(0.0000)	(0.0000)	
2011	88	(0.0978)*	0.0000*	-0.0377*	0.0029
		(0.0008)	(0.0000)	(0.0000)	

$R_i = \propto_0 + \propto_1 BVPS_i + \propto_2 BVPS_i \times D + \varepsilon_i$

Note: *,**,*** denote statistical significance at 1%, 5 % and 10 %, respectively. P-values are in parentheses.

Table 10 illustrates re-run of decomposed regression for book value to control for negative book values. It is seen that controlling BVPS is increasing explanatory power. When BVPS is divided into positive and negative BVPS samples, explanatory power of the model has increased in general except 2007. In 2009, the explanatory power of BVPS is close to zero in four digits as seen in Table 7, but after controlling negative values, it increases to 0.0868. It is not common to see firms with negative BVPS but in this sample for Turkey, we observe.

Table 11

Value Relevance of EPS, BVPS and Negative EPS

Year	N	α_0	α_1	α_2	α_3	R^2
2006	79	-0.0174	-0.0003	0.0000**	0.1483***	0.0210
		(0.6869)	(0.7803)	(0.0395)	(0.0696)	
2007	83	0.0150	-0.0004*	0.0000*	0.04350***	0.0131
		(0.8874)	(0.0830)	(0.0000)	(0.0710)	
2008	82	-0.4053*	-0.0007*	0.0000*	0.0009*	0.0558
		(0.0000)	(0.0000)	(0.0000)	(0.0000)	
2009	84	1.3365*	-0.0000*	0.0023	0.0002	0.0339
		(0.0000)	(0.0000)	(0.8901)	(0.9994)	
2010	84	0.2709*	0.0000	0.0000*	0.4485	0.0080
		(0.0000)	(0.9348)	(0.0001)	(0.4011)	
2011	88	-0.0948)**	0.0000	-0.0000*	0.0048*	0.0394
		(0.0014)	(0.3455)	(0.0000)	(0.0000)	

$R_i = \propto_0 + \propto_1 EPS_i + \propto_2 BVPS_i + \propto_3 EPS_i \times D + \varepsilon_i$

Note: *,**,*** denote statistical significance at 1%, 5 % and 10 %, respectively. P-values are in parentheses.

Table 11, which controls for the presence of negative earnings, sheds lights on the increased coefficient of earnings and better explanatory power of model. When it is compared with the regression results without controlling negative earnings in Table 8, controlling negative earnings increased the significance of earnings. Before the crisis, book value is more relevant compared to earnings, but in the crisis time, earnings is also become value relevant with controlling negative earnings. In 2009, only earnings are value relevant. Before the financial crisis and after the financial crisis, investors in Turkey base their investment decisions on book value. According to Horngren et al. (2010) they can be called as value investors in contrast to growth investors focusing on patterns in net income. But in crisis time, earnings per share have become value relevant. Especially in 2009 only earnings per share is more value relevant and book values have no effect, but in post-GFC book value is becoming value relevant and earnings per share is losing its relevance. This result makes sense as t balance sheet statements capture more relevant information than income statements. In 2009, there is a positive relationship between EPS and return. In 2008, after the control over EPS, there is also a positive effect.

The conclusion drawn here is that accounting information reflected in earnings and book values are value relevant to investors in the Turkish Stock Market. This indicates that the first hypothesis fails to be rejected. The results suggest that accounting information reflected in earnings and book value are more value relevant during the financial crisis period compared to the pre-crisis period. Relative to earnings, the explanatory power and the incremental values suggest that book values are more valued by investors except for 2009.

Additionally, the explanatory power of earnings seems to increase after controlling negative earnings. Control for negative earnings improves the results and enhances the measurements of value relevance. This indicates that hypothesis two is rejected. The relevance of earnings on return is significant and does not decrease during the financial crisis period.

After testing value relevance of earnings and book values, selected accounting items which are important for investors are conducted into analysis. In selection process, communiques announced by Capital Markets Board of Turkey (CMB) and new trends used in analyzing firms' performance by focusing on risks are taken into consideration. Depending on comments of independent auditors during the financial crisis (PWC, 2008; E&Y, 2011) these selected items are "doubtful receivables", "debt to equity ratio", "goodwill impairment".

The other hypotheses we developed about the value relevance of accounting measures are selected as indicators of risks that become important during the crisis time. Hypotheses are as follows:

$$R_{i} = \alpha + \beta_1 DoubtRec_i / AccRec_i + \beta_2 TDebt_i / TEquity_i + \beta_3 GWI_i / TGW_i + \varepsilon_i \quad (7)$$

Hypothesis 3: Selected accounting information which reflects the risk of the firm explains the variability in stock prices in pre-, during and post-crisis periods in the Turkish Stock Exchange.

R is annual stock returns for firm i for the 12-month period ending three months after the reporting date, calculated as (Stock $Price_t$- Stock $Price_{t-1}$)/ Stock $Price_{t-1}$

$DoubtRec_i$ /$AccRec_i$ is total doubtful receivables for firm i divided by accounts receivables

$TDebt_i$ / $TEquity_i$ is total debt to total equity for firm i

GWI_i / TGW_i is good impairment to total goodwill booked for firm i

To be valid after 2007, CMB required adding disclosure about equity risk management. In this disclosure, firms give information about equity management to obtain gain and benefit for their shareholders and to decrease cost of capital for the persistence of the firms' operations by adequate capital structure. For that reason, financial debt / shareholders' equity is added into the analysis.

Since global stock markets went into decline in 2008, there has been much debate over the issue of goodwill impairment in foreign markets and Turkey. Many companies may hide actual values of their impairment losses on goodwill, particularly during the financial crises in order to protect their stock value. Because goodwill and asset impairment charges are non-cash, they affect earnings rather than cash flows. Therefore, it will increase debt-equity ratio. Gürarda and Mandacı (2012) analyze goodwill impairment for companies listed in ISE-100 index for years 2008 and 2009 covering the recent financial crisis. It is found that there are 32 and 30 companies listed in ISE-100 having goodwill accounts in 2008 and 2009 respectively. While in 2008, only 8 of 32 firms have an effective disclosure about the method they have used in goodwill impairment test, in 2009 this number is 11 out of 30 firms. In our sample, there are 3 firms in 2007, 2 firms in 2008, 5 firms in 2009, 6 firms in 2010 and 3 firms in 2011. So after financial crisis there is an increase in goodwill impairment booking. The goodwill impairment to goodwill ratio is added by analyzing comments of independent auditors' reports, new communiques announced by the Capital Markets Board of Turkey For goodwill impairment booking, annual reports of firms are reviewed and read for all firms with goodwill account.

Another risky situation for firms is the increase in doubtful receivables in crisis period. Doubtful receivables are also called as uncollectable accounts or receivables, in this thesis doubtful receivables term will be used. For presenting account receivables at net realizable value, management should analyze their trade receivables by monitoring financial condition, credit level and collection period assigned for their customers. In financial crisis, due to liquidity problems and bankruptcies in real sector, it is assumed that doubtful receivables will increase. For the aim of fair value presentation, management should identify the risk in their receivables and they should present it as doubtful receivables. By reviewing and reading annual reports of firms in the sample, the amounts of doubtful receivables amounts are collected, and the ratio of doubtful receivables to total trade receivables is employed in the analysis.

In table 12, the mean distribution of two variables (doubtful receivables to accounts receivables and total debt to total equity) for each year is shown. The mean of the ratio of accounts receivable to doubtful receivables increases after financial crisis. It may be the result of in depth analysis of trade receivables and the sign of bath for toxins during the crisis time. When mean of doubtful receivables to accounts receivable is examined, mean of 2011 is ranked as the second. This increase may also depend on ongoing effects of financial crisis because most of firms set liberal payment duration terms to their customers in financial crisis, which could be a result of non-payments coming from crisis. Total debt to equity ratio is at the highest level in 2008.

Table 12

Mean of the DoubtRec / AccRec and TDebt / TEquity for Each Year

	DoubtRec / AccRec	TDebt / TEquity
2006	0.056	0.3346
2007	0.0822	0.2576
2008	0.0712	0.6069
2009	0.1239	0.4897
2010	0.0678	0.3672
2011	0.1163	0.4728

Table 13

Descriptive Statistics for Ratios(n=500)

	GWI /TGW*	DoubtRec / AccRec	TDebt / TEquity
Mean	0.2028	0.0868	0.4223
Median	0.1041	0.0257	0.2522
Maximum	1	3.7106	20.2954
Minimum	0.0013	0	-22.6091
Std. Dev.	0.2410	0.2721	2.1997

*There are only 19 firms booked goodwill impairment.

Table 13 shows the descriptive statistics of goodwill impairment to total goodwill, doubtful receivable to accounts receivable and total debt to total equity. Median values for all variables are lower than the mean, indicating that the distribution is skewed to the right and standard deviation of total debt to total equity is relatively higher. The minimum value observed in Table 13 is -22.6091. The reason for negative value seen in debt to equity ratio is negative value of shareholders equity account due to prior years' loss. The percentage of sample firms that reported negative equities is % 1,6.

Table 14
Correlation Matrix for Ratios

	DoubtfulRec/ AccRec	TDebt/TEquity	GWI/TGW
DoubtfulRec / AccRec	1.0000	0.0145	0.0327
Tdebt / TEquity	0.0145	1.0000	0.0463
GWI / TGW	0.0327	0.0463	1.0000

The low correlation between variables is an indicator of no collinearity problem.

Table 15

Value Relevance of selected Accounting Items for Risk

Year	N	α	β_1	β_2	β_3	R^2
2006	79	-0.0215	0.2080	-0.0618	-	0.0164
		(0.6573)	(0.5340)	(0.3156)	-	
2007	83	-0.0117	0.2553	-0.0410	-1.5843	0.0054
		(0.9219)	(0.6558)	(0.6613)	(0.3455)	
2008	82	-0.4238*	0.2970**	-0.0012	-8.2800**	0.0251
		(0.0000)	(0.0123)	(0.7626)	(0.0190)	
2009	84	1.4618*	-0.0769	-0.1818**	0.0700	0.0568
		(0,0000)	0.2537	0.0259	0.8949	
2010	84	0.3094*	-0.3589	-0.0250*	-1.3797**	0.0369
		(0.0000)	(0.3699)	(0.0000)	(0.0244)	
2011	88	-0.0880**	-0.1306**	0.0063	-0.2849	0.0559
		(0.0034)	(0.0214)	(0.4358)	(0.2772)	

$R_{i=}\ \ \alpha+\ \beta_1 DoubtRec_i\ /AccRec_{i\ +}\ \beta_2 TDebt_i/TEquity_{i\ +}\ \beta_3 GWI_i\ /\ TGW_i + \varepsilon_i$

Note: *,**,*** denote statistical significance at 1%, 5 % and 10 %, respectively. P-values are in parentheses.

In 2006, there is no goodwill impairment booking for the sample of firms.

Most of the companies are carrying heavy accounts receivable in their financial statements. With every increase in accounts receivable, there is a higher risk of default that is borne out by the business and such defaults or bad debts are a loss to the business. Therefore, investors interpret an increase in doubtful receivables as a sign of weak accounts receivable management and investors. So minus sing is expected for this ratio. As seen in the table 15, up to the crisis period, coefficient of doubtful trade receivables to total trade receivables is positive, but negative sign is seen after 2008. The expectation for the sign of this ratio is negative because increase in doubtful receivables is a signal of poor management performance in collecting receivables. Negative sign is seen after 2008, but they are insignificant except for 2011. The negative relationship between return and doubtful trade receivables to total trade receivables is seen after 2009, and significant coefficient is observed in 2011. This means that perception of investors has changed after the crisis period. When pre and post crisis periods are analyzed, for the coefficient sign of this ratio, the sign is changing in the crisis period, which also continues after the crisis period.

Debt to equity ratio measures a company's ability to borrow and repay money. Creditors use this ratio in the assessment of company's financial health. Balance sheet strength becomes important for investors during the recession or downward phase as seen in financial crisis. It can also determine whether a company has a strong financial position enough to survive through a tough period. So table 15 demonstrates increase in debt to equity ratio which means decrease in the return of shares. When total debt to equity ratio is analyzed, significant and negative coefficient is seen in only 2009 and 2010. This is the period just after financial crisis. In 2008, coefficient of debt to equity ratio is negative but not statistically significant. The mean of this ratio is also increasing in 2008 and 2009. This may be due to financing problems faced because of recession and increase in foreign exchange rates. When 2007 and 2011 are analyzed, these years have the same characteristics. Hence, the behavior of investors is changing during the crisis, after which they are turning back to before-crisis behavior.

According to IFRS, impairment charge is recorded if the carrying amount of goodwill exceeds its fair market value. Xu et al. (2011), Li et. al (2010) and AbuGhazaleh (2012) indicate that goodwill charges are negatively viewed by investors, Negative coefficient sign is expected for goodwill impairment to total goodwill ratio. For the sample of this thesis, there are only 19 firm-year observations Negative sign is experienced all years except 2009 but in 2009 coefficient is statistically insignificant. In 2008 and in 2010, statistically significant coefficients indicate that there is negative relationship between goodwill impairment and return. Market reacts negatively to the announcement of the goodwill impairment in 2008 and in 2010.

In fact, not only do these three variables exist in the study but also return on assets, the percentage of expense provisions in total liabilities, change in sales, change in financial investments, financial investment to total assets, fair value fund of financial investment to shareholders' equity are also calculated. We run regressions with different combinations with the variables listed above but the decrease in explanatory power is experienced, which is a sign of inclusion of irrelevant variables so we limited variables with these three variables.

Table 16
Value Relevance of selected Accounting Items for Risk with OCFPS and Expense Provisions

Year	N	α	β_1	β_2	β_3	β_4	β_5	R^2
2006	79	-0.0455	0.2207	0.2088	-0.0543	-0.0014		0.0207
		(0.5019)	(0.5196)	(0.6281)	(0.3796)	(0.7705)		
2007	83	0.1009	0.2012	-0.8285	-0.0621	-0.0125	-1.9446	0.0173
		(0.5592)	(0.7272)	(0.0995)	(0.4845)	(0.4848)	(0.2861)	
2008	82	-0.4612*	0.2836***	1.0512	-0.0005	0.0110	-8.1761**	0.0535
		(0.0000)	(0.0085)	(0.2938)	(0.8620)	(0.3994)	(0.0254)	
2009	84	1.3309*	-0.0864	2.2449	-0.1670**	0.0389**	-0.0207	0.0962
		(0.0000)	(0.2046)	(0.3418)	(0.0739)	(0.0792)	(0.9696)	
2010	84	0.3011*	-0.4370	-0.5066	-0.0233*	0.0310	-1.2282*	0.0517
		(0.0003)	(0.2614)	(0.5567)	(0.0000)	(0.2278)	(0.0441)	
2011	88	-0.1104*	-0.1260**	0.8139	0.0065	-0.0072	-0.2727	0.0942
		(0.0007)	(0.0231)	(0.2159)	(0.3875)	(0.4059)	(0.2543)	

$$R_{i=}\ \alpha + \beta_1 DoubtRec_i / AccRec_{.} + \beta_2\ ExpPr_i / TLiab_i + \beta_3 OCFPS_i + \beta_4 TDebt_i / TEquity_i + \beta_5 GWI_i / TGW_{i} + \varepsilon_i$$

Note:*,**,*** denote statistical significance at 1%, 5 % and 10 %, respectively.
In 2006, there is no goodwill impairment booking for the sample of firms.
P-values are in parentheses

In Table 16, value relevance of expense provisions to total liabilities (*ExpPr / TLiab$_{t}$)* and operational cash flow per share (OCFPS) are added. As seen in Table 14 operational cash flow per share is value relevant in only 2009 and expense provisions to total liabilities is not value relevant for this sample. We have added these two variables because they do not cause a decrease in R^2. The other variables[5] are not significant and the decrease in explanatory power is experienced

[5] Other calculated variables for this study are return on assets, change in sales, change in financial investments, financial investment to total assets and fair value fund of financial investment to shareholders' equity.

CONCLUSION

Value relevance is a major area in capital market research where the minority of studies enhances value relevance and financial distress. Most studies examine value relevance in regional crises such as Asian Financial Crisis, Mexican Crisis. However, there are limited number of studies investigating Global Financial Crisis and value relevance. More specifically, there are few studies investigating the value relevance of accounting information in the Turkish Stock Market, especially during, pre-and post-global financial crisis periods.

This thesis provides an empirical evidence of how investors in the Turkish Stock Market perceive accounting information, denoted in earnings, book value and ratios such as debt to equity, doubtful receivables to total trade receivables, goodwill impairment to total goodwill, to be value relevant.

Several researchers suggest that controlling for negative earnings benefits accounting information's ability to explain security prices (Davis-Friday and Gordon, 2005 and Navdal, 2010). As expected, an improvement in value relevance appears when adjusting for negative earnings in the model specification. With control over negative earnings, an increase in the significance of earnings' coefficient and better explanatory power of models variables are seen.

In yearly analysis, for pre-GFC period, book value is more relevant compared to earnings, but in the crisis time, earnings become value relevant by controlling negative earnings. In pre-GFC post-GFC period, book value of equity is value relevant. In 2008, earnings per share also become value relevant and in 2009 only earnings per share are value relevant. So there is a change in investor's behavior in financial crisis time. This result makes sense as those balance sheet capture more relevant information than income statements except for 2008 and 2009. So a shift from earnings to book values in terms of value relevance in financial crisis is not observed in the Turkish Stock Market. After financial distress, the market goes back to its characteristics observed in pre-GFC period.

Empirical results drawn by using 500 firm-year observations sample of firms listed on the Istanbul Stock Exchange-100 Index from 2006 to 2011 are supported by a large number of prior studies suggesting that accounting information is value relevant by yearly analysis.

So, the first hypothesis that is based on accounting information proxied by book value of equity and earnings explains the variability in stock returns fails to be rejected. Hypothesis two that figures out the association between financial health and value relevance during the crisis time by a shift from value relevance of earnings to value relevance of book values is rejected because control over negative earnings improves the results and enhances the measurements of value relevance during the crisis period.

The other part of analysis depends on value relevance of accounting measures which are selected as risk indicators that become important during the crisis time. These indicators are doubtful receivables to total trade receivables, debt to equity ratio and goodwill impairment to total goodwill.

After financial crisis, most of companies carry heavy account receivables in their balance sheet and during the financial an increase distress is observed in the mean of doubtful trade receivables to total trade receivables ratio. Significant coefficient is seen in 2009 and 2010, which may depend on ongoing effects of financial crisis because most of the firms set liberal payment terms to their customers during financial crisis and this could be a result of non-payment coming form crisis period. The change in the sign and significance level is a signal for changes of investors' perception.

Debt to equity ratio is another important ratio that is used especially by creditors for the assessment of company's financial health. This ratio becomes value relevant in 2009 and 2010. Increase in this ratio causes decrease in market return. But behaviors of investors change after crisis, and the same pattern in pre-crisis period is observed. When good impairment to total goodwill is examined, market reacts negatively to the announcement of goodwill impairment in 2008 and 2010.

The third hypothesis is built on the value relevance of selected accounting information such as doubtful receivables to total trade receivables, debt to equity ratio and goodwill impairment to total goodwill in pre-, during and post-crisis GFC periods in the Turkish Stock Exchange, which fails to be rejected.

From an academic point of view, this study contributes significantly to the value relevance literature as the first comprehensive Turkish study to date that investigates the impact of GFC on the value relevance. Unlike traditional value relevance studies, this study takes the value relevance of book values and earnings by controlling negative values into account during the empirical analysis. Previous literature on value relevance shows that the effect of ratios such as doubtful receivables to total trade receivables, goodwill impairment to total goodwill on value relevance have not been concurrently examined before. Hence, this is the first study to use the above mentioned ratios in the analysis of value relevance for the Turkish market.

From practical point of view, this study is expected to provide valuable insights for investors, regulators, standard setters and other participants in the Turkish Capital Market since the findings of this dissertation enhance the understanding of how a change in investors' perception triggered by the GFC affects the value relevance of accounting information. It also provides valuable insights for regulators and standard setters to stabilize investors' confidence in any subsequent crisis of a similar nature with additional communiques for the assessment of risk and fairly presented financial statements. While it is seen that with the communiques of CMB, new disclosure is added for debt to equity ratio, it is value relevant according to our empirical findings. Another important result for regulators and standard setters is value relevance of goodwill impairment.. With the sample of nineteen firms' yearly observations, negative relationship between market return and goodwill impairment is found, but compared to the examples in other markets, the number of observations for goodwill impairment is insufficient. Therefore, new regulations for goodwill impairment tests may be introduced by CMB. Present and potential investors may use the findings in any crisis with similar characteristics while determining whether they should buy, hold or sell equity shares.

This study is subject to several limitations. First, it examines value relevance of accounting measures by employing firms listed in ISE-100 Index. In other words, firms with larger market capitalization are used and financial institutions are excluded due to different regulations applied for the firms in this sector. From this point of view, several future research opportunities may stem from this study. First, future research may examine the issue utilizing financial institutions in Turkey. Although different regulations are applied to financial institutions, including the financial firms in Turkey may enhance the strength of the conclusion. For future research, it would also be interesting to focus on firms with smaller capitalization to explore any similarities and differences with the results of this study.

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