A NEW TECHNIQUE TO INVESTIGATE THE VALUE RELEVANCE OF ACCOUNTING INFORMATION: THE ENTITY APPROACH

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Submitted to the Graduate School of Social Sciences
in partial fulfillment of the requirements for the degree of
Doctor of Philosophy
in
Contemporary Management Studies

IŞIK UNIVERSITY
2008

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Abstract

The value relevance of accounting information has been a subject of intensive academic research in the last two decades. By definition, any type of information is value relevant provided that it updates the beliefs of investors about the value of an asset. Going forward from that definition, many researchers have undertaken studies to investigate the value relevance of accounting information as well as other constructs from financial statements of publicly traded companies. Ohlsson's valuation model, that relates the market value of shareholders' equity of a company to the book value of shareholders' equity and net income of the company, forms a useful framework that helps researchers model their hypothesis.

The analysis in my doctoral thesis differs from the work of other scholars in that I analyze the relationship between the enterprise value of a company, the after tax operating profit and the modified asset value. Using a similar one to the classical approach in the literature, I derive the equation relating the aforementioned variables to each other. Thereafter, using data collected from the Istanbul Stock Exchange database for market value of listed companies and their financial statements, I show that my approach yields higher explanatory power.

MALİ TABLO VERİLERİNİN DEĞER İLİŞKİSİNİ İNCELEMEK İÇİN YENİ BİR YÖNTEM: VARLIK YAKLAŞIMI

Özet

Mali tablo verilerinin değer ilişkisi üzerine son yirmi senede birçok akademik çalışma gerçekleştirilmiştir. Tanım olarak, herhangi bir bilgi, yatırımcıların bir varlığın değeri konusundaki düşüncelerini geliştiriyorsa, değer ilişkisi taşır. Bu tanımdan yola çıkarak, halka açık şirketlerinin mali tablo verileri veya bu tabloların içerdiği başka bilgilerin değer ilişkisi taşıyıp taşımadığına dair birçok araştırma gerçekleştirilmiştir. Şirket özkaynaklarının piyasa değerini, özkaynakların defter değeri ve net kar ile ilişkilendiren Ohlsson değerleme modeli, bu araştırmalarda hipotezin test edilmesi için oldukça yararlı bir model olarak dikkat çekmektedir.

Benim doktora tez çalışmamda kullandığım yöntem, diğer benzer çalışmlardan, şirket değeri ile vergi sonrası faaliyet karı ve farklılaştırılmış aktif büyüklüğü arasındaki ilişkiyi incelemesi yüzünden farklılık taşımaktadır. Klasik yöntemde kullanılan metodolojinin bir benzeri ile, çalışmamda bahsettiğim değişkenler arasındaki ilişkiyi türettiğim çalışmam, İstanbul Menkul Kıymetler Borsası verilerini kullanarak modelimin tecrübe edilmesini içeriyor. Çalışmamda gösterdiğim üzere, kullandığım varlık yöntemi, değer ilişkisi için klasik özkaynak yönteminden daha fazla açıklama gücüne sahip.

Acknowledgements

My long journey towards the end of the doctoral thesis that began in 2002 at Işık University has been a most valuable and enlightening one. Throughout this journey, I obtained generous help from many people without whose contribution the finalization of this thesis would not have been possible.

First of all, I would like to extend my thanks to my professors at the Dissertation Committee. Prof. Dr. Mehmet Emin Karaaslan, Prof. Dr. Metin Çakıcı and Prof. Dr. Toker Dereli have all contributed a lot with their wisdom and experience to my dissertation work from early stages to the end. My dear Prof. Dr. Murat Ferman has opened my way back to the academic world by granting admission to the Ph. D. Program.

Without the help of an understanding and loving wife, the completion of the dissertation work would be merely a dream. My wife Melis revealed much patience during nights of relentless hard work when I worked step by step towards the finalization of my dissertation.

Last but not the least, Assoc. Prof. Kerem Şenel, a thirteen-year old friend, has persuaded me that I can indeed start and finalize such a hard program in the midst of my professional career. He has been a lender of last resort for any type of help in everything I accomplished in the program.

To my beloved daughter Beste, who contributes meaning to everything in my life ...

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List of Abbreviations

AIMR .....The Association of Investment Management and Research

ATOP .....After Tax Operating Profit

BV_t .....Book Value (of Shareholders' Equity) at year-end t

CDO .....Collateralized Debt Obligation

CMB .....Capital Markets Board

DAS .....Domestic Accounting Standards

D_t .....Net Cash Dividend to be distributed at year-end t

E_t .....Earnings in year t

FASB .....Federal Accounting Standards Board

GAAP .....Generally Accepted Accounting Principles

IAS .....International Accounting Standards

IFO .....Integrated Foreign Operation

IMF .....International Monetary Fund

IPO .....Initial Public Offering

ISE .....Istanbul Stock Exchange

MA .....Modified Asset Size

NI .....Net Income

NTL .....New Turkish Lira

R&D .....Research and Development

RATOP .....Residual After Tax Operating Profit

R_{ek} .....Nominal cost of equity for year k

RI_t .....Residual Income at year t

S&A .....Selling and Administrative

SEC .....Securities Exchange Commission

SEE .....State owned Economic Enterprise

SME .....Small to Medium Enterprise

SPO .....Secondary Public Offering

SSFO .....Self Sustained Foreign Operation

V_e .....Book Value (of Shareholders' Equity) at year-end t

WACC .....Weighted Average Cost of Capital

Chapter 1

Introduction

1.1 Aim of the Study

This is a study to investigate the value relevance of accounting information using an entity approach. The entity approach, as will be explained in detail through the rest of the study, expresses the enterprise value of a company in terms of modified asset value and after tax operating profit; in stark contrast to the traditionally used Ohlsson model that relates the market value of equity to the net earnings and book value of a company.

1.2 Brief History of the Istanbul Stock Exchange

Turkey has a very short history of organized trading in equities compared to other global emerging markets. The Istanbul Stock Exchange (hereafter referred as "The ISE") has only been established in 1986, although some very fast progress has been observed in the following few years. In 1989, foreign investors were allowed to buy into publicly traded shares of Turkish companies. In 1994, electronic trading commenced in the ISE. The current agenda of the ISE is to establish a secondary over-the-counter market where shares of small-to-medium enterprises ("SME") will be traded. This will help the SMEs in Turkey to gain access to equity capital.

1.3 Principles of an Initial Public Offering

Floating its shares in an organized stock exchange serves two potentially important purposes of a controlling shareholder. If an investor has interest to invest in other

businesses and wants to raise funds from her existing business by selling off all or part of his share, she can employ an investment bank as the intermediary and pursue an initial public offering to sell a certain part of her company to other investors. This provides a suitable exit opportunity for a shareholder who wants to partially exit and capitalize from his existing business. In that case, by placing an initial public offering ("IPO") with the so-called "sale of shares of existing shareholders", the controlling investor can raise funds for her other businesses.

On the other hand, it may as well be the case when the need arises for an investor to raise funds for his existing company to expand its scope (capital expenditures, investments into public relations and advertising, acquisition of another company, etc.). If such a need arises, the investor does not sell his existing shares. Instead, the company's board of directors suggest to increase the company's paid in capital by restricting its existing shareholders to participate in the capital increase. The newly issued shares will be sold to other investors through an initial public offering. If the investor decides to increase company's equity through a so-called "restricted rights issue", her share in the company post transaction will decrease while the needed funds will be directly injected into the company's balance sheet and will be used to finance future projects.

Notwithstanding with the two methods to float shares in a stock exchange, an investor may decide to structure the offering in such a way that the offered shares to the public consist of both her existing shares and freshly issued equity capital.With such a "hybrid" issue, the company enjoys fresh cash capital injection while she raises funds to finance other businesses or projects.

When a company has undertaken an IPO, it can raise funds from the Stock Exchange any time again by undertaking a "secondary public offering" ("SPO"). While the process of placing an SPO is very similar to an IPO, it is less costly since much information about the company has been already made public as per requirements of the Capital Markets Board ("CMB") of Turkey.

1.4 Brief Information about the Investment Environment in Turkey

Investment in the ISE has been characterized with high risks and high returns throughout the twenty years of the ISE's operation. Frequent economic crises in Turkey have been characterized with high real returns on fixed income instruments and considerable volatility in returns of equities. The traditionally high level of Turkey's current account deficit has caused unpredictable and large scale volatility in foreign exchange rates during the time of crisis which has resulted in temporary deterioration in companies' local currency based financial statements. Moreover, the contraction of the Turkish economy in the aftermath of crises has as well continued the associated worsening in companies' stock prices quoted in the ISE. The economic crises in Turkey have been either caused by spillover effects from crises in other emerging markets ("Tequila" crisis in Mexico in 1994/ resulting run on the Turkish Lira and devaluation; Crisis in South Asian "Tigers" in 1997/local currency devaluation) or they have as well been home-made (Banking sector crisis in 2001 followed by the devaluation of the Turkish Lira and economic contraction in excess of 9%). A number of different factors have been held responsible for the fact that crises in the international arena have easily affected the Turkish financial and real sectors.

1.4.1. Factors contributing to Economic Fragility in Turkey before 2001

First and foremost, the banking sector in Turkey was largely paralyzed by the mismanagement of the state owned banks before 2001. The use of these banks to finance irrational projects for political reasons, and even to make up for the rising public sector borrowing requirement, exacerbated the crisis in the financial sector that led to the worst banking crisis in the history of the Turkish Republic in 2000 and 2001.

Secondly, political stability was highly disrupted in the 1990s in Turkey. Ill formed coalitions that could hardly take the right economic decisions at the right time, led to ever worsening of the funding of the current account balance. Privatizations remained weak in the 1990s as the coalitions usually lacked the will to sell of large State owned Economic Enterprises ("SOE's"). With the necessary discipline absent in the public finance, the budget deficit was largely funded with a soaring domestic public debt stock

that resulted in rising inflation and high real interest burden on public borrowing, which further worsened the economic conditions in Turkey.

A third important factor that contributed to the easy spillover of global crises into Turkish financial markets can be the ever increasing globalization of financial markets. When portfolio managers have the freedom to move their funds between international financial markets, they do opt to invest in safe havens – financial markets of developed countries – if a financial crisis erupts in an emerging market. Therefore, if market conditions deteriorate in a particular emerging market, an exodus of investments in general can be observed throughout the rest of other emerging markets. Much in parallel to this effect, the use of benchmark indices for measuring the success of portfolio managers also leads to the increasing correlation between financial markets. Such indices have certain weights for countries' assets within the index. If a portfolio manager reacts to a deteriorating condition within a country by decreasing his holdings in the asset classes of that country, the weight of other countries' assets in his portfolio automatically increases. Such an outcome is not a desired situation for portfolio managers since she deviates from her benchmark index as a result. The rational behavior for such a manager then becomes decreasing her weight in the assets of other emerging market countries. The resulting selling pressure in the assets of a particular country thereafter reflects itself as rising interest rates and falling stock prices and valuations of listed companies.

1.4.2. Distortion of Financial Information through High Inflation

International Accounting Standards and Accounting Standards under High Inflation has only been recently applied to publicly traded companies and the lack of such practices in the 1990s and the beginning of the 2000s led to very distorted illusionary losses and earnings of companies that in turn led to ever decreasing investor appetite. To understand whether high inflation can lead to illusional taxable gains for investors, one can consider the following example. Suppose that a company has YTL100,000 in cash that has been deposited at 100% interest rate at a local bank account in Turkey. The interest revenues of the company at year-end will thus be YTL100,000. Yet, as the

company will pay corporate taxes from its interest revenues at 33%, YTL33,000 will be deducted from the taxable income in taxes. Thus, the real return of the company from his investment will decrease to YTL67,000 after taxes. If the inflation rate in the country exceeds 67%, the company records a real loss on its investment. Rather than doing this, investors in Turkey demanded higher returns and pushed up interest rates. This self-destructing cycle led to an ever increasing public sector debt stock in Turkey. The severity of the situation worsened with a number of accompanying factors; such as the miserable financial situation of public banks that were used as financing vehicles for governments, weak budgetary discipline, political instability and the spillover effects of global financial crises.

Inflation may also hurt operating profitability of manufacturing companies. As raw material inventory is recorded at historical cost in the balance sheet, companies with low inventory turnover may record illusionary operating profits during high-inflationary periods. Suppose that a retailer buys some good at YTL10. Also suppose that this same retailer sell this good at YTL13 after two months. The initially purchased good will be transferred firstly to inventory at acquisition value. When sold, the inventory will be transferred to the cost of goods sold at historical cost. Yet, when the company wants to restock inventory, it will buy the same good at a higher price during an inflationary period. Suppose that after two months, the cost of this good to the company will be YTL 11. Therefore, the income statement of the company will record YTL 3 taxable income while the real economic profit of the transaction is YTL 2.

1.4.3. When Banks deviate from their Routine Functions

The normal function of a bank is to act as an intermediary for financial transactions. On the liabilities side, the bank collects funds from holders of deposit, from financial institutions, from investors and from its shareholders. On the assets side, the bank then uses these funds to generate revenues in the form of interest from a variety of sources. It can use these funds to finance projects, it can lend these funds to consumers or it can invest these funds in higher yielding assets such as bonds and bills of governments or

corporations. The difference between the bank's borrowing cost and the yield of its revenues becomes the earnings of the bank.

This rational behavior was not observed in the case of state owned Turkish banks prior to the economic crisis of 2001. Until then, governments used state banks as vehicles to collect funds from the public at high rates. These expensive and easy-to-reach funds were used to fund projects of farmers (Ziraat Bank) or medium sized businesses (Halk Bank) at subsidized rates due to political concerns. The use of state banks for such purpose was easy since the loose governance of these banks, coupled with the fact that the losses of these banks were not included in the central budget of the government, led to an increasing appetite of politicians to use these banks as financing vehicles. The capital injection need of these banks increased to such a level that they practically became insolvent in 2001. Only the issuance of non-cash government bonds to close the capital need of these banks revealed that their losses exceeded the total public sector debt stock.

1.4.4. Absence of Fiscal Discipline

Budgetary discipline was another problem of the Turkish economy that disillusionized foreign investors in Turkey. The primary account of the budget is very similar to that of the operating line of a company in nature. It reveals how much the non-interest revenues of the country meets the non-interest expenditures. In the case of a country, non-interest public revenues largely stem from two sources. The most important and regular source of the revenues for a country is tax collections. The more efficient a government can identify and collect taxes, the more funds it has available to spend for its citizens. The other primary source of revenues is rather one-off by nature and can stem either from the sell-off of State owned assets or the granting of new licenses. In a weakly governed fiscal system, the collection of taxes becomes insufficient to meet the budgetary expenditures. Thus, the government in such a system becomes increasingly dependent on borrowing in order to spend. In other words, the budget of such a country runs primary losses and the public finances deteriorate.

Throughout the 1990s, the government budget of Turkey was characterized by primary losses. This led to several severe consequences for the Turkish economy: The budget had to neglect needed investments for infrastructure, and the failure to meet expenditures from revenues led to an ever increasing public sector borrowing requirement. The resulting public sector debt stock that grew like a snowball over time crowded out other private sector investors from the debt market as real rates on risk-free government securities remained high.

1.4.5. Brief Timeline of Economic Crises in Turkey

Throughout the 1990s, Turkey has been governed by coalition governments which led to election speculations and high level of political instability. This fragile nature of domestic politics; coupled with deteriorating budget figures, led to a fragile economy that has been affected negatively from crises abroad. During the global crises (Mexico-1993, South Asia-1997, Russia and Brazil-1998 and Argentina-2000), the Turkish economy encountered short-term capital outflows which forced the Treasury to increase the interest rates offered on Treasury Bills. The relatively high returns offered to investors for Treasury Bills had a very detrimental effect on investments in the industrial sector as the investors opted to direct their investments towards these liquid borrowing instruments of the government with low risk and high promised return. Such was the case for investment in Turkish stocks as well as double digit real returns offered on T-Bills was persuasive enough to defer investors from directing their funds towards stocks in the Istanbul Stock Exchange. Another side effect of the high public sector borrowing requirement was the so called crowding out effect. If the government chooses to fund the budget deficit by heavily borrowing from investors at high interest rates, the private sector companies cannot tap the funds of investors with borrowing instruments at all. Not only places the high real rates offered by Treasury Bills a natural floor on the interest rates that have to be offered by private sector companies, the liquidity premium required would drive the theoretical rates on borrowing instruments by private sector companies to irrationally higher levels, making the issuance of such borrowing instruments virtually impossible.

Meanwhile, foreign direct investment in Turkey has remained low during these years compared to other emerging markets and the traditionally high current account deficit of Turkey has been mainly funded through portfolio inflows from foreign institutional investors.

1.4.6. The post-2001 Period

After the 2001 financial crisis that ended up with the insolvency of several banks and a sharp rise in inflation, a strict economic discipline has been implemented in Turkey. The main anchors of this program can be summarized in a few points.

(i) The program ensured budgetary discipline with a set target for the primary surplus of the consolidated government budget. Thus, the risk associated with the insolvency of the Turkish Treasury would decrease, while vigorous implementation of such target would gradually decrease public sector borrowing requirement. Indeed, the Republic of Turkey has been mentioned by many sources as an outstanding example of fiscal discipline by the International Monetary Fund ("IMF") in the years following the 2001 financial crisis. The ratio of the public debt stock to the Gross National Product, that had surpassed 1 during the crisis – an international recognition of sovereign insolvency, - receded below 50% levels – acceptable levels for the members of the European Union.

(ii) A social security reform is envisaged to decrease transfers from the central government budget to cover the losses of social security institutions. The pay-as-you go system that is in place in Turkey puts a high burden on the government as receipts from employees do not cover the payments from the social security system. Moreover, private pension system has been put into place by the government, which will form a third pillar in the social security system. The first pillar of the social security system is the pay-as-you go pillar, the second pillar is formed by some institutions (Some bank and conglomerate pension funds, the pension fund of the Turkish Central Bank, OYAK for the members of Turkish Armed Forces, etc.) The private pension

system is closely monitored by the Treasury and the system acts as a fund of mutual funds, which makes the insolvency of the system as witnessed in the pay-as-you go system mechanically impossible. By the end of 2007, total funds collected in the system reached YTL 4.5 billion. Moreover, through the enactment of the social security reform, a number of the on-going problems of the pay-as-you go system has been addressed. The minimum days to pay social security premiums has been increased, along with the minimum retirement age. Thus, the balance between premium payers and beneficiaries that deteriorated heavily in the 1990s is aimed to be restored by gradually increasing the number of premium payers and decreasing the number of beneficiaries who obtain regular salaries from the social security system.

(iii) Instead of a crawling peg exchange rate system which allows the Turkish Lira to depreciate in a controlled manner to control inflation, a free float regime was adopted. The free floating exchange rate regime, in a sense, acts as a buffer against massive capital outflows. Should an exodus take place that could result in a flight of funds from the country, the sudden boom in demand for hard currency would result in a massive depreciation of the New Turkish Lira that would wipe out all the gains of the investors. Hence, in the absence of the Central Bank's willingness to provide large amounts of hard currency to the market, rational investors would not be willing to sell off YTL denominated assets and convert their holdings into hard currency. While the situation can hardly be modeled and a cause and effect relationship cannot be established, the Turkish economy has in more than one instance proven to be more resilient to external and internal shocks in the post crisis era. Some tests of that kind for the fragility of exchange rates have been during the war in Iraq in 2003, the financial turmoil in global markets in the summer of 2006 and recently, the Constitutional Court case for the closure of the ruling political party when exchange rates have remained more or less stable and resilient throughout the aforementioned periods.

1.5. Foreign Direct Investment

In the last two years, foreign direct investment has been on a steadily increasing trend as evidenced by sizable privatizations of State Economic Enterprises (Turk Telekom, Erdemir, Tupras and Turkish Airlines; to name a few) and the acquisition of a number Turkish banks after the beginning of EU membership negotiations (Demirbank by HSBC, Sitebank by Novabank, Yapi Kredi Bank by Koc – Unicredito, Disbank by Fortisbank, C Bank by Bank Hapoalim, Finansbank by National Bank of Greece, TEB by BNP Paribas, Denizbank by Dexia, Sekerbank by Bank Turan Alem, Garanti Bank by General Electric Consumer Finance, Oyakbank by ING, and Tekfenbank by EFG Bank of Greece). A 20% equity stake in Akbank was acquired by Citibank wile State owned giant Halkbank is slated for privatization in 2008. Hence, foreign investors have significantly increased their share in the Turkish Banking Sector. Also notable is the increase of foreign investors in the private companies which can be monitored through rising mergers and acquisitions (M&A) activity. Including the payments for the acquisition of real estate, total foreign direct investment in the Republic of Turkey has reached USD 20 billion in 2006.

Nevertheless, foreign interest in non-listed companies in Turkey has also increased considerably in the last years. Acquisitions of Turkish companies, either by strategic investors (investors with a long term horizon that usually pay a control premium to acquire a controlling stake in a company and derive long term value through technology transfers and productivity increases) or by financial investors (investors with a shorter term horizon who invest temporarily in a company to provide financing and improve financial management of the company in order to exit in three to seven years to earn a pre-set required rate of return on their initial investment), has risen dramatically. Earlier acquisitions focused on the use of Turkish production as a source of exports to countries or regions in close geographical proximity (Acquisition of a co-controlling stake in Otosan by Ford Motor from Koc Holding, acquisition of a majority stake in OYAK-Renault by Renault from OYAK, etc.). However, with growing prospects of Turkey's probable entry into the European Union, recent transactions focus more and more on to take advantage of the strong and healthy growth in the Turkish market. The transactions

in the insurance sector (Acquisition of Garanti Sigorta by Eureko from Dogus Group, OYAK's stake in AXA-OYAK Holding by AXA from OYAK, TEB Sigorta by Zurich RE, Ray Sigorta by TBIH Financial Services Group, Genel Sigorta by Mapfre, Basak Sigorta by Groupama, Global Hayat Sigorta by Dexia, Seker Sigorta by Liberty Mutual Group, Ihlas Sigorta by HDI International, Emek Hayat Sigorta by GEM Global), the transactions in the cement sector (Yibitas Lafarge by Cimpor, Elazig Cement by Cimentas/Cementir) and the aforementioned transactions in the banking sector are all designed to reap the benefits associated with the Turkish market growth. Table 1 summarizes recent deals in Turkey where foreign strategic investors have acquired a significant stake.

Another factor that contributed generously to the surge in foreign direct investment was the abundant liquidity in the global markets. The availability of excess funds largely stemmed from the sharp increase in global commodity prices that was witnessed in the last four years. Demand from China and India for commodities drove their prices to levels not witnessed since the 1970s. Such sharp price increases led to the accumulation of considerable export receipts in commodity exporters such as the Gulf States, Russia, Brazil. The return of these funds through the global banking system had important consequences for the global investment climate.

First of all, the large international banks could set aside considerable finances for private equity funds which used the borrowed money for making sizable acquisitions via leveraged buyouts. The increasing liquidity also led to a considerable decrease in interest rates and hence the required rate of return by such private equity funds from their investments, driving up the bids they could submit in their acquisitions. This last phenomenon led to the closing of the valuation gap between the bids offered by buyout funds and the valuations in the eyes of the existing controlling shareholders. Accordingly, we could witness huge acquisitions in Turkey by private equity funds; such as the acquisition of UN RoRo by Kohlberg, Kravis and Roberts or the acquisition of Migros Turk by BC Partners.

Secondly, the abundance of considerably cheaper financing substantially increased the size of project finance loans for large scale capacity increases in existing factories and new Greenfield investments. The debt/equity ratio; traditionally at 50%/50% for project finance loans, decreased to 85%/15% levels in 2007.

In the second half of 2007, the balance sheets of large scale global banks, with the exception of a few, deteriorated substantially with the onset of the crisis related to the insolvent CDOs ("Collateralized Debt Obligations"). When Western Banks issue mortgage loans to finance house purchases, they issued new financing instruments – CDOs – which are again collateralized with the underlying payment obligations of the clients who purchased homes. When housing prices began to collapse by 2007, the immediate effect on the derivative financing vehicles was a sharp decrease in trading volume which made the calculation of the prices of such instruments and their liquidation impossible. Consequently, whoever had invested in such assets, suffered from liquidity problems. Many banks, such as BNP Paribas, opted to freeze the funds which had heavily invested in these assets. On the most extreme point, Bear Sterns, the second largest underwriter of CDOs in the United States, became insolvent and was acquired for a fraction of its historical market value by JP Morgan Chase. Merrill Lynch, the largest brokerage house of the United States, had to write off more than half of its shareholders' equity on insolvent mortgage instruments and its whole top management was replaced.

Nevertheless, these events will inevitably have a negative effect on the acceleration of global transactions and acquisitions in Turkey. Banks with damaged book values and balance sheets will need some time to replenish their capital base so that they can begin again to finance large scale acquisitions and projects. Yet, this by no means is expected to decrease the interaction of global markets, and the value relevance of accounting information.

Table 1. Merger and Acquisition Activity in Turkey in 2007

Target company	Stake (%)	Buyer	Country of Buyer	Date of Announcement
FFK Fon Leasing	60%	Global Investment House	Kuwait	19 December, 2007
Yudum Gıda	100%	Afia International	Saudi Arabia	26 November, 2007
Şafak Hastaneleri	60%	Julius Baer Group	Switzerland	26 November, 2007
Pilsa Plastik Sanayi A.S.	51%	Wavin	Netherlands	23 November, 2007
TAV Havalimanlari A.S.	10%	Meinl Airports International	Austria	13 November, 2007
Katalog Yayın ve Tanıtım Hizmetleri	50%	Seat Pagine Gialle	Italy	13 November, 2007
Petrol Ofisi (POAS)	6%	OMV Aktiengesellschaft	Austria	18 October, 2007
Petkim	51%	Injaz Projects, Socar& Turcas Enerji	Saudi Arabia	17 October, 2007
Şenocak Holding	71%	Metalfrio Solutions	Brazil	8 October, 2007
Birleşik Seyahat Ürünleri Satış Pazarla	60%	Samsonite	United States	1 October, 2007
Zap Medya ve Iletisim Dis Ticaret AS	100%	International Marketing Sales Group	Russia	17 September, 2007
Elazığ and Izmir Kraft Sack Factory	100%	Segezha Packaging	Russia	11 September, 2007
UN Ro-Ro	88%	KKR	United States	3 September, 2007
Sungate Port Royal Hotel	100%	Mirax Group	Russia	16 August, 2007
MMK Atakas Metalurji Sanayi	50%	MMK	Russia	15 August, 2007
Turkish Bank	40%	National Bank of Kuwait	Kuwait	1 August, 2007
Çine Akmaden	100%	Sibelco	Belgium	31 July, 2007
Doğan Gazetecilik	22%	Deutsche Bank	Germany	30 July, 2007
Neteks Iletişim Ürünleri Dağıtım	50%	Westcon Group	United States	25 July, 2007
Planet	100%	Ingenico	France	23 July, 2007
Türkiye Finans Katılım Bankası	60%	National Commercial Bank	Saudi Arabia	18 July, 2007
Zirvekent AVM	100%	Corio	Netherlands	11 July, 2007
Sabiha Gökçen Airport	100%	GMR, Limak, MAHB	Consortium	10 July, 2007
Tire Kutsan	54%	Mondi	Austria	6 July, 2007
AFM Uluslararasi Film Prodüksiyon T	52%	Velios	Russia	21 June, 2007
Oyak Bank	100%	ING Bank N.V.	Netherlands	19 June, 2007
Intergum	100%	Cadbury Schweppes	United Kingdom	7 June, 2007
Demirdöküm	6%	Vaillant Group	Germany	1 June, 2007
Demirdöküm	73%	Vaillant Group	Germany	28 May, 2007
Tat Konserve A.S.	10%	Templeton	United States	18 May, 2007
Izmir Port	100%	EİB, GYH, Hutchison Whampoa	Consortium	3 May, 2007
Beymen	50%	Citigroup Venture Capital International	United States	2 May, 2007
Boyner Büyük Mağazacılık	30%	Citigroup Venture Capital International	United States	2 May, 2007
Yurtici Kargo	25%	GeoPost (La Poste)	France	30 April, 2007
Çeşme Marina	45%	Camper& Nicholsons Marina Investments	United Kingdom	20 April, 2007
Birlesik Oksijen Sanayi A.S.	100%	Linde	Germany	6 April, 2007
Banvit Bandirma Vitaminii Yem San.	3%	private investors	Global	30 March, 2007
Garanti Emeklilik ve Hayat	15%	Eureko	Netherlands	21 March, 2007
Garanti Sigorta	80%	Eureko	Netherlands	21 March, 2007
Edip Alisveris Merkezi	35%	Corio	Netherlands	20 March, 2007
Esenyurt Alisveris Merkezi	50%	Corio	Netherlands	20 March, 2007
Ray Sigorta	58%	TBIH Financial Services Group	Netherlands	19 March, 2007
Enerjisa	50%	Verbund	Austria	15 March, 2007
Genel Sigorta	80%	Mapfre	Spain	12 March, 2007
Eczacibasi Generic Pharmaceuticals	75%	Zentiva	Czech Republic	5 March, 2007
Cevahir Alisveris Merkezi	50%	St. Martins	United Kingdom	5 March, 2007
Adacenter	100%	Corio	Netherlands	2 March, 2007
Sekerbank	34%	TuranAlem Securities	Kazakhstan	26 February, 2007
Petrol Ofisi (POAS)	1%	OMV Aktiengesellschaft	Austria	26 February, 2007
Doktas Dokumculuk Ticaret ve Sanayi	19%	Componenta Corporation	Finland	19 February, 2007
Neo AVM	100%	Merrill Lynch	United States	18 February, 2007
Basak Sigorta	7%	Groupama International	France	16 February, 2007
Teras Park	40%	Corio	Netherlands	9 February, 2007
Finansbank	34%	National Bank of Greece	Greece	10 January, 2007

Source: Dealwatch

1.6. Introduction to Value Relevance

In that respect, it is worthwhile to study the value relevance of accounting information in Turkey. There are several reasons why the value relevance of accounting information has to be investigated both from the equity and entity approach in Turkey:

(i) The weight of institutional investors in the ISE is increasing with the economic stabilization and the increasing share of mutual funds and private retirement funds. Therefore, one would expect an increase in the weight of investors with a fundamental stock picking approach. While one cannot deny that net earnings and book value of a company are of undeniable importance for investors, one should not forget that these figures, especially the net earnings, cannot reflect operating profitability when financial leverage is present. In that respect, it makes sense from an investor's point of view whether the operating line carries more or less value relevance for the company value; in contrast to the bottom line for the market capitalization. Another important aspect will be whether investors respect the total enterprise in their investment decisions, rather than the book value of the company. The market capitalization of a company can deviate from the book value to the extent of the expected growth rate of companies. This is the reason why high market-to-book values may be common in high growth companies (telecommunications and finance sectors; to count a few), while market-to-book ratios remain depressed for low growth companies. In that respect, the financial leverage of a company may carry information for the future growth of the company. From this viewpoint, it may also make sense to investigate whether the asset value that creates value for both the creditors and shareholders of the company may be explained better by the combined value of the company's financial debt and market capitalization.

(ii) Moreover, the disinflation trend in recent years has been remarkable; highlighting the quality of firms' earnings stripped from inflationary gains of the 1990s. When interest rates are high, as was the case throughout the

1990s, a cash rich company can record higher net earnings than it would obtain from operating profitability. The reverse is also true: A company with a high level of financial leverage does record lower net earnings than the level suggested by the operating line. Thus, it is worth investigating whether investors are putting more emphasis on earnings in the operating line or the bottom line of companies.

Traditional research concentrates on the value relevance of the market value of equity with respect to annual earnings or book value of shareholders' equity. The commonly used Ohlson's valuation model that will be derived in the latter parts of this dissertation is commonly used to test the existence of value relevance. Many researchers have investigated different aspects of this model in a variety of global markets.

At this point, it is necessary to make the distinction between the two types of investors who fund a company's assets. The assets of a company can be funded by its shareholders, who buy shares from the company's paid-in capital. Furthermore, the company can raise financial debt either from banks through loans or it can issue debt through the financial intermediaries – mostly investment banks - to bondholders. Financial debt is recognized in the upper half of the right hand side of the company's balance sheet (liabilities) whereas capital is recognized in the lower half of the right hand side of the company's balance sheet (shareholders' equity). When meeting its obligations to the suppliers of financing of its assets, a company first has to pay out the interest and the debt redemptions before paying out the remainder to residual claimants in the form of the dividend payouts should the Board of Directors decide to do so.

Keeping in mind that a company has to serve the interest of the holders of both its debt and equity, this study aims to make use of a modified version of Ohlson's valuation model considering the value of the entity rather than the value of its equity only. While the derivation of the model used to test the hypotheses is thoroughly provided in the relevant section of the study, it is worthwhile to mention that the model relates the enterprise value of a company as defined by the sum of market value of equity and the net financial debt of the company (in contrast to the market value of equity) to the

modified asset size (as defined by total assets less cash and equivalents less trade payables) and after tax operating profit.

From that perspective, the relevant research questions for the dissertation are as follows:

1 – Is accounting information (net earnings and book value) value relevant in Turkey? If so, what differentiates the power of book value and earnings in explaining the returns of stocks in Turkey?

2 – How does the new proposed model compare to the classical model, i.e. How strong is after tax operating profit ("ATOP") and modified assets ("MA") in explaining the changes in enterprise or entity value of firms?

Chapter 2

Literature Review

Value relevance of accounting information has long been a subject of research in the last decades. A large volume of research may be found where the value relevance of accounting information has been investigated for different countries. While the literature on the subject will be thoroughly reviewed in the following section, it may mainly be grouped within three parts:

First group of research studies concentrate on the testing of value relevance in different countries. Depending on the country chosen and the choice of testing period, one can note the differences in the degree of value relevance. In general, it can be stated that earnings and book value carry explanatory power for market capitalization of companies; yet in a differing degree from country to country. In some instances, awkward situations have been pinpointed, such as the one in the Chinese stock market where value relevance differs sharply for foreign and domestic investors.

On the other hand, second group research takes also into account the nature of the accounting practices in a country and tries to find out whether there is a significant difference in value relevance depending on the degree of the conservatism of accounting principles. Many of the studies show that the degree of value relevance and strength of explanatory power of independent variables is closely tied to the degree of conservatism of accounting principles.

Third grouping of research concentrates on specific aspects of value relevance; i.e. whether there are cross-sectional differences in value relevance.

2.1. Literature on Classical Test of Value Relevance

Collins et. al.[1] have undertaken a study on the changes of the combined value-relevance of earnings and book values and concluded that it has not declined over time. Rather, they observe a shift in value-relevance from earnings to book values. The reason for that, they assert, is the increasing frequency and magnitude of one time items, increasing frequency of negative earnings, changes in the average firm size and intangible intensity over the years. One-time items stem from extraordinary transactions, such as asset spin-offs or divestitures. Since they are more than likely not to be repeated in the future, they cause a one time jump or plunge in accounting earnings. Investors, aware of the nature of these items, do consider their non-repetitive nature and value relevance of accounting earnings may be expected to decline at periods when one-time items are recorded in financial statements. Likewise, negative earnings are not likely to be too frequent in the future and investors take also into consideration that companies' market values should not be penalized harshly when negative earnings are reported – another point when value relevance of accounting earnings would be expected to fall.

Supporting the above stated argument, Eames and Sepe[2] examine the value relevance of GAAP earnings, GAAP earnings excluding special items, and specific special items. A firm may sell off a subsidiary in excess of the recognized balance sheet value and record earnings from that sale that will add to its earnings while such sale does not affect its operations. In contrast, a company may record a one-time loss that will not be observed again. The aforementioned betterment in earnings, as well as the latter mentioned deterioration, are clearly not sustainable. The likelihood that the firm will repeat that performance in the future is not very likely and probably, earnings excluding special items should be more value relevant than the bottom line. Their result that GAAP earnings excluding special items is more value relevant than sole GAAP earnings, is in line with previous research. Out of eight special items investigated, they find that only

[1] Collins, D. W., Maydew, E. L., Weiss, I. S. ,1997. Changes in the value-relevance of earnings and book values over the past forty years. Journal of Accounting and Economics, Vol. 24, 39 - 67

[2] Eames, M.J., Sepe, J., The Valuation Of Special Items, Journal of Applied Business Research; Summer2005, Vol. 21 Issue 3, p61-70

two items seem to be value relevant – in process research and development and merger costs.

On the other hand, Lev and Zarowin[3] investigate the usefulness of financial information to investors and conclude that value relevance of reported earnings, cash flows, and book values has been deteriorating in the past 20 years. They argue that despite the best efforts of the regulators to improve the quality and timeliness of financial reporting, the impact of change on firms' operations is not adequately reflected by the current accounting standards. They also find that the loss in value-relevance is highest for firms with high Research & Development expenditures. Lev further asserts that current reporting standards provide little information about intangible assets and proposes ways to improve the meaningfulness of financial statements through the capitalization of R&D, patents, brands and organizational capital[4].

In another research, Ryan and Zarowin[5] investigate why the contemporaneous linear relation between accounting earnings and annual stock returns has declined over the past 30 years. One reason, they believe, is that earnings increasingly reflect news with a lag relative to stock prices. It is that argument that has made a significant contribution to my study. Since year-end financial statements are announced eight months after the close of the year in the Republic of Turkey, if consolidation principle is not applied, and after ten weeks of year's close when they are consolidated, I have taken the market values with a three month lag to relate to the financial statements for the purpose of my study.

Another explanation they point out is the fact that earnings reflect good and bad news in an asymmetric fashion. Therefore, they hypothesize that the association of accounting earnings with lagged price changes is stronger than the association of accounting earnings with current price changes. Accordingly, they find that they cannot reject their

[3] Lev, B., Zarowin, P., 1999. The Boundaries of Financial Reporting and How to Extend Them. Journal of Accounting Research, 353-385

[4] Lev, B., 2003. Remarks on the Measurement, Valuation, and Reporting of Intangible Assets. Federal Reserve Bank of New York Economic Policy Review, September 2003, 17 - 23

[5] Ryan, G.R., Zarowin, P., 2003, Why has the contemporaneous linear returns-earnings relation declined?, The Accounting Review, Vol. 78 No. 2, p. 523 - 553

hypothesis as the incremental R^2 from the inclusion of lagged price changes rise strongly over time. On the other hand, as for the asymmetry, they also find that earnings reflect current positive price changes less strongly and current negative price changes more strongly over time. They find that the increasing lags reflect the increasing limitations of the historical cost valuation basis and of the realization of income in today's investment world that is surely more dynamic, intangible asset driven and uncertain as compared to the past. Also, another attribute they find is the timely availability of non-earnings information for valuation purposes that might have led to the diminishing relation between accounting earnings and stock returns.

The above research is striking in the point that it points to possible shortcomings of accounting information to explain variations in stock valuations. Indeed, investors today, with ever increasing availability of a vast variety of information and refined analyst reports, should be looking at information beyond the accounting earnings and book value and this belief also sets the groundwork for my dissertation where I establish a model to investigate the relationship between the value of the firm and the related accounting figures.

In the United States, non-US companies that wish to list their securities in the US exchanges, are required by the Securities and Exchange Commission to convert their financial statements to US based generally accepted accounting principles (US GAAP). The reconciliation filing is called Form 20 – F. El-Gazzar et. al. question whether such filing bears value relevant information to investors in the US markets at all since they argue that investors already have an anticipation of the filing before the announcement date. Hence, they find that significant unexpected reconciliations exhibit value relevance on the date of filing. Furthermore, they argue that investors' confidence in the foreign authorities which enforce the local GAAP also affects the value relevance of the reconciliation data. Their results show that the region where the foreign operations produce earnings also affects the degree of value relevance. Reconciliations by firms from regions of developed capital markets and reliable enforcement systems are weighed more in the valuation process of foreign securities by the investors in the United States. With ever increasing emphasis on corporate governance, investors can be

logically expected to appreciate financial information more in countries where local regulators enforce tough standards to reflect a true financial picture of a company, and where management of the companies will feel obliged to stick to the corporate governance principles.

2.2. Value Relevance of Dividends

No consensus has been reached among different researchers about the value relevance of dividends. Miller and Modigliani had argued in 1961 that the dividend policy is irrelevant under perfectly functioning capital markets assumption. In the real world, dividend policy may play a critical role. Corporate decisions most of the time may involve potential conflicts of interest among the different stakeholders of the company. Creditors of a company may put covenants on a company's bonds in order to restrict dividend payouts and thus limit transfer of wealth to shareholders in order to guarantee safe repayment of the debt. On the other hand, shareholders may want to shift resources from the company to themselves in the form of dividend payments. Dividend payments may also act as a disciplinary mechanism to force financial managers tap into capital markets more frequently and raise capital or debt. For companies in the United States, the dividend policy may also act as a mitigation tool to mend the information asymmetry between managers and investors. For Japan, however, this argument needs to be reconsidered as in Japan, where common corporate governance practice favors inter-corporate shareholdings. Habib[6] employs the Ohlson valuation model to investigate the value relevance of dividends in Japan. As an addition to the Ohlson model, which regresses market value on earnings and book value, he introduces the dividends as additional information. Running a pooled regression, he finds that book value and earnings are value relevant. Yet, he finds that dividends are not value relevant in Japan where information asymmetry is much less common as compared to other developed markets. Also, Japan has a long history of zero inflation and interest rates. In that respect, it is surprising that investors do not put a lot of weight on dividend announcements whereas inflation acts as a disturbing agent on the net present value of

[6] Habib, A., Accounting-Based Equity Valuation Techniques and the Value Relevance of Dividend Information: Empirical Evidence from Japan, Pacific Accounting Review, 2004, Vol. 16, No 2, p. 23 - 44

the dividend payment. The payout of the dividend happens almost a year later after the company has recognized the associated distributable profit.

Brief and Zarowin[7] take a different perspective on the value relevance of dividends. Rather than looking at the additional contribution to value relevance by dividends, they compare the combined value relevance of dividends and book value and compare it with the combined value relevance of book value and earnings. They derive a model for the company's stock price in terms of book value and earnings. They find that dividends and book value combined have almost the same explanatory power as the book value and earnings. Moreover, they find that for firms with transitory earnings, dividends have higher explanatory power than earnings. Yet, book value and earnings have almost the same combined explanatory power as the book value and dividends. More importantly, when earnings are transitory and book value is a poor indicator of value, for example due to unrecognized assets because of adherence to generally accepted accounting principles, dividends attain the highest explanatory power.

2.3. Changing Degree of Value Reference due to Accounting Principles

Accounting practices have traditionally shown differences among different countries and an interesting research subject has undoubtedly been the difference in value relevance between countries that can be explained by the country's choice of accounting policies. The subject becomes even more important in newly created blocks such as the European Union where different countries have traditional tendencies to construct their accounting policies and harmonization is sought after. Yet, although practice has been towards the harmonization of accounting principles in the whole block, economic structure of different countries still reveal huge differences. Therefore, it should not be surprising to spot differences in the value relevance of accounting earnings and book value among different countries of the same economic and political union. Arce and Mora[8] want to find out, whether there are systematic differences in value relevance

[7] Brief, R., Zarowin, P., The Value Relevance of Dividends, Book Value and Earnings, Working Paper, Leonard N. Stern School of Business, 2000, p. 1-30

[8] Arce, M., Mora, A., Empirical Evidence of the Effect of European Accounting Differences on the Stock Market Valuation of Earnings and Book Value, The European Accounting Review, 2002, Vol 11, p 573 - 599

between earnings and book value across different European accounting systems, whether book value and earnings convey different information to stock valuation and whether value relevance of accounting information differs with respect to investor and creditor orientation in European countries. In order to answer these questions, they categorize eight countries (United Kingdom and the Netherlands with their common law based legal system being the investor oriented countries , and, Germany, France, Belgium, Italy, Switzerland and Spain, with their code-law based legal systems being the creditor oriented companies). They believe such distinction is useful since in creditor oriented systems, the health of companies' balance sheet and hence, their book values should theoretically gain on importance while the reverse should be true for countries where investor orientation is dominant. They use Ohlson's valuation model to test their hypotheses. To test their first hypothesis, they consider the individual value relevance of book value and earnings. Consistent with their hypothesis, they find that in creditor oriented countries, book value becomes more value relevant, with the only exception of France, whereas in the United Kingdom and the Netherlands, the reverse becomes true. Using R-squared decomposition technique, they find that book value has significant incremental value relevance over earnings in investor oriented countries, while earnings has significant incremental value relevance over the book value in creditor oriented countries. Yet, their analysis fails to confirm that there is a systematic difference in value relevance between European countries.

In relation to the above study, a unique opportunity to compare the value relevance under different accounting methods has arisen in Germany. After the establishment of the Neuer Markt, German companies have been given a choice to report consolidated financial statements under German Generally Accepted Accounting Principles (German GAAP), United States Generally Accepted Accounting Principles (US GAAP) or under International Accounting Standards (IAS). While US GAAP and IAS are considered to be investor or shareholder oriented, German GAAP, designed not only for investors but also for tax reporting purposes, is traditionally known to focus on the stakeholders of the company. Therefore, because of their focus on the quality of earnings, a fair expectation would be that the value relevance of earnings should be higher reported

under US GAAP and IAS than those reported under German GAAP. Germany, henceforth, sets a unique sample for a country where one can investigate value relevance between three competing accounting standards within the same country. Bartov et. al.[9] find that within the perspective of the German stock market, the value relevance of US GAAP earnings and IAS earnings turn out to be higher than that of German GAAP earnings, in line with the aforementioned rationale. However, they fail to show that value relevance of US GAAP or IAS earnings outperform one another. Their study differs from similar studies undertaken on the subject since their sample consists of German stocks only whereas others have analyzed the issue using cross-country comparisons.

Another study that focuses on the different perspectives of international accounting practices and their implications on the value relevance of accounting information was undertaken by Black and White[10]. Their research focuses on the fundamental differences in the accounting policies in the United States, Japan and Germany. Whereas the accounting standards in Germany and Japan are much creditor focused and conservative, the United States strikes with its more investor friendly standards focused on capital markets rather than banks. Thus, Black ad White hypothesize that earnings rather than the book value of equity should be more value relevant for investors in the United States whereas the book value of equity should have higher value relevance for Japanese and German investors. They reveal that in line with their hypothesis, the book value of equity turns out to be relatively more value relevant than both positive and negative earnings. On the other hand, they show that in Japan, the book value is relatively more value relevant than negative earnings only. In the United States, the positive earnings prove to be relatively more value relevant than the book value of equity whereas the book value proves to be more value relevant for the sample with negative earnings only. All stated, the study shows that the level and characteristic of

[9] Bartov, E., Goldberg, S.R., Kim, M., Comparative Value Relevance Among German, U.S., and International Accounting Standards: A German Stock Market Perspective, Journal of Accounting, Auditing & Finance, p. 95 - 119

[10] Black, E. L., White, J.J., An International Comparison of Income Statement and Balance Sheet Information, Germany, Japan, and the US, European Accounting Review, 2003, 12:1, p. 29 - 46

value relevance is different across countries. It also shows the implications of cultural norms and target focus for the value relevance of accounting information.

According to Giner and Rees[11], Spain has provided researchers of value relevance with a laboratory setting after it had decided to reform its accounting principles in line with the EU directives during 1989 and 1990. To count a few, all assets and debts had to be recognized post reform, and financial leases and pension commitments had to be recognized on the balance sheet. Capital grants were treated no longer as equity but deferred income. Goodwill had to be depreciated for a maximum useful life of ten years, as compared to the previous regime where it was only depreciated should it suffer a significant reduction in value. Research and development expenses could be only capitalized under the new regime if certain specific conditions are met. On top of these many radical changes in accounting principles, the reform brought about the mandatory disclosure requirement of additional footnotes for the proposed profit distribution, information on establishment costs, changes in material and intangible fixed assets, changes in financial investments, taxes, geographic sales, extraordinary income and expenses, salaries and material post audit events, transactions with group companies, inventory and leasing. Thus, Spain indeed provided researchers with an extraordinary setting to look at the value relevance of accounting information when the accounting principles in a less mature market are transformed radically to conform to International Accounting Standards. Giner and Rees used the Ohlson model to investigate the level of value relevance of accounting earnings and book value during the pre-reform and post-reform period in Spain. They find that the combined explanatory power of the two variables has risen marginally, although a significant shift in explanatory power from earnings to book value can be observed, probably of the increasing quality of the recognitions in the balance sheet. Nevertheless, they also suggest that the increasing frequency of negative earnings in the post-reform period might accounted for the decline in the explanatory power of earnings, as had been as well quoted in the work of Collins et. al.

[11] Giner, B., Rees, W., A Valuation Based Analysis of the Spanish Acounting Reforms, Journal of Management and Governance, 1999, Vol. 3, p. 31 - 48

The Equity Method of accounting also attracts researcher attention because of the different propositions the Federal Accounting Standards Board has brought forth in the last twenty years. According to Accounting Principles Board Opinion, The Equity Method of Accounting for Investments in Common Stock, the equity method of accounting should be used by investors whose investments in voting stock gives it the ability to exercise significant influence over the operating and financial policies of an investee. The recognition of the size of the investment deserves special attention since even the market value of the investment, if it ever exists, may deviate from the fair value of the stock. First of all, the price quotation of publicly traded stocks ignores the control premium that investors are willing to pay for the controlling shares associated with the investment. Second, the sale of a large block of investment typically involves costs such as investment banking commissions and fees that should be deducted from market value when arriving at fair value. Therefore, Graham et. al.[12] undertake a study to test whether fair value disclosures for investments under equity method accounting recognition are value relevant or not. For that aim, they make the necessary modifications to the Ohlson model and find that such information becomes value relevant with a positive sign on the regression coefficient.

2.4. Value Relevance of Other Information than Earnings and Book Value

An interesting argument is brought forth by Dontoh et. al.[13] who suggest that the growing existence of non-information-based trading decreases value relevance of accounting information. They argue that if accounting variables were to reflect nothing but changes in fundamental value, and no other data provided that information, the association between fundamental value and accounting variables would be perfect, which is hardly the case. There are large hedge funds which use quantitative techniques only to devise elaborated strategies ofr trading in stock, currency and money markets. Therefore, the market values may not only differ from fundamental values, but they also

[12] Graham, R.C., Lefanowicz, C.E., Petroni, K.R., The Value Relevance of Equity Method Fair Value Disclosures, Journal of Business Finance & Accounting, 30(7) & (8), September / October 2003, p. 1065 - 1088

[13] Dontoh, A., Radhakrishnan, S., Ronen, J., The Declining Value Relevance of Accounting Information and Non-Information based Trading: An Empirical Analysis, Contemporary Accounting Research, 2004, Vol. 21, No 4, p 795 - 812

may reflect deviations depending on differing portfolio weights of asset types. A striking example of such kind may be the Black Monday, when program traders began to feed a vicious cycle of continuous sell-offs sparked by nothing else than a sell signal generated by a trading algorithm that has resulted in 25% value deterioration in the market capitalization of the equities in the United States in a single day. Hence, they assert that non-information-based trading moves prices away from the firm's fundamental value. As a first step, they find that regression of market value of equity on earnings and book values yields declining R^2 for coefficients over time, suggesting a decline in value relevance. Secondly, they regress daily trade volume scaled for outstanding shares on the moments of distribution of analysts' forecast revisions annually and deriving an estimate for the non-information based trading volume each year. They find a significant negative association between the computed R^2 and the proxy for non-information-based trading volume.

An interesting recent research study by Bettman[14] investigates whether technical information carries value relevance for Australian stocks. This research study is interesting from the viewpoint that it incorporates technical variables along with the variables suggested by Ohlson's valuation model. On top of that it also contemplates consensus earnings forecasts since they are well monitored by investors and fund managers when making their investment decisions. The results reveal that current earnings per share and current book value per share are value relevant. Yet, when forecast earnings per share are included within the model along with current earnings per share, current earnings per share ceases to be value relevant. This finding should by no means be surprising as past data can miss important information, such as a merger with a company, an acquisition of another company or asset, additional investments to increase capacity, or even the hşrşng of a new capable manager to lead the company, about a stock that is most probably included in future forecasts. Thus, it should be by no means surprising that investors value such type of information and incorporate it into current stock prices. The more interesting part of this study begins when Bettman

[14] Bettmn, J.L., Australian Evidence Regarding the Value Relevance of Technical Information, Australian Journal of Management, Vol. 32, No. 1, p. 57 - 71

introduces technical variables into both models. One technical variable is the lagged stock prices, whereas the other is a dummy variable that incorporates the excessive up or down movements of the stock price. Bettman reveals that the inclusion of these variables proves to be value relevant and the explanatory power of the model increases. While this model strongly deviates from the Ohlson model that has its rationale and derivation in the clean surplus relationship, it is by all means important that it reveals that investors in Australian stocks regard technical as well as fundamental information when making their investment decisions. On the other hand, the model deviates strongly from the Ohlson valuation model and becomes a multi-factor model that cannot be based upon the derivation of the relationship between the independent variables and the dependent variable on sound reasons stemming from the clean surplus relationship.

2.5. Classical Test of Value Relevance in Different Countries

A number of studies can be found in the literature where a specific country data has been tested to investigate whether value relevance exists. Kuwait, among other emerging market countries, strikes as an interesting example as it has required from publicly traded companies to apply International Accounting Standards in their financial statements. Therefore, as was the case for Spanish companies, it may be expected that either the value relevance as a whole or the explanatory power of individual independent variables, namely the earnings and book value, has changed over the period of transition in accounting standards. El Shamy and Kayed[15] as well used Ohlson's valuation model to express price as a function of book value of equity and earnings for Kuwaiti companies. They estimated yearly cross-sectional regression for a 10-year period between 1991 and 2002 and used R^2 as the primary measure for value relevance. To compare the explanatory power that earnings and book value have for prices, they used the R^2 decomposition technique developed by Theil to calculate the incremental explanatory power of earnings, the incremental explanatory power of book values and the explanatory power common to both earnings and book values. Their results revealed that for Kuwait, earnings and book values have individual and joint

explanatory power for stock prices and they are positively and significantly correlated to stock prices. Also, they found that the incremental information content of earnings is higher than that of book values. They also found that the relative information content of earnings as compared to book values decreases when earnings assume a negative number. Moreover, they also found that earnings add more to the overall explanatory power of the valuation model than book values for financial institutions, services, investments and real estate sectors whereas book values have superiority in the industrial sector. This finding is very much consistent with the fact that book value of industrial companies is much less volatile than that of financial services companies whose book value is dependent on macroeconomic conditions, the level of interest rates and the level of foreign exchange rates. A sharp rise in interest rates may cause a commensurate decline in the shareholders' equity of financial service companies whereas the same would not be true for industrial companies which have a bulk of their capital tied up in machinery, land and buildings – tangible fixed assets the value of which is not related to foreign exchange rates and interest rates at all.

Senel et. al. study the temporal changes in the incremental explanatory power of earnings and book values for companies listed in the Istanbul Stock Exchange and investigate whether capital structure of the firm may be considered another factor besides firm size and negative earnings contributing to the value relevance. They find that while capital structure has significant cross-sectional effects, these effects are partially consistent with the temporal change in mean leverage[16].

The structure of value relevance at a time of a macroeconomic shock may also be considered an interesting research subject. During a macroeconomic crisis, the financial statements, individually or altogether, may or may not reflect the true economic condition of companies. First of all, if the currency of the home country depreciates significantly, the assets and liabilities may be misstated in domestic currency

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[15] El Shamy, M.A., Kayed, M.A., The Value Relevance of Earnings and Book Values in Equity Valuation: An International Perspective – The Case of Kuwait, International Journal of Commerce & Management, 2005, Vol. 14, p. 68 - 79

[16] Senel, K., Pamukcu, A. B. , Nural, I., Is Capital Structure a Significant Determinant for Value Relevance? Evidence from Istanbul Stock Exchange,

denomination. Suppose that a company carries inventory items that is widely sold in the domestic market and suppose that the selling price of the inventories are closely tied to the purchasing power of the residents of that country. Following a sizable devaluation, it would not be illogical to expect that the foreign currency value of the inventories deteriorates sharply. Notwithstanding with that, the income statement and net earnings figures may include extraordinary gains or losses beyond the operating line that are not expected to be repeated in the future. The striking example would be the accounting gain associated with the increasing domestic currency denominated value of foreign exchange deposits of a company. While these foreign exchange gains are recognized in the company's financial statements, they do hardly reflect an economic gain. Country-wide economic crises have been observed frequently in the last fifteen years. The currency crisis in Mexico and the subsequent devaluation of the peso, the Asian crisis, the Russian and Argentine crisis and the moratorium of the public debt, and last but not the least, the Republic of Turkey's crisis in 2001 that was accompanied by a sizable devaluation of the Turkish Lira along with the seizure of many private banks by the State Deposits Insurance Fund, are the most important examples that have also had spillover effects into other emerging market economies. During a macroeconomic crisis, accompanied by a devaluation of the domestic currency, the financial statements of companies may be highly disrupted and may not necessarily reflect the true economic condition of the company. Friday and Gordon[17] investigated the relationship between the market values of companies and the earnings and book values during the 1994 Mexican currency crisis. They used a sample of Mexican firms traded in the Mexican Stock Exchange between 1992 and 1997. They found that the coefficient for book value does not significantly change during the crisis period. However, they also found that the incremental explanatory power of book value increased. They also found that the coefficient for the earnings decreased during the period; along with the incremental explanatory power. They attribute that to the existence of negative earnings and observed that the coefficient for earnings remains significant when they controlled for negative earnings. They believe that the persistence of value relevance in an economic

[17] Davis-Friday, P.Y., Gordon, E.A., Relative Valuation Roles of Equity Book Value, Net Income, and Cash Flows during a Macroeconomic Shock: The Case of Mexico and the 1994 Currency Crisis, Journal

turmoil in Mexico may well be due to the current cost and price level accounting that helps assess the true financial condition of the companies.

Swanson et. al.[18] also investigated the value relevance of accounting information after the considerable devaluation of the Mexican Peso by the end of 1994. They also verify that the earnings lose their value relevance in the year of devaluation. Rather than looking directly at the value relevance of book value, they try to substitute other financial statement information for the loss of value relevance in earnings. As opposed to the aforementioned study, they do not opt to use a control variable for negative earnings. Their substitutions, derived from financial statement information are as follows:

The Inventory Signal: They define the change in inventory levels normalized by the beginning level less the change in sales normalized by last year's sales as the inventor signal. A negative sign is interpreted as an increase in sales that exceeds the increase in inventories.

The Accounts Receivable Signal: They repeat the same procedure as described above for the accounts receivable, and a negative sign involves increasing sales in excess of increasing accounts receivable. That signal, along with the inventory signal, in fact helps the researchers to assess the company's ability to manage its working capital during the time of financial distress.

Gross Margin Signal: Swanson et. al. subtract the change in sales from the change in gross margin, to arrive at a negative sign construct that should mean an increase in sales in excess of increasing gross margin. This signal assesses whether the company can keep or increase its sales still in a profitable manner during times of economic crises.

Selling & Administrative (S&A) Expense Signal: They subtract the normalized change in sales from the normalized change in S&A expenses, to see whether the company can contain its operating expenses. This signal measures whether the company has to incur

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of International Accounting Research, Vol. 4, No. 1, p. 1 -21

sizable operating expenses, including marketing and selling expenses, to keep or increase sales during an economic downturn.

Effective Tax Rate Signal: To compute that signal, Swanson et. al. apply last year's effective tax rate on the current year's pretax earnings and add to that the difference from the current year's taxes.

Leverage Signal: Leverage is calculated as the liabilities divided by total assets.

As a result, Swanson et. al. find that the coefficient of the S&A expense signal assumes a statistically significant negative value during the year of devaluation of the Mexican Peso when the earnings lose their value relevance. Also, the gross margin signal assumes high explanatory power in 1994. This may be interpreted that the earnings at the bottom line are distorted from the macroeconomic shock, and investors look whether the companies are able to keep their gross margins or increase them and whether they can keep their sticky operating costs under control, in their investment decisions. Indeed, such abilities become valuable for investors during crisis times. Surprisingly, leverage signal does not carry explanatory power at a time when excessive financial leverage may lead to the ultimate distress of a company. One suggestion for further research would be to assess control variables for excessive leverage, tenure of the financial debt and the currency the financial debt is denominated. One would expect that companies with excessive financial leverage are subjected to default risk during crisis times. The same would also hold for companies with short foreign exchange positions caused by foreign exchange denominated financial debt. Again, companies would be expected to be penalized by investors for financial debt of shorter maturity.

Goodwin and Amran[19] have tested value relevance for Australian companies and assert that non-recognition of intangible assets in the US GAAP may lie behind the decrease in the suggested value relevance. Australian GAAP differs from that of the US in that it

[18] Swanson, E.P., Rees, L., Juarez-Valdes, L.F., The Contribution of Fundamental Analysis after a Currency Devaluation, The Accounting Review, 2003, Vol. 78, No. 3, p 875 - 902

[19] Goodwin, J., Amran, A., Longitudinal value relevance of earnings and intangible assets: Evidence from Australian firms, Journal of International Accounting, Auditing & Taxation; 2006, Vol. 15 Issue 1, p72-91

does not prohibit intangible asset recognition. The researchers find that for the average firm in Australia, there is weak decline in earnings value relevance. Moreover, controlling for the capitalization of intangibles, they find a significant rise in the value relevance of accounting earnings. While the tested period of the study differs from the study of Collins et. al., it is worthwhile to note that Collins does point to the shift of explanatory power from one independent variable to another while he asserts that a deterioration of combined value relevance and book value is hardly the case. Another important point to note would be that investors may be skeptical about the recognition of the value of intangible assets. Since the valuation of such assets is highly subjective rather than the objective value assessment for fixed assets, investors may find that the value of intangible assets would be optimistically assessed in the financial statements of Australian companies and it may be this attribute that makes accounting earnings more value relevant in the considerations of investors in the Australian stock exchanges.

From an international perspective, publicly traded shares of companies in the Peoples' Republic of China offers a very interesting research opportunity in terms of value relevance. In the 1980s, China began to convert some of its State owned enterprises into companies with regular share capital and thus corporatise them. Some of these companies were later allowed to issue A-class shares to raise capital which could be bought and sold between domestic investors only. Trading of these A-class shares gained momentum after the establishment of two stock exchanges in Shenzen and Shangai. In 1992, through a new decree, the government allowed some companies to issue B-class shares which could only be bought and sold by foreign investors. Meanwhile, some companies could be observed that floated A-class as well as B-class shares simultaneously. Yet, the trading in the A- and B-class shares would be confined to domestic and foreign investors, respectively. The market for these different types of shares was segmented in the sense that A-class shares could only be transferred between domestic investors whereas B-class shares, on the other hand, could only be transferred between foreign investors. Thus, until the year of 2001, when domestic investors were allowed to buy B-class shares provided that they had funds quoted in foreign currency, two classes of shares existed that had the same rights to ownership and dividends, were

yet traded on different stock exchanges at different prices. Moreover, companies that have floated A-class shares, announce their financial statements in domestic accounting standards (DAS), companies that have floated B-class shares, announce their financial statements in international accounting standards (IAS), and companies with publicly traded A- and B-class shares announce their financials both in DAS and IAS. Chen et. al.[20] investigate the relation between the A- and B-class shares and IAS and DAS earnings and book values. The descriptive statistics reveal that the mean price per B-share is less than 40% of the mean price per A-share. This comes as no surprise as Chinese investors, as domestic investors, would feel them naturally more protected against legislative risks as opposed to foreign investors whose risk perception in such a tightly controlled market would understandably rise. As far as the accounting figures is concerned, on average, IAS earnings per share is lower than DAS earnings per share. Moreover, the IAS book values of companies are slightly lower than the DAS book values. Thereafter, since both foreign and domestic investors have access to IAS and DAS financial statements, Chen et. al. regress the A-class and B-class share prices separately on the DAS earnings per share, DAS book values per share and the difference between IAS and DAS earnings per share and book values per share. The coefficients of the latter variables in the regression determine the incremental information content of the IAS financial figures over the DAS financial figures. They find that the DAS earnings per share are value relevant to both A- and B-class shareholders. The difference between the IAS and DAS earnings per share proves insignificant for the first two years under consideration for A-class shareholders and gains significance in the last three years of the study. For the B-class shares, the difference proves significant for all the years under consideration. The DAS book value turns out not to explain the stock price for A-class shares whereas the coefficient of IAS book value proves statistically significant for B-class shareholders. Overall, accounting information carries more explanatory power or prices of B-class shares than it does for A-class shares. This would be attributed to the fact that the density of institutional investors with higher

[20] Chen, G., Firth, M., Kim, J., The Use of Acounting Information for the Valuation of Dual-class Shares listed on China's Stock Marets, Accounting and Business Research, 2002, Vol. 32, No. 3, p. 123 - 131

emphasis on the analysis of financial statements would be expected to be higher among foreign investors than among domestic investors in China.

Very similar to the aforementioned study, Chen et. al.[21] examined whether Chinese GAAP accounting data proves value relevant for domestic investors. Using data for traded shares between 1991 and 1998, they also prove the existence of value relevance for the Chinese traded stocks. Yet, they further examine whether value relevance changes in a predictable manner with respect to four specific factors: positive versus negative earnings, firm size, earnings persistence and percentage of public share holdings. They also make use of a return model, assessing the value relevance of earnings only, and a price model (Ohlson) that relates market value to both earnings and book value, to test their hypotheses. They firstly show that while positive earnings prove to be value relevant, the reverse is true for negative earnings. This phenomenon has been widely observed in other markets as well. They find that earnings for smaller companies prove to be more value relevant according to their return model while earnings for larger companies carry higher value relevance according to their price model. This also is not a surprising result as investors in small market capitalization stock usually invest in growth associated with small caps that will be more reflected in earnings rather than book value. As for earnings persistence, they note that the bottom line, including the one-time items, proves value relevant for Chinese investors and there is no statistically significant difference between the value relevance of operating profits and net earnings.

2.6. Value Relevance of Negative Earnings

Hayn suggests that since shareholders have a liquidation option, losses are not expected to perpetuate and finds that they are less informative than profits about the firm's future prospects[22]. Thus, she finds that the decrease in value-relevance of earnings may be attributed to the fact that the frequency of firms reporting negative earnings has increased in the last years. Yet, the liquidation option argument may be criticized as the

[21] Chen, C.J.P., Chen, S., Su, X., Is Accounting Information Value-relevant in the Emerging Chinese Stock Market?, Journa of International Accounting, Auditing & Taxation, 2001, p. 1 – 22,

same option would as well hold for a profitable company that may not be as profitable in the future. Also, liquidation of a company is a tough option to make use of since it may require obtaining approval from the firm's shareholders in the general assembly of the company to do so. Remembering that the average free float of the average US company in the United States is in excess of 85%, the voluntary liquidation of a company may be more difficult than envisaged by the researcher. A third point of consideration would be that companies running perpetual losses may become takeover targets by larger companies. Since existing shareholders of hostile takeover candidate companies usually try to defend their positions by insider buying in the stock market, this becomes another control variable to investigate that could further strengthen Hayn's position. Such behavior may easily result in the rise of a company's stock price despite the deterioration in earnings, causing the value relevance of accounting earnings to decline.

Graham et. al.[23] look at the value relevance subject under different levels of political uncertainty. The value of a firm falls if the political environment to which the firm is subject to, begins to turn riskier. As the value of an asset is associated with all the future cash flows expected to be derived from that asset discounted to the present at the appropriate discount rate, one could expect a diminishing value of an asset (i) if the associated required rate of return increases, and (ii) if the expected future cash flows fall. Most of the time, both become to be the case hen political uncertainty rises in a country. Quebec in Canada sets an interesting example from that point of view. The province of Quebec has long been known to seek its sovereignty from the rest of Canada. A referendum had been held for the sovereignty of Quebec in 1995 where such proposal had been rejected by Quebec's population. In 2006, a public vote has been held in Quebec that resulted slightly in favor of remaining part of Canada rather than seeking independence. The basic perception is that a number of negative consequences may be observed if Quebec one day becomes an independent State. Employment should

[22] Hayn, C., 1995. The Information Content of Losses. Journal of Accounting and Economics, Vol. 20, 125 - 153

suffer as a result of downgraded growth expectations, fund transfer from Canada to an independent Quebec should fall, along with difficulties in maintaining balances in public finances without paying a higher price for it. In other words, investors demand a higher return on their investments in Quebec because of political uncertainty, the required interest rates on public sector borrowing requirement would inevitably climb and that directly leads to lower valuations for companies in Quebec region as compared to similar firms in Canada. To test their hypothesis, Graham et. al. use a modified Ohlson model where they incorporate a location control variable that assumes the value of 1 for Quebec and 0 for other Canadian companies located outside Quebec. A matched-pairs regression reveals that Quebec companies indeed possess lower valuation multiples both for earnings and book value. They call this phenomenon the "Quebec discount". Adding in another control variable for the pre- and post-referendum period, Graham et. al. reveal that this discount diminished, along with perceived political uncertainty. I believe that the methodology and reasoning used by Graham et. al. may be applied to other parts of the world as well where countries face increased political uncertainty in one or more geographic region. Even broader generalization of the idea could lead to identifying any concentrated risk in an area within a country and investigating whether that concentrated risk is reflected in the value relevance of accounting figures.

Another interesting research by Wang, Alam and Makar[24] investigates whether derivative disclosures by commercial banks are value relevant or not. They find that such footnote information proves value relevant. Indeed, a bank's true financial condition may sharply differ from that revealed in the financial statements of the bank. Since derivatives are off-balance sheet items, their effect on the bank's income statements and equity cannot be assessed from a naïve look at the book value. Wang et. al. investigate whether notional value disclosures of banks contain useful value relevant

[23] Graham, R.C., Morrill, C.K.J., Morrill, J., B., The Value Relevance of Accounting under Political Uncertainty: Evidence Related to Quebec's Independence Movement, Journal of International Financial Management and Accounting, 2005, Vol. 16, p. 49 - 68

[24] Wang, L., Alam, P., Makar, S., The Value-Relevance of Derivative Disclosures by Commercial Banks: A Comprehensive Study of Information Content Under SFAS Nos. 119 and 133, Review of Quantitative Finance & Accounting; Dec2005, Vol. 25 Issue 4, p413-427

information beyond earnings and book value and show that such is indeed the case. Similar to banks, mining companies in the world also carry significant derivative instruments to either hedge their operational positions or speculate on the trend of their product to use further leverage for profitability. Therefore, another research subject could be the investigation of value relevance of derivative positions for mining companies.

In recent years, the quality of the financial statements of companies have been severely questioned after a number of scandals where managers and/or owners of the firms have deliberately distorted reported financial figures. In 2002, the Sarbanes-Oxley Act has been enacted in the United States that has brought about strict principles for the implementation of corporate governance principles. A wide array of countries followed suit, as well as the Republic of Turkey where the Capital Markets Board issued the corporate governance principles to be followed in 2004. According to some, this phenomenon, largely visualized by management's effort to increase earnings before the time of public offering of stock, explains the underperformance of some stocks after their offering to public. Thus, a research question that has arisen frequently in the recent years is whether earnings management impairs the extent to which accounting information is value relevant. An important incentive for managers to manage reported earnings figures of a company occurs during a secondary public offering where managers are selling some of their stocks. As their position in the firm allows them to do so, managers also may use their position to influence the firm's financial reporting. Going forward from these two assumptions that the aforementioned setting provides managers with both the necessary incentives and opportunity for earnings management, Marquardt and Wiedman[25] dichotomize firms that undertake a secondary public offering as per the type of issuer – management or non-management. They first present evidence that discretionary accruals which lead to earnings increases are common for companies undertaking a secondary public offering where management sells their shares. Furthermore, for companies where management sells their shares through a secondary

[25] Marquardt, C.A., Wiedman, C.I., The Effect of Earnings Management on the Value Relevance of Accounting Information, Journal of Business Finance & Accounting, April/May 2004, p 297 - 332

public offering, they employ Ohlson's valuation model and assert that both the coefficient on the net income and its incremental explanatory power drop significantly at the year of the offering which may be considered a decrease in value relevance for the earnings figure. This leads to the interpretation that while managers opportunistically engage in window dressing activities at the time of selling their shares to public, investors rely less on the announced earnings figures as implied by lower value relevance of net earnings. One weak point in that research study would be that any corporate action per se may cause a dramatic rise or fall of the stock price post announcement. Therefore, on cannot easily distinguish whether the type of seller in a secondary public offering or the secondary public offering itself causes a favorable or unfavorable performance of the stock price.

From a similar viewpoint, Whelan[26] argues that there is a link between earnings management and firm valuation and she investigates that by assessing the effects of earnings management on the value relevance of earnings and book value. She investigates three different types of earnings management; namely, total discretionary accruals, short-term discretionary accruals and long-term discretionary accruals. She concludes that earnings management plays a role in the valuation process. She tests her hypotheses using data for companies traded in the Australian Stock Exchange. According to her study, both short- and long term discretionary accruals reduce the value relevance of earnings but have no impact on the value relevance of book value. When both measures are investigated simultaneously, earnings management through short-term discretionary accruals has no impact whereas earnings management with long-term discretionary accruals reduces the value relevance of earnings while it increases the value relevance of book value. Therefore, she concludes that earnings management with long-term discretionary accruals has a grater impact on value relevance of earnings and book value than earnings management with short-term discretionary accruals.

[26] Whelan, C., The Impact of Earnings Management on the Value Relevance of Earnings and Book Value, A Comparison of Short-Term and Long-Term Discretionary Accruals, Ph. D. Thesis, Faculty of Business, Bond University

Sabac, Scott and Wier[27] argue that valuing a firm with operations denominated in foreign currency in the presence of exchange rate uncertainty requires detailed information on the foreign exchange cash flows of the firm broken down into specific currency and persistence. They show that permanent foreign cash flows can be used to condition relevant translation gains or losses to make them value relevant.

Similarly, Hossain and Marks[28] show that voluntary disclosure sales data on foreign operations of a US multinational firm is value relevant to equity investors. They argue that equity analysts tend to be conservative in their analysis and most of the time neglect the value added by operations when detailed information about such operations is not provided to them. Therefore, voluntary disclosure of information about these operations makes it value relevant.

Lajili and Zéghal[29] research whether the disclosure of labor cost adds to value relevance beyond the book value and find that the firms disclosing human capital information, such as labor costs, net pension liabilities, and estimated average and marginal labor productivity and efficiency indicators enjoy higher equity returns. This leads them to suggest that human capital information disclosure is further encouraged for companies in the future in order to create more value for their shareholders. Yet, one should also consider that companies have a tendency to disclose information voluntarily whenever such information is thought to be perceived positively by investors and creditors. Therefore, one should also consider that disclosure of such voluntary information will naturally affect share price performance positively. Only if all companies were required to disclose such information, its value relevance could have been analyzed in a more correct and accurate manner.

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[27] Sabac, F., Scott, T.W., Wier, H.A., An Investigation of the Value Relevance of Alternative Foreign Exchange Disclosures, Contemporary Accounting Research; Winter2005, Vol. 22 Issue 4, p1027-1061

[28] Hossain, M., Marks, B. R., The Value-Relevance of Voluntarily Disclosed Quarterly Foreign Sales Data of U.S. Multinational Corporations, Journal of International Accounting Research; 2005, Vol. 4 Issue 2, p75-89

[29] Lajili, K., Zéghal, D., Labor cost voluntary disclosures and firm equity values: Is human capital information value-relevant?, Journal of International Accounting, Auditing & Taxation; 2005, Vol. 14 Issue 2, p121-138

Covrig and Buen[30] look whether analyst forecasts and recommendations are value relevant in countries with poor financial disclosure requirements. They study the changes in market values of companies in Japan and find that accounting information is of modest value relevance. On the other hand, they conclude that the incremental contribution of financial analyst forecasts and recommendations is very much significant. A very nice contribution to that study could be the addition of a control variable for the density of institutional investors. Considering that institutional investors appreciate and emphasize analyst analyses and recommendations considerably more than retail investors and small investors, one could expect that the degree of value relevance of analyst recommendations would change with increasing weight of institutional investors in the total investment universe. Addition of a control variable for the density of institutional investors could most probably increase the significance of value relevance of analyst recommendations.

In an interesting study, Kohlbeck[31] questions whether intangible asset measures are value relevant for banks. Under US GAAP, intangible assets are not recognized in the financial statements unless they have been acquired against a payment. Voluntarily, few corporations disclose value estimates and other information about these assets. Kohlbeck uses four customers based intangible assets (mortgage servicing rights, credit card intangible, core deposit intangible, and trust operations intangible) to test his hypothesis and finds that all these estimates but the mortgage servicing rights are value-relevant and increase the explanatory power of a valuation model based purely on balance sheet figures. Kohlbeck uses Baever's valuation model to decompose the market value of total assets into the market value of equity and market value of debt. He then defines the market value of equity in terms of the other two variables and incorporates the four estimates he wants to test among other assets.

If intangible assets are perceived as increasing value pertained to shareholders, any write-off of intangible assets should as well be perceived as value deteriorating. In

[30] Covrig, V., Buen, S.L., The Relevance of Analysts' Earnings Forecasts in Japan, Journal of Business Finance & Accounting; Sep/Oct2005, Vol. 32 Issue 7/8, p1437-1463

other words, any impairment of an intangible asset should be reflected negatively on the market capitalization of a company. Duangploy et. al.[32] have taken off with a new ruling of Federal Accounting Standards Board (FASB) and undertaken a study to test whether goodwill impairment loss is value relevant. Since 2001, FASB requires companies to conduct an annual goodwill impairment test to determine whether goodwill recognized in the financial statements of a company has suffered a permanent decline in value. If there is an associated impairment loss, it will be recognized in the income statement. A two-step procedure is followed whether there is an impairment of goodwill or not. First, the fair value of a reporting unit is determined and compared to the carrying value of that unit. If the former exceeds the latter, no further work is required. On the other hand, if the carrying value ceases to surpass the fair value, the implied fair value of goodwill is calculated by deducting the fair vale of all tangible and intangible net assets from the carrying value. If such calculated fair value of goodwill is less than the carrying value, an impairment loss will be recorded in the income statement. To test their hypothesis, Duangploy et. al. have formed four different portfolios to test whether there is a difference in value relevance of operating and net income both including and excluding goodwill impairment losses. They arrive at the conclusion that investors do not disregard the goodwill impairment losses, probably due to the fact that they believe that future cash flows of the company will be negatively affected from a goodwill impairment loss.

Similar to Kohlbeck's work, Kallapur and Kwan[33] examine the value relevance and reliability of brand assets recognized by 33 British companies and stock price reaction to brand capitalization. They use data from 33 companies who have acquired businesses as a whole with their brands and then valued them separately from goodwill. Therefore, the data they use is subject to managerial discretion. They then investigate whether recognized brand asset measures are value relevant, whether there is cross-sectional

[31] Kohlbeck, M., INVESTOR Valuations and Measuring Bank Intangible Assets, Journal of Accounting, Auditing & Finance;
[32] Duangploy, O., Shelton, M., Khursheed, O., The Value Relevance of Goodwill Impirment Loss; Bank Accounting & Finance, August – September 2005, p 23 - 28
[33] Kallapur, S., Kwan, S.Y.S., The Value Relevance and Reliability of Brand Assets Recognized by U.K. Firms; The Accounting Review, 2004, Vol. 79, No.1, p 151 - 172

differences among such firms in the market capitalization rate of their brand assets and whether news on brand asset capitalization convey information to the stock market. Regression of market values on brand assets yields a positive and significant coefficient. They also find that low leverage firms have a higher brand asset coefficient than the firms with higher financial leverage. Hence, indebtedness explained some important portion of the cross-sectional difference in the study. Lastly, they find that brand asset capitalization conveys information to investors as an average of 12% abnormal returns were observed in the period following the announcement of brand asset recognition.

Value relevance is a subject that has been expanded to include information beyond the financial statements that is publicly available to investors. Rajgopal et. al.[34] researched whether the network advantages are value relevant for e-commerce companies. E-commerce companies enjoy investor interest as they are very high growth companies and their valuation cannot be explained fully by their accounting financial statements as the associated high growth numbers can seldom be captured by the associated financial statements. Most of the time, investors who buy out e-commerce companies, pay a sizable premium over the book values of these companies because of two reasons. Firstly, the acquiring companies buy out the ideas of these companies that are not reflected to any type of financial statement. Secondly, the value attached to those companies, is most of the time considered as the value to be acquired with the network advantages of a larger company that would one day or the other acquire them. Although a potential corporate action in the form of a merger or acquisition may not be in sight, investors and analysts most of the time do add a probabilistic value to the value of operations of e-commerce companies. The hypothesis that market value should be associated with the network advantages created by the internet firms relies on the fact that the value of that firm depends on the amount of web traffic that firm attracts in order to secure future cash flows. For an on-line auction company like eBay, the willingness of its customers to trade their goods through that portal should be positively

[34] Rajgopal, S., Venkatachalam, M., Kotha, S., The Value Relevance of Network Advantages,: The Case of E-Commerce Firms, Journal of Accounting Research, 2003, Vol. 41, No.1, p 135 - 162

associated with the customers actually using that firm's portal. Rajgopal et. al. use a sample of 92 e-commerce firms and categorizes them into five classes: (1) content and community sites, (2) e-tailers, (3) financial services sites, (4) portals, and (5) auction sites. The categorization will help to determine the extent to which the value drivers of these firms categorized in different internet industries will differ. On top of the existing financial statement figures, he collects internet traffic figures for these companies. Then, they employ the Ohlson model to see whether the net earnings, change in invested capital, dividend payouts, Research and development expenditures, marketing expenditures and book value of equity are value relevant or not. They find that book value of equity assumes a positive and statistically significant coefficient in the regression whereas the earnings and change in invested capital fail to do so. On the other hand, research and development expenditures assume a large positive coefficient that is statistically significant. Thereafter, they run the same regression analysis, this time ith effect of networking included in the system. Not only assumes the networking variable, as derived from the internet traffic of the sites, comes out positive and statistically significant, but also does the explanatory power as measured by the R-squared of the regression equation increase substantially.

In a ground-breaking research paper, Gordon and Weintrop[35] demonstrated the value relevance of foreign earnings for U.S. multinational firms where they examined the associations between annual abnormal stock returns and changes in companies' domestic and foreign earnings. They found out that both foreign and domestic earnings changes have significant positive associations with annual excess returns. However, the association coefficient on foreign income is significantly higher than that on domestic income. Their finding reveals that foreign earnings disclosures are value relevant and that firm value is more sensitive to changes in foreign earnings than domestic earnings.

In recent years, reliability of balance sheet information has invoked much controversial debate among investors. After the scandalous breakdown of ENRON, a dozen or so companies followed suit and the SEC has enacted the Sarbanes – Oxley act to improve

[35] Bodnar, G., Weintrop, J., The Valuation of ForeignIncome of U.S. Multinational Firms: A Growth Opportunities Perspective, Journal of Accounting and Economics, 1997, Vol 23, p 69 - 98

the quality of corporate governance practices. Thus, in recent years, the analysis of off-balance sheet activities as well as on-balance sheet activities gained importance. Bauman[36] finds that the stock market places significant negative values on investor-guaranteed off-balance sheet obligations. Hence, even off-balance sheet activities become value relevant for investors who want to avoid investing in companies with incomplete balance sheet information.

Whether income at operating level is value relevant or not is an interesting research topic. In a somewhat similar approach to the one that I will use to test my hypothesis in my dissertation, Brown and Sivakumar[37] constructed a valuation model to test whether operating income as disclosed by managers and analysts rather that that disclosed by US GAAP is value relevant or not. They also use a variant of Ohlson's valuation model that regresses the market value of equity on to book value and net income; decomposing the bottom line into the operating income and the difference between the operating income and net income. Unsurprisingly, they find that operating income conveyed by analysts and managers is more value relevant than that disclosed by companies under US GAAP principles. As caveats of their work, they assert that their assumptions about the efficiency of the stock market may be too strong. They also admit that they use data until 1997 and repetition of the same model with a different and more recent dataset may produce different results. Although they do not mention it in their work, I find that relating income at the operating level to value of equity may be too strong an argument and the defying of that forms the backbone of my thesis. I advocate that profit at the operating level is produced by the firms' total assets and from operating income, all the financial stakeholders of the company – including but not limited to shareholders – derive benefits: Financial Institutions and the State. Therefore, my work will concentrate on enterprise value rather than equity value, to restore and repair the aforementioned short coming.

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[36] Bauman, M.P., The Impact and Valuation of Off-Balance-Sheet Activities Concealed by Equity Method Accounting, Accounting Horizons; December 2003, Vol. 17, No. 4, p 303 - 314

[37] Brown, L.D., Sivakumar, K., Comparing the Value Relevance of Two Operating Income Measures, Review of Accounting Studies, 2003, Vol. 8, p 561 - 572

While it cannot be argued that an increase in the earnings of a firm leads to an increase in value, a finer look into details leads to the fact that not necessarily all components of earnings add to the value of the firm. Louis[38] analyzes the role of foreign translation adjustment in terms of value relevance and finds that while the coefficient of the adjustment is statistically significant, it assumes a negative sign. This may sound controversial as a foreign translation gain for a multinational company adds to the net earnings of the company while it decreases firm value. To better understand the point, he makes the case for a country in which a United States company has operations and assets. If that country's local currency depreciates, that specific company's assets in that foreign country would produce a foreign translation loss as the associated assets would be denominated in the local currency would be worth less in US Dollar terms because of the depreciation. On the other hand, one can make two distinctions for such an overseas operation. It may be an integrated foreign operation (IFO), producing goods and exporting, or a self sustained foreign operation (SSFO), where it mainly serves the local market. Either way, the firm's operation abroad should benefit from a depreciation of the local currency. In the case of and IFO, its production costs would fall, making its products more competitive in export markets in terms of price. If the firm is an SSFO, on the other hand, the depreciation of the local currency would put the company's goods into a more advantageous position against imports and lead to an increase of the firm's local market share. Thus, either way, the depreciation of the local currency should lead to an increase in firm value of the parent company. The controversy arises from the fact that the firm recognizes a translation loss after the local currency's depreciation.

The practice of accounting is inclining more and more towards the disclosure of even finer information. In that sense, some researchers question whether the disclosure of such information becomes value relevant. The Association of Investment Management and Research (AIMR) has stated in a position paper in 1993 that segment information is vital, essential, indispensable and integral to the investment analysis process. Chen and

[38] Louis, H., The Value Relevance of the Foreign Translation Adjustment, The Accounting Review, 2003, Vol. 78 No. 4, p. 1027 - 1047

Zhang[39] investigated whether segment disclosure of accounting data is value relevant beyond firm level accounting data. They apply a real options based valuation approach to test the incremental value relevance of segment data. A firm's value reflects the value of real options; i.e. its opportunities to expand or contract the scale of operations. They establish a model that decomposes equity value into two parts: One part is explained by the aggregate firm level accounting data. The other part is an incremental component attributed to differences to differences across segments in operating profitability. Chen and Zhang's model predicts that the incremental valuation impact of segment data varies systematically with the firm's overall profitability, overall growth opportunity and the distribution of growth opportunities within the firm. The empirical results are consistent with their theoretical predictions. They also conclude that segment data becomes mare value relevant if some segments experience growth while others are downsizing and less value relevant if all segments have similar investment prospects.

Another interesting phenomenon takes place when the regulating authority allows firms to use different methods in their cost and revenue recognition practices. In the United States, oil and gas companies may choose between successful efforts or full cost accounting method to recognize their exploration and development expenditures. Bryant[40] examines the value relevance of these two alternative methods. The basic difference between the two aforementioned methods is as follows. Under successful efforts method, firms capitalize their successful exploration and development costs and the unsuccessful efforts are expensed. In contrast, under the full cost method, all the expenditures, be it successful or not, are capitalized. Theoretically, the argument for the successful efforts method governs that the capitalization of all expenditures leads to a noisy measure of profitability as assets that have no future benefits for the firm are created by the capitalization of unsuccessful drilling costs. On the other hand, one could as well argue that the full cost method is more accurate as firms do not always create successful revenue generating wells. In other words, failure or unsuccessful exploration

[39] Chen, P., F., Zhang, G., Heterogeneous Investment Opportunities in Multiple-Segment Firms and the Incremental Value Relevance of Segment Accounting Data, The Accounting Review, 2003, Vol. 78, No. 2, p.397 - 328

and development can be viewed as a necessary component of discovering oil and gas reserves. Bryant has obtained the earnings and book values of 112 gas and oil firms and reconstructed the alternative data set were the firms to use the alternative accounting method; i.e. she constructed the data set for a company under successful efforts method if the company in fact makes use of the full cost method. She reveals that there is a difference in value relevance of alternative accounting methods for the 112 sample firms. Accordingly, full cost method explains more of the variation in market values than the successful efforts accounting data. Her approach differs from other researchers as she employs a within-firm approach and constructs a synthetic data set from the footnotes of firms in contrast to numerous other researchers who use an across-firms approach and only look at the announced accounting book values and earnings of companies rather than re-adjusting their figures according to the alternative approach. When the latter approach is adopted, the result of the study differs and successful efforts accounting method turns out to be more value relevant than the full cost method.

[40] Bryant, L., Relative Value Relevance of the Successful Efforts and Full Cost Accounting Methods in the Oil and Gas Industry, Review of Accounting Studies, 2003, Vol. 8, p 5 - 28

Chapter 3

Derivation of the Models

3.1. Statement of the Research Questions

The relevant research questions for the dissertation can be stated as follows:

Is accounting information (net earnings and book value) value relevant in Turkey? If so, what differentiates the power of book value and earnings in explaining the returns of stocks in Turkey?

In that respect, how does the new proposed model compare to the classical model, i.e. how strong is after tax operating profit ("ATOP") and modified assets ("MA") in explaining the changes in enterprise or entity value of firms?

3.2. Theoretical Framework

In the simplest way, a company's statement of income can be described as follows:

Income Statement	
Revenues	
(-) Cost of Goods Sold	
Gross Profit	
(-) Operating Expenses	
Operating Profit	
(-) Net Interest Expense	*Claim of Financial Debtholders*
Profit before Taxes	
(-) Taxes	*Claim of the State*
Net Profit	*Claim of Shareholders*

As suggested above, the company's sales revenues have associated operational costs in the income statement: The cost of goods sold, which includes all the production costs, and operating expenses that includes all the expenses to deliver the finished good or service to the customer. The costs of production for a typical manufacturing company include material expenses, depreciation expenses, labor costs, energy costs and other costs that relate directly to the production process. The costs of goods sold for a service company includes all the expenses necessary to create those services.

On the other hand, operating expenses are expenses which are necessary to take the product from the factory and deliver it to the end user. These costs typically are costs related to the marketing and sales effort and expenses of management personnel.

When both expenses are deducted from sales revenues, we arrive at the operating profit of the company. Below the operating line, the company begins to satisfy the creditors with interest payments, the State with taxes – presuming that there is taxable income present- and the shareholders with net earnings. From the viewpoint of a company's balance sheet, both the shareholders and the creditors of the company have their claim on the company's assets. The value of both shareholders' and creditors' claims determines the value of the company (enterprise value) whereas the value of Shareholders' claims determines the value of the equity of the company.

3.3. Derivation of the Classical Equity Approach

The dividend discount model suggests that the value of a firm's equity can be calculated from the sum of the firm's future dividend payments discounted back to the present at the firm's cost of equity. In other words, when a person buys a company's share, he is entitled to the dividend payouts of the company as long as he holds this share. The only cash flow he will be entitled to obtain from his shareholding will be the dividend payouts unless he decides to sell of his share of the company and record a capital gain or loss. If this person decides to hold his share for an infinite amount of time, he will be entitled to the dividend payouts of the company and the value of his shareholding will be the present value of all future dividend payouts. When the value of all shareholding in the company is considered, the value of the company's equity can be calculated as the present value of the all the company's future dividend payouts.

$$V_e = \sum_{t=1}^{\infty} \frac{E(D_t)}{\prod_{k=1}^{t}(1 + r_{ek})} \qquad (1)$$

V_e :Value of Equity

D_t : Net cash dividend to be distributed at year-end t

r_{ek} : Nominal cost of equity for year k

To derive the residual income based valuation relationship, it is assumed that book value at time t will be the sum of the book value from the previous period and the earnings adjusted for distributed cash dividends. This assumption rules out any future transactions with the firm's shareholders; i.e. capital increases through rights issues. In

other words, the clean surplus accounting relation must hold for us in order to make the transition from the dividend discount model to the residual income model.

$$BV_t = BV_{t-1} - D_t + E_t \quad (2)$$

BV_t : Book Value of Equity at year-end t

BV_{t-1} : Book Value of Equity at year-end t-1

D_t : Net cash dividend to be distributed at year-end t

E_t : Earnings in year t

Then, residual income is defined as:

$$RI_t = E_t - r_{et} BV_{t-1} \quad (3)$$

RI_t : Residual Income at year t

E_t : Earnings in year t

r_{et} : Nominal cost of equity for year t

BV_{t-1} : Book Value of Equity at year-end t-1

Substituting

$$V_e = \frac{E(D_1)}{1+r_{e1}} + \frac{E(D_2)}{(1+r_{e1})(1+r_{e2})} + \ldots$$

$$V_e = \frac{E(E_1 + BV_0 - BV_1)}{1+r_{e1}} + \frac{E(E_2 + BV_1 - BV_2)}{(1+r_{e1})(1+r_{e2})} + \ldots$$

$$V_e = \frac{E(RI_1 + r_{e1}BV_0 + BV_0 - BV_1)}{1+r_{e1}} + \frac{E(RI_2 + r_{e2}BV_1 + BV_1 - BV_2)}{(1+r_{e1})(1+r_{e2})} + \ldots$$

$$V_e = \frac{BV_0(1+r_{e1}) + E(RI_1 - BV_1)}{1+r_{e1}} + \frac{E(BV_1(1+r_{e2}) + RI_2 - BV_2)}{(1+r_{e1})(1+r_{e2})} + \ldots$$

$$V_e = BV_0 + \sum_{t=1}^{\infty} \frac{E(RI_t)}{\prod_{k=1}^{t}(1+r_{ek})}$$

Thereby, the dividend discount model has been transformed into the residual income model by making use of the clean surplus relationship. When considered from another point of view, the book value of equity can be treated as an inventory that will be used to generate normal future earnings. The difference between the book value of equity and market capitalization should then be seen as the present value of the sum of all future abnormal earnings.

Thus, the equation to test the validity of value relevance of accounting information is derived as:

Market Value of Equity = a_0 + a_1 BV + a_2E + Error

R-squared decomposition technique is employed to investigate the explanatory power of each independent variable and the combined explanatory power of both independent variables.

3.4. Foundation of the Entity Approach

In this part of the dissertation, foundations will be delivered which have led to my belief that the Entity Approach may possess a higher explanatory power to explain the changes in the market value of equity of a company than the classical equity approach.

A company that records positive earnings may not be necessarily a successful company in terms of operations. As a corollary, a company that records a negative bottom line, may not necessarily be an operationally unsuccessful company. To demonstrate the recent statements above, let us consider a company that is undertaking heavy investments to fund a project that is expected to ensure strong cash flow generation in

the future. An example of such an investment may be the establishment of a new production facility.

Such an investment will under any circumstance have a negative impact on a company's bottom line. If the company decides to fund the investment from own resources, it will have to decrease its cash position which will translate into a decrease of its interest revenues. On the other hand, if the company decides to fund its investments with financial loans, it will have to record interest expenses, which will again translate into a decrease in the bottom line.

In general, large scale investments need a time span to generate positive operating cash flows. Therefore, such investments most of the time have negative impact on short term net profitability. In contrast, if a company is undertaking a wise investment to deliver value to shareholders in the future, this is not perceived negatively by investors and shareholders and a negative reaction to such announcement would not be expected.

Therefore, profitability at the operating level rather than net income and asset size rather than the size of shareholders' equity may be more important in the formation of the market value of equity.

3.5. Derivation of the Entity Approach

Much in accordance with the previous derivations, the suggested "entity approach" focuses on the modified assets of the company rather than its book value of equity. The value of debt and equity combined will be the sum of all the expected dividend and interest payments from the firm discounted at the modified weighted average cost of capital. In order to arrive at the modified asset value, one will have to add the net financial debt of the company to the shareholders' equity.

Likewise, the firm's modified assets at time t is equal to the sum of the firm's modified assets at the end of the previous period and its after tax operating profit adjusted for the firm's dividend and interest payments. The logic behind the use of after tax operating profit is that this line in the income statement is used to pay out interest and dividends to share- and debt holders after satisfying the tax obligation to the State.

Finally, the firm's residual after tax operating profit becomes the difference between the after tax operating profit of the firm and the product of the modified assets of the firm at the end of the previous period and the modified weighted average cost of capital.

Modified Assets = Assets – Cash & Equivalents

Net Financial Debt = Financial Debt – Cash and Equivalents

$$V_e + V_d = \sum_{t=1}^{\infty} \frac{E(D_t + I_t)}{\prod_{k=1}^{t}(1 + MWACC_k)} \tag{4}$$

$$MA_t = MA_{t-1} - D_t - I_t + ATOP_t \tag{5}$$

$$RATOP_t = ATOP_t - MWACC_t MA_{t-1} \tag{6}$$

Substituting

$$V_e + V_d = \frac{E(D_1 + E_1)}{1 + MWACC_1} + \frac{E(D_2 + E_2)}{(1 + MWACC_1)(1 + MWACC_2)} + \ldots$$

$$V_e + V_d = \frac{E(ATOP_1 + MA_0 - MA_1)}{1 + MWACC_1} + \frac{E(ATOP_2 + MA_2 - MA_1)}{(1 + MWACC_1)(1 + MWACC_2)} + \ldots$$

$$V_e + V_d = \frac{E(RATOP_1 + MWACC_1 MA_0 + MA_0 - MA_1)}{1 + MWACC_1} + \frac{E(RATOP_2 + MWACC_2 MA_1 + MA_1 - MA_2)}{(1 + MWACC_1)(1 + MWACC_2)} + \ldots$$

$$V_e + V_d = \frac{MA_0(1 + MWACC_1) + E(RATOP_1 - MA_1)}{1 + MWACC_1} + \frac{E(MA_1(1 + MWACC_2) + RATOP_2 - MA_2)}{(1 + MWACC_1)(1 + MWACC_2)} + \ldots$$

$$V_e + V_d = MA_0 + \sum_{t=1}^{\infty} \frac{E(RATOP_t)}{\prod_{k=1}^{t}(1 + MWACC_k)}$$

Thus, the following model is derived:

Market Value of Equity + Net Financial Debt = $a_0 + a_1 MA_t + a_2 ATOP_t$ + Error

Henceforth, the study will concentrate on the entity approach, look at how it will explain changes in enterprise value, rather than the equity value, with respect to the changes in the modified value of assets and the after tax operating profit. Also, the dissertation will concentrate on how much each of the independent variables and both variables together will contribute to the explanatory power of the model, using the R-squared decomposition technique. Finally, a comparison will be performed between the results of the classical approach that starts of with the Ohlson model and the one I am suggesting, which is a modification of the Ohlson model starting off with the firm value.

Chapter 4

Data Collection and Methodology

Time series data has been collected from the ISE database for the following variables:

- Book Value of companies
- Earnings of companies
- Market value of equity of companies
- After Tax Operating Profits of Companies
- Modified Asset Values of Companies
- Enterprise Values of companies

Multiple Regression is performed to arrive at equations describing the relationship between the dependent variable and the independent variables. Ohlson valuation model is performed for the equity method and the modified Ohlson model is performed for the entity method.

The explanatory power of both methods is compared. Moreover, the explanatory power of each independent variable and both independent variables together are calculated using R-squared decomposition technique.

4.1 Distinction between the Size of Companies

As has been stated earlier in the thesis, investments in the ISE has been open to all foreign institutional investors since 1989. That said, it is also worthwhile to mention that foreign institutional investors do not invest in all the companies listed in the ISE.

The ISE has two benchmark price indices that are being followed closely by investors: The ISE-100, that is composed of hundred stocks from different sectors and the ISE-30, that contains an even more limited number of stocks. Yet, in terms of market capitalization, the companies' market value contributing to these indices make up almost 75% and 90% of the total market capitalization of the ISE, respectively. For institutional investors, it is rather important to beat these benchmark indices in assessing their success in asset management. Moreover, the charter of most institutional asset portfolios have strict restrictions as to keep asset managers investing in small market capitalization companies.

Therefore, small market capitalization companies are most of the time neglected by institutional investors. This very nature makes them also more likely to be the scene of speculative price movements that cannot be explained by fundamental information about the companies. In short, it can be expected that companies with larger market capitalizations are being followed more closely by both foreign and domestic institutional investors who evaluate fundamental information about companies much more than small retail investors. Therefore, it can be expected that value relevance of accounting information can be observed with a higher explanatory power in large market capitalization companies than it is observed in small market capitalization companies.

Henceforth, the analysis in my thesis will also divide the companies into three classes and analyze them accordingly: Companies with the largest market capitalization will be ranked within large market capitalization class, companies with the smallest market capitalization form the small market capitalization class. The remaining companies' data forms the universe of the medium market capitalization class.

4.2. Data Collection

Data has been gathered from Finnet, an official data provider platform of the Istanbul Stock Exchange. For the test of value relevance of net earnings and book value, each company's year end financial results between 1997 and 2005 have been collected and net earnings and book value have been extracted for the companies constituting the broadly followed ISE-100 index.

The announcement of financial results for listed companies in the Istanbul Stock Exchange is as follows: Companies first half and year end financial results have to undergo an audit by an independent auditing firm, whereas the financial results of the first quarter and third quarter of the year do not have to undergo an audit. The financial audit of companies usually takes some time depending on the complexity of the company's business and the necessity of having to announce consolidated financial statements should a company have a controlling stake in a subsidiary. Therefore, Istanbul Stock Exchange gives different deadlines for the announcement of financial results of listed companies. For the sake of the announced financial statements to be incorporated into market valuations, market values of companies have been collected as the end-of-March values that takes any announcement deadline into consideration.

Finally, some companies constituting the ISE-100 index have been offered to public after 1997. For example, Zorlu Enerji (ZOREN.IS) has floated its shares in the Istanbul Stock Exchange after 2000. Therefore, data for Zorlu Enerji stock could be only collected for the years 2000 – 2005. This fact brought down the number of observations to 510 from the ideally available data of 700 observations, had all the firms constituting the ISE-100 index been fully traded in those years.

4.3. Methodology

In the beginning of the dissertation, it was stated that the weight of institutional shareholding in the Istanbul Stock Exchange is on an ever increasing trend. Moreover, market capitalization and quality of information conveyed to investors through analyst presentations, are important consideration factors for institutional investors that shape

their investment decisions. Most of the large scale foreign mutual funds have limitations in their articles of association that forbids them to invest in companies remaining below a market capitalization threshold. The same can be also said for Turkey based mutual funds.

Moreover, the benchmark indices upon which the success of the fund managers are determined, are more than likely to contain only some of the larger companies traded on the Istanbul Stock Exchange. This said, it can be safely assumed that most of the institutional shareholding in the Istanbul Stock Exchange is widely concentrated among larger market capitalization companies.

Needless to say, mutual funds, unlike smaller retail investors, have to base their investment decisions upon sound and objective analytical data. The decision thus may be based on either feedback from the in-house research analysts who are employed by these mutual funds (buy-side research analysts) or from analyst reports and recommendations from independent investment banks and brokers. Either way, it is a fact that investment decisions of institutional investors are shaped by an analytical path of fundamental and public information.

Coupling the last two paragraphs together, it can be hypothesized and tested that the value relevance of accounting information is higher for companies with larger market capitalization than the value relevance of accounting information for companies with smaller market capitalization. This deduction follows from the simple fact that institutional shareholding is concentrated into those companies.

Henceforth, the analyses to test the hypotheses of this dissertation were carried out as follows:

(i) The first test is performed as a pure test of value relevance across all companies. In other words, annual data has been gathered for publicly traded companies as to their net earnings, shareholders' equity (book value) and market capitalization (market value of equity). The market capitalization of individual companies has been defined and calculated as the

price per share capital multiplied by the shares outstanding of individual companies. As stated earlier, it takes on average 10 weeks for publicly traded companies to announce their financial results and another one – two weeks for markets to digest the announced results and incorporate them into the market valuations. Therefore, in order to test the value relevance of year-end financial results, share price and paid-in capital data have been collected as at the end of March of each following year; i.e. March 31 market capitalization data has been regressed on the book value and net earnings data of the previous year.

(ii) The second test is performed in three installments using the same methodology. In the secondary phase of the analysis, the collected data has been grouped into three categories on the following rationale: The largest third of the companies under consideration are grouped under large cap firms, the middle third of the companies under consideration are grouped under medium cap firms, and the smallest third of the companies under consideration are grouped under small cap firms. The grouping is performed to test whether there is cross-sectional variation in value relevance of accounting information across the constituents of the ISE-100 index. If this were the case, we would be able to observe a decrease in value relevance from large cap firms through middle cap firms to small cap firms since the institutional shareholding concentrates in larger market capitalization companies.

(iii) Following the rationale in the first two steps, the value relevance will be tested from an entity value point of view. Again, three sets of data will be constructed for the 510 companies under consideration. The first set of data will be the enterprise value, as defined and calculated by the addition of net financial debt to the market capitalization of companies. Market capitalization of the company is again defined and calculated as the share price of the company multiplied by the shares outstanding of the company. On the other hand, net financial debt has been defined as the short term

financial debt added to the long term financial debt less the cash and marketable securities. Therefore, a company with cash and similar items in excess of its short- and long term financial debt will have a negative net financial debt position whereas a company with excess short- and long term financial debt over the cash and similar items position will have a positive net financial debt position.

In some rare instances, the market capitalization of a company may remain short of its negative net debt, or in other words, net cash position. In those cases, the enterprise value becomes negative. In other words, the company's market capitalization remains short of its net cash position – a rather abnormal situation. Normally, a company's market value of equity should represent the value of its operations and the net cash or debt position of the company. Since a permanent negative value for operations is not a meaningful situation and the company may opt to liquidate itself and discontinue operations under such circumstance, such values have been eliminated from analysis.

The enterprise value has been calculated using year-end financials for net financial debt since this is the relevant figure available to investors as of the end of March of each following year. The market capitalization data has been calculated using the paid-in capital and share price data as at the end of March of each following year.

The modified asset size, as defined by the total assets less cash and similar items, and the After Tax Operating Profit, defined as calculated as the Operating Profit less taxes, have been calculated using year-end financials.

Using the above data, enterprise value of companies have been regressed on the after tax operating profit and modified asset size to test whether value relevance making use of the modified data arrives at elevated value relevance of accounting information for the companies listed in the Istanbul Stock Exchange. To test that, the combined and individual explanatory

power of net earnings and book value for market value of equity is compared with the combined and individual explanatory power of modified asset size and after tax operating profit for the enterprise value. The individual explanatory power and the explanatory power common to both variables in both the equity and entity methodology has been calculated using the R^2 decomposition technique.

(iv) Eventually, the same size segmentation has been performed for measuring the value relevance using the entity method. In other words, companies have been grouped based on their market value of equity into three size segments: The large market capitalization companies, the medium market capitalization companies and the small market capitalization companies. Following the same rationale, whether increasing shareholding by institutional investors translates into elevated value relevance of accounting information, value relevance of modified assets and after tax operating profit for enterprise value has been tested within each sizing. Finally, the individual and combined value relevance has been compared across the entity and equity methodology.

Chapter 5

Analysis and Discussion of Results

5.1. Results of the Equity Approach

(i) As depicted clearly in Appendix B, the regression of market value of equity on the book value of equity and the net earnings results in an adjusted R^2 of 0.689 evidencing value relevance of accounting information for the stocks constituting the ISE-100 index; except for the banks, financial institutions and conglomerates.

Table II. Results of Classical Approach for all Company Sizes

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
510	113.229.851,853	3,140	1,340	0,689
t-Statistic	3,195	6,636	13,610	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
510	276.563.055,473	8,398	0,576
t-Statistic	7,105	26,333	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
510	82.393.525,342	1,873	0,663
t-Statistic	2,252	31,644	

Model I: Market Capitalization $_{it} = a_0 + a_1$ Net Earnings $+ a_2$ Book Value + Error $_{it}$

Model II: Market Capitalization $_{it} = b_0 + b_1$ Net Earnings + Error $_{it}$

Model III: Market Capitalization $_{it} = c_0 + c_1$ Book Value + Error $_{it}$

On the other hand, net earnings alone explains only 0.026 of the change in changes in the market value of equity whereas the book value alone explains a much higher fraction of the changes in market value of equity at 0.113. The common explanatory power to both variables is 0.550.

Table III. R^2 Decomposition Analysis for all Company Sizes

R2 Decomposition Analysis for 510 firm-year observations		
Adjusted R^2 for		
Net Earnings	Book Value	Common to both variables
0,026	0,113	0,550

An interpretation of the results outlined below may be that the Turkish economy has revealed a rather volatile picture between 1997 – 2006 with frequent crises in 1997, 1998, 1999 and 2001, and strong growth thereafter. As cited earlier during the literature review, an increasing frequency in negative earnings has been blamed for the shift in the value relevance of accounting information from the net earnings to book value. While a cause-and-effect relationship cannot be clearly outlined, it is worthwhile to mention that the sample of 510 firm-year observations contains 92 firm-year observations with negative earnings – almost one fifth of the total data universe of the dissertation study. Therefore, one may suspect that investors have put more weight on book value alone rather than the net earnings alone with their volatile nature in their investment decisions. However, the explanatory power common to both variables remains strong at 0.550, suggesting that net earnings together with the book value does carry valuable information in explaining the changes in the market value of equity.

(ii) When the same analysis is performed for the same companies, this time segmented for large, medium and small market capitalization segments, the following interesting results may be depicted:

(iii)

Table IV. Results of Classical Approach for Large Cap Companies

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
176	393.971.071,844	3,213	1,214	0,635
t-Statistic	3,634	3,871	6,753	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
176	697.938.778,426	7,779	0,541
t-Statistic	6,313	14,400	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
176	342.647.799,117	1,781	0,608
t-Statistic	3,064	16,416	

Model I: Market Capitalization $_{it} = a_0 + a_1$ Net Earnings $+ a_2$ Book Value + Error $_{it}$

Model II: Market Capitalization $_{it} = b_0 + b_1$ Net Earnings + Error $_{it}$

Model III: Market Capitalization $_{it} = c_0 + c_1$ Book Value + Error $_{it}$

Table V. R^2 Decomposition Analysis for Large Cap Companies

Large Market Capitalization Segment
R2 Decomposition Analysis for 176 firm-year observations

Adjusted R^2 for		
Net Earnings	Book Value	Common to both variables
0,027	0,094	0,514

First of all, as evidenced above, value relevance of accounting information remains strong, yet lower as compared the universe of the 510 firm-year observations. For the large market capitalization sample, the explanatory power of net earnings and book value for the market value of equity falls to 0.635.

The table above shows that the explanatory power of net earnings remains low, but at comparable levels as in the analysis with 510 firm-year observations. However, the explanatory power of the book value, as well as that of net earnings and book value combined, fall by around 0.02 and 0.03, partially explaining the weakening in the value relevance of accounting

earnings. However, the t-statistic remains significant above 2, and the adjusted R^2 still remains high at 0.635.

For the medium sized companies grouping, the analysis of value relevance of net earnings and book value yields the following regressions:

Table VI: Results of Classical Approach for Mid-Cap Companies

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
162	81.511.241,952	1,550	0,780	0,639
t-Statistic	7,477	5,644	14,223	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
162	162.958.765,288	2,460	0,185
t-Statistic	11,690	6,132	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
162	88.607.481,582	0,853	0,570
t-Statistic	7,492	14,631	

Model I: Market Capitalization $_{it} = a_0 + a_1$ Net Earnings $+ a_2$ Book Value + Error $_{it}$
Model II: Market Capitalization $_{it} = b_0 + b_1$ Net Earnings + Error $_{it}$
Model III: Market Capitalization $_{it} = c_0 + c_1$ Book Value + Error $_{it}$

The rather surprising result comes from the R^2 decomposition analysis, as evidenced by the table below. The explanatory power of the net earnings alone rises to some extent as compared with the 510 firm-year observations and as compared with the large market capitalization group. Yet, the most interesting result of the analysis can be seen by the soaring explanatory power of the book value alone at 0.454 and the diminishing explanatory power common to both net earnings and book value at 0.116. Therefore, on the transition from large cap companies to medium sized companies, we can see that the explanatory power common to both net earnings and book value of equity clearly shifts to the book value.

Table VII. R^2 Decomposition Analysis for Mid-Cap Companies

Medium Market Capitalization Segment R^2 Decomposition Analysis for 162 firm-year observations		
Adjusted R^2 for		
Net Earnings	Book Value	Common to both variables
0,069	0,454	0,116

Notwithstanding with the above results, the diminishing importance of fundamental information in explaining the market value of equity for small market capitalization firms is clearly visible below.

Table VIII. Results of Classical Approach for Small Cap Companies

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
170	50.241.419,802	0,486	0,468	0,201
t-Statistic	7,729	1,265	5,883	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
170	74.612.536,297	1,160	0,042
t-Statistic	13,596	2,885	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
170	49.511.129,496	0,498	0,198
t-Statistic	7,633	6,546	

Model I: Market Capitalization $_{it} = a_0 + a_1$ Net Earnings $+ a_2$ Book Value + Error $_{it}$
Model II: Market Capitalization $_{it} = b_0 + b_1$ Net Earnings + Error $_{it}$
Model III: Market Capitalization $_{it} = c_0 + c_1$ Book Value + Error $_{it}$

Small market capitalization firms attract little to no institutional investor interest due to the reasons stated earlier in the dissertation. Therefore, one would expect that trading in those shares would be speculative in nature. In our small cap universe consisting of 170 companies, which rank in the bottom of companies constituting the benchmark ISE-100 index in terms of market value of equity, the value relevance of accounting information disappears. When multiple regression for market value of equity is performed on the book value and net earnings, two important results are

observed. Firstly, the t-statistic for net earnings falls below 2 for the coefficient of net earnings in the model and becomes insignificant. Secondly, the explanatory power of the model plunges dramatically from values above 0.6 in medium market capitalization and large market capitalization companies to a mere 0.201. Therefore, the explanatory power of accounting information disappears for small firms and other factors explain most of the changes in the market value. This is also a good explanation for the abrupt and unsubstantiated price changes in small market capitalization firms.

When an unexplained abrupt change in a listed company's market price is depicted, the Istanbul Stock Exchange requires the management of the company to make a public disclosure explaining why such price movement may occur. An interesting contribution to the study of diminishing value relevance of small market capitalization companies would therefore be the frequency of such requirements from the Istanbul Stock Exchange for those small market capitalization firms.

5.2. Results of the Entity Approach

(iv) The results of the study for the entity approach to value relevance are summarized in the following table:

Table IX. Results of Entity Approach for All Company Sizes

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
510	82.250.334,324	5,708	1,121	0,751
t-Statistic	2,477	10,632	13,743	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
510	204.623.775,183	11,655	0,658
t-Statistic	5,466	31,333	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
510	73.640.499,541	1,821	0,696
t-Statistic	2,008	34,117	

Model I: Enterprise Value it = a0 + a1 After Tax Operating Profit + a2 Modified Asset Size + Error it
Model II: Enterprise Value it = b0 + b1 After Tax Operating Profit + Error it
Model III: Enterprise Value it = c0 + c1 Modified Asset Size + Error it

In the entity approach, the enterprise value of a company is regressed on after tax operating profit and modified asset size as opposed to the classical value relevance approach derived from the Ohlsson model that relates the market value of equity to net earnings and book value of equity. The explanatory power of the model rises significantly to 0.751; as compared to 0.689 that was obtained through the classical approach, indicating to higher value relevance of accounting information when the entity as a whole, rather than the market value of equity, is taken into consideration. When the explanatory power is decomposed to the explanatory power of the variables in consideration alone and the explanatory power common to both variables, the results in the following table are observed.

Table X. R^2 Decomposition Analysis for All Company Sizes

R^2 Decomposition Analysis for 510 firm-year observations		
Adjusted R^2 for		
After tax operating Profit	Modified Asset Size	Common to both variables
0,055	0,093	0,603

When net earnings and after tax operating profit are considered as proxies for the company's profitability during that year and modified asset size and book

value of equity are taken as the company's ability to fund its assets, the following points of consideration can be drawn from the results. Firstly, for large market capitalization companies, the explanatory power after tax operating profit alone for the enterprise value more than doubles as compared to the explanatory power of net earnings alone for book value of equity. This result should not be surprising at all since the operating profit, rather then the net earnings which may be inflated or deflated depending on the size of non-operating profitability of companies, drives the investment decisions of institutional investors. Financial debt or cash in excess of capital and working capital investment needs and its reflections on the profitability are volatile in nature whereas true operating profitability becomes an important contribution for investment decisions. Second, modified asset size alone carries almost the same explanatory power for the enterprise value as does the book value of equity for the market value of equity. Moreover, when the explanatory power common to both variables in the models is compared, one can see that the rise is mostly observed from that viewpoint.

Although the theoretical derivations of both methodologies is supplied in the context of this dissertation, a tentative approach that the operating profitability is used intensively by money managers can also be seen in research reports of analysts. For industrial companies, the research analysts most of the time supply three different ratios used in relative valuation. One is the widely used price-to-earnings ratio, calculated by dividing the market value of equity by the net earnings of a year. The second one is the market-to-book value ratio that is calculated by dividing the market value of equity by the book value of equity. The third one is the enterprise value-to-EBITDA ratio that is calculated by dividing the enterprise value of a company by its Earnings Before Interest Taxes Depreciation and Amortization Expenses (EBITDA). The EBITDA, on the other hand, has two components. One is the Earnings before Interest and Taxes (the

operating profit) and the other is the so-called non-cash charges (depreciation and amortization expenses). Therefore, the valuation multiples taken into consideration in investment decisions as well reveal that investment policy makers clearly want to look beyond the bottom line of companies when they shape their investment decisions, partly explaining the rise in value relevance when the entity method is used.

(v) After the assessment that value relevance of accounting information is stronger when the entity approach is used than the case with the classical approach, the analysis is performed once again for company groupings of three different sizes. For the sake of comparability among models, the same grouping has been used that had been calculated for the classical approach. Apparently, there are two reasons why such ranking has been continued. First of all, market capitalization or the market value of equity is the relevant reference when investment restrictions are enforced for asset managers. Secondly, such choice makes the results of the analysis with the equity and entity approaches clearly comparable to each other. Yet, one should remember that the rankings in terms of market capitalization and size of the enterprise value may significantly differ from each other. A largely indebted company may have a comparable enterprise value and modified asset size as a company of comparable operations size, whereas its market capitalization may be significantly smaller as investors deduct the value of net financial debt from the enterprise value when calculating their target market value for equity in their investment considerations.

In the large size firms class, the adjusted R^2 when regressing the enterprise value on after tax operating profit and modified asset size turns out to be 0.718 as outlined below. In the comparable study for large size companies in the equity approach analysis, the comparable explanatory power was observed as 0.635, again in stark contrast lower than the figure derived from the study using the entity approach analysis.

Table XI. Results of Entity Approach for Large Cap Companies

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
175	374.768.591,651	6,585	0,908	0,718
t-Statistic	3,749	6,953	6,176	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
175	601.265.517,733	11,300	0,657
t-Statistic	5,867	18,296	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
175	342.063.572,233	1,731	0,641
t-Statistic	3,036	17,641	

Model I: Enterprise Value $_{it} = a_0 + a_1$ After Tax Operating Profit $+ a_2$ Modified Asset Size + E

Model II: Enterprise Value $_{it} = b_0 + b_1$ After Tax Operating Profit + Error $_{it}$

Model III: Enterprise Value $_{it} = c_0 + c_1$ Modified Asset Size + Error $_{it}$

A decomposition of the explanatory power into components yields the following table:

Table XII. R^2 Decomposition Analysis for Large Cap Companies

Large Market Capitalization Segment R^2 Decomposition Analysis for 175 firm-year observations		
Adjusted R^2 for		
After tax operating Profit	Modified Asset Size	Common to both variables
0,061	0,077	0,580

Again, when the entity approach is used instead of the equity approach, a clear surge in the explanatory power is observed in the profitability related variable. While net earnings alone explained merely 0.027 of the variations in the market value of equity in large market capitalization firms, the explanatory power more than doubles to reach 0.061 for the after tax operating profit in explaining the changes in the enterprise value. On the other hand, as far as large market capitalization class companies are concerned, it can be depicted that book value of equity is more powerful in explaining the changes in market value of equity as opposed to the explanatory power of modified asset size in explaining the changes in

enterprise value. Needless to say, the explanatory power common to both variables is way stronger in the entity approach as compared to the equity approach method. While the explanatory power common to both net earnings and book value of equity is 0,514 in the equity approach, the explanatory power common to both modified asset size and after tax operating profit rises considerably to 0.580 in the entity approach.

For medium market capitalization company class, the explanatory power of the model falls considerably; yet remains higher than that of the entity approach. While R^2 in the large market capitalization class and for the whole company universe of the study realized at 0.718 and 0.751, respectively, it falls to 0.673 for medium sized market capitalization firms. Yet, in the entity approach, the explanatory power for medium sized companies still surpasses the comparable explanatory power of the equity approach at 0.639.

Table XIII. Results of Entity Approach for Mid-Cap Companies

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
162	73.979.171,580	0,802	0,909	0,673
t-Statistic	5,992	3,053	15,171	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
162	168.932.507,804	2,433	0,204
t-Statistic	10,177	6,509	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
162	79.020.547,512	0,984	0,656
t-Statistic	6,296	17,546	

Model I: Enterprise Value it = a0 + a1 After Tax Operating Profit + a2 Modified Asset Size + Error it
Model II: Enterprise Value it = b0 + b1 After Tax Operating Profit + Error it
Model III: Enterprise Value it = c0 + c1 Modified Asset Size + Error it

Table XIV. R^2 Decomposition Analysis for Mid-Cap Companies

R^2 Decomposition Analysis for 162 firm-year observations		
Adjusted R^2 for		
After tax operating Profit	Modified Asset Size	Common to both variables
0,469	0,017	0,187

As for small market capitalization companies in the equity approach, the modified asset size and after tax operating profit as well fail to be value relevant for the enterprise value evidenced below:

Table XV. Results of Entity Approach for Small-Cap Companies

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
171	57.264.972,753	-0,082	0,558	0,320
t-Statistic	7,952	-0,188	9,049	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
171	99.067.694,425	-0,116	-0,006
t-Statistic	14,748	-0,219	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
171	56.774.743,166	0,558	0,324
t-Statistic	8,482	9,077	

Model I: Enterprise Value it = a0 + a1 After Tax Operating Profit + a2 Modified Asset Size + Error it
Model II: Enterprise Value it = b0 + b1 After Tax Operating Profit + Error it
Model III: Enterprise Value it = c0 + c1 Modified Asset Size + Error it

The adjusted R^2 turns out to be low at 0.32, while the t-statistic again fails to turn out to be significant for the after tax operating profit. On the other hand, when we regress the enterprise value on the modified asset size, the coefficient turns out to be significant. Yet, the explanatory power remains low at 0.324, hinting that around two third of the variation in the enterprise value is explained by other things than asset size and operating profitability. Similar results were obtained in the analysis with the equity approach. The results show the speculative nature of the small sized companies.

Chapter 6

Conclusion

In this dissertation, I have proved the existence of value relevance of accounting information in the Turkish stock market. My analysis also reveals that value relevance of accounting information remains strong for large and medium sized companies as one would expect; taking the investment preferences of institutional investors into consideration. In the three groupings I have made according to market capitalizations, value relevance of accounting information turns out to be highest for large market capitalization class, falls but remains strong for the medium market capitalization class and turns out to be statistically insignificant for the small market capitalization class.

Deriving the clean surplus relationship from both the value of equity and the value of debt, I arrive at the entity model that relates after tax operating profit and modified asset size to the enterprise value of a company. The test of value relevance of accounting information using that entity approach yields important results:

The value relevance of accounting information using the entity approach yields higher explanatory power for the whole set of companies subject to the ISE-100 index in the large and medium market capitalization class. The entity approach, as was the case for the equity approach, fails to prove statistically significant to explain the changes in the enterprise value of companies through the use of after tax operating profit and modified asset size for the small market capitalization class. Yet, this result does not contradict with my hypothesis that the entity approach yields higher explanatory power for value relevance than that obtained by the equity approach.

My work carries importance from several points for the value relevance of accounting information. First, while the test of the entity approach is empirical in nature, it relies on a model soundly derived using the fundamentals of company valuation. For the investment community at large, my work gains importance as it reveals that the mere study of financial statement analysis taking the profitability for only shareholders may fail to yield the best investment decisions.

Second, my hypothesis is tested using a model that uses universally recognized financial accounting information as independent variables. Hence, it may be tested for validity using the financial statement and market information in other countries as well. Therefore, it stands as a pioneering model for academic research in the field of value relevance of accounting information.

While the scope of the dissertation is limited to the testing of the research questions, a strong suggestion for further research will be to test the strength of the value relevance of accounting information through the passage of time. As the globalization of portfolio investments is becoming an ever increasing trend throughout the last decade, one would expect a commensurate increase in the value relevance of accounting information over time in emerging markets. The same cannot be said for developed markets as institutional investors have long been part of those markets.

Chapter 7

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APPENDIX A: Descriptive Statistics for Market Capitalization, Net Earnings and Book Value across all firm sizes

PANEL A: Descriptive Statistics for 510 firm-year observations between 1997 - 2006

Variable	Mean	Standard Deviation	Median	Maximum	Minimum
Market Capitalization $_{it}$	550.818.991,566	1.301.276.907,228	138.770.097,500	15.952.031.132,600	2.136.000,000
Net Profit $_{it}$	32.658.999,950	117.725.157,824	6.410.512,500	1.121.034.515,000	-646.788.933,000
Book Value $_{it}$	250.098.032,531	565.894.050,283	62.826.144,000	4.801.429.892,000	-251.321.895,000

PANEL B: Descriptive Statistics for 510 firm-year observations between 1997 - 2006

Variable	Skewness	Kurtosis
Market Capitalization $_{it}$	6,745	63,153
Net Profit $_{it}$	4,573	36,084
Book Value $_{it}$	4,833	28,760

PANEL C: Correlation among variables for 510 firm-year observations between 1997 - 2006

Variable	Market Capitalization $_{it}$	Net Profit $_{it}$	Book Value $_{it}$
Market Capitalization $_{it}$	1,000	0,760	0,815
Net Profit $_{it}$		1,000	0,816
Book Value $_{it}$			1,000

APPENDIX B: Investigation of Value Relevance for Net Earnings and Book Value across all firm sizes

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
510	113,229,851.853	3.140	1.340	0.689
t-Statistic	3.195	6.636	13.610	
t-Statistic *	1.72	2.77	2.24	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
510	276,563,055.473	8.398	0.576
t-Statistic	7.105	26.333	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
510	82,393,525.342	1.873	0.663
t-Statistic	2.252	31.644	

Model I: Market Capitalization $_{it}$ = a_0 + a_1 Net Earnings + a_2 Book Value + Error $_{it}$

AR[1] test : N(0,1) = 1,524 [0,127] Autocorrelation rejected at 1% significance level

AR[2] test : N(0,1) = 1,769 [0,077] **

* Heteroscedasticity robust t-values are reported in the associated row

** Tests for first and second order autocorellations. The p-values are given in the brakets.

The null of autocorelation is rejected at 5 percent

Model II: Market Capitalization $_{it}$ = b_0 + b_1 Net Earnings + Error $_{it}$

Model III: Market Capitalization $_{it}$ = c_0 + c_1 Book Value + Error $_{it}$

APPENDIX C: Descriptive Statistics for Market Capitalization, Net Earnings and Book Value across large market capitalization firms

PANEL A: Descriptive Statistics for 176 firm-year observations between 1997 - 2006

Variable	Mean	Standard Deviation	Median	Maximum	Minimum
Market Capitalization $_{it}$	1.348.330.762,867	1.976.071.366,178	787.018.476,440	15.952.031.132,600	12.332.250,000
Net Profit $_{it}$	83.611.810,250	187.322.006,694	26.928.454,000	1.121.034.515,000	-646.788.933,000
Book Value $_{it}$	564.614.314,409	864.809.680,202	202.836.066,000	4.801.429.892,000	-251.321.895,000

PANEL B: Descriptive Statistics for 176 firm-year observations between 1997 -

Variable	Skewness	Kurtosis
Market Capitalization $_{it}$	4,376	25,690
Net Profit $_{it}$	2,507	11,815
Book Value $_{it}$	2,831	9,211

PANEL C: Correlation among variables for 176 firm-year observations between 1997 - 2006

Variable	Market Capitalization $_{it}$	Net Profit $_{it}$	Book Value $_{it}$
Market Capitalization $_{it}$	1,000	0,737	0,780
Net Profit $_{it}$		1,000	0,814
Book Value $_{it}$			1,000

APPENDIX D: Investigation of Value Relevance for Net Earnings and Book Value across large market capitalization firms

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
176	393971071.844	3.213	1.214	0.635
t-Statistic	3.634	3.871	6.753	
t-Statistic *	2.87	2.43	1.81	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
176	697,938,778.426	7.779	0.541
t-Statistic	6.313	14.400	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
176	342,647,799.117	1.781	0.605
t-Statistic	3.064	16.416	

Model I: Market Capitalization $_{it}$ = a_0 + a_1 Net Earnings + a_2 Book Value + Error $_{it}$

AR[1] test : N(0,1) = 1,397 [0,162] Autocorrelation rejected at 1% significance level

AR[2] test : N(0,1) = 1,553 [0,121] **

* Heteroscedasticity robust t-values are reported in the associated row

** Tests for first and second order autocorellations. The p-values are given in the brakets.

The null of autocorelation is rejected at 5 percent

Model II: Market Capitalization $_{it}$ = b_0 + b_1 Net Earnings + Error $_{it}$

Model III: Market Capitalization $_{it}$ = c_0 + c_1 Book Value + Error $_{it}$

APPENDIX E: Descriptive Statistics for Market Capitalization, Net Earnings and Book Value across medium market capitalization firms

PANEL A: Descriptive Statistics for 162 firm-year observations between 1997 - 2006

Variable	Mean	Standard Deviation	Median	Maximum	Minimum
Market Capitalization $_{it}$	187.521.032,632	188.267.305,678	114.862.500,000	938.689.333,064	2.136.000,000
Net Profit $_{it}$	9.984.590,669	33.383.395,906	7.705.061,500	104.088.510,000	-203.045.000,000
Book Value $_{it}$	116.000.321,269	167.021.759,491	53.978.777,000	1.055.329.000,000	-63.337.892,791

PANEL B: Descriptive Statistics for 162 firm-year observations between 1997 - 2006

Variable	Skewness	Kurtosis
Market Capitalization $_{it}$	1,670	3,120
Net Profit $_{it}$	-1,467	11,462
Book Value $_{it}$	2,915	10,882

PANEL C: Correlation among variables for 162 firm-year observations between 1997 - 2006

Variable	Market Capitalization $_{it}$	Net Profit $_{it}$	Book Value $_{it}$
Market Capitalization $_{it}$	1,000	0,436	0,756
Net Profit $_{it}$		1,000	0,233
Book Value $_{it}$			1,000

APPENDIX F: Investigation of Value Relevance for Net Earnings and Book Value across medium market capitalization firms

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
162	81,511,241.952	1.550	0.780	0.639
t-Statistic	7.477	5.644	14.223	
t-Statistic *	6.48	3.97	9.19	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
162	162,958,765.288	2.460	0.185
t-Statistic	11.690	6.132	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
162	88,607,481.582	0.853	0.570
t-Statistic	7.492	14.631	

Model I: Market Capitalization $_{it}$ = a_0 + a_1 Net Earnings + a_2 Book Value + Error $_{it}$

AR[1] test : N(0,1) = 2,313 [0,021] Autocorrelation rejected at 1% significance level

AR[2] test : N(0,1) = 1,769 [0,126] **

* Heteroscedasticity robust t-values are reported in the associated row

** Tests for first and second order autocorellations. The p-values are given in the brakets.

Model II: Market Capitalization $_{it}$ = b_0 + b_1 Net Earnings + Error $_{it}$

Model III: Market Capitalization $_{it}$ = c_0 + c_1 Book Value + Error $_{it}$

APPENDIX G: Descriptive Statistics for Market Capitalization, Net Earnings and Book Value across small market capitalization firms

PANEL A: Descriptive Statistics for 170 firm-year observations between 1997 - 2006

Variable	Mean	Standard Deviation	Median	Maximum	Minimum
Market Capitalization $_{it}$	76.785.965,576	72.396.663,365	56.421.280,000	479.999.520,000	3.700.000,000
Net Profit $_{it}$	1.873.097,952	13.555.489,415	2.684.905,000	51.354.857,000	-54.776.004,000
Book Value $_{it}$	54.799.641,019	65.568.882,749	26.863.027,000	283.837.848,000	-42.756.100,000

PANEL B: Descriptive Statistics for 170 firm-year observations between 1997 - 2006

Variable	Skewness	Kurtosis
Market Capitalization $_{it}$	2,012	6,123
Net Profit $_{it}$	-0,827	4,389
Book Value $_{it}$	1,509	1,793

PANEL C: Correlation among variables for 170 firm-year observations between 1997 - 2006

Variable	Market Capitalization $_{it}$	Net Profit $_{it}$	Book Value $_{it}$
Market Capitalization $_{it}$	1,000	0,217	0,451
Net Profit $_{it}$		1,000	0,298
Book Value $_{it}$			1,000

APPENDIX H: Investigation of Value Relevance for Net Earnings and Book Value across small market capitalization firms

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
170	50,241,419.802	0.486	0.468	0.201
t-Statistic	7.729	1.265	5.883	
t-Statistic *	5.39	0.75	4.84	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
170	74,612,536.297	1.160	0.042
t-Statistic	13.596	2.885	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
170	49,511,129.496	0.498	0.198
t-Statistic	7.633	6.546	

Model I: Market Capitalization $_{it}$ = a_0 + a_1 Net Earnings + a_2 Book Value + Error $_{it}$

AR[1] test : N(0,1) = 1,794 [0,073] Autocorrelation rejected at 1% significance level
AR[2] test : N(0,1) = 1,686 [0,092] **

* Heteroscedasticity robust t-values are reported in the associated row

** Tests for first and second order autocorellations. The p-values are given in the brakets.

Model II: Market Capitalization $_{it}$ = b_0 + b_1 Net Earnings + Error $_{it}$

Model III: Market Capitalization $_{it}$ = c_0 + c_1 Book Value + Error $_{it}$

APPENDIX I: Descriptive Statistics for Enterprise Value, After Tax Operating Profit and Modified Asset Size across all firm sizes

PANEL A: Descriptive Statistics for 510 firm-year observations between 1997 - 2006

Variable	Mean	Standard Deviation	Median	Maximum	Minimum
Enterprise Value $_{it}$	599.051.543,518	1.362.137.697,470	155.657.972,000	15.718.329.132,600	7.062.991,000
After Tax Operating Profit $_{it}$	33.841.743,462	94.874.775,039	8.639.556,500	968.382.000,000	-184.529.669,000
Modified Asset Size $_{it}$	288.594.202,414	624.258.957,166	86.445.408,000	4.716.915.000,000	-24.984.124,000

PANEL B: Descriptive Statistics for 510 firm-year observations between 1997 - 2006

Variable	Skewness	Kurtosis
Enterprise Value $_{it}$	6,095	51,464
After Tax Operating Profit $_{it}$	4,950	33,484
Modified Asset Size $_{it}$	4,335	21,742

PANEL C: Correlation among variables for 510 firm-year observations between 1997 - 2006

Variable	Enterprise Value $_{it}$	After Tax Operating Profit $_{it}$	Modified Asset Size $_{it}$
Enterprise Value $_{it}$	1,000	0,812	0,834
After Tax Operating Profit $_{it}$		1,000	0,806
Modified Asset Size $_{it}$			1,000

APPENDIX J: Investigation of Value Relevance for After Tax Operating Profit and Modified Asset Size for all firm sizes

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
510	82,250,334.324	5.708	1.121	0.751
t-Statistic	2.477	10.632	13.743	
t-Statistic *	1.26	3.35	4.06	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
510	204,623,775.183	11.655	0.658
t-Statistic	5.466	31.333	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
510	73,640,499.541	1.821	0.696
t-Statistic	2.008	34.117	

Model I: Enterprise Value$_{it}$ = a_0 + a_1 After Tax Operating Profit + a_2 Modified Asset Size + Error $_{it}$

AR[1] test : N(0,1) = 2,362 [0,018] Autocorrelation rejected at 1% significance level

AR[2] test : N(0,1) = 2,262 [0,024] **

* Heteroscedasticity robust t-values are reported in the associated row

** Tests for first and second order autocorellations. The p-values are given in the brakets.

The null of autocorelation is rejected at 5 percent

Model II: Enterprise Value $_{it}$ = b_0 + b_1 After Tax Operating Profit + Error $_{it}$

Model III: Enterprise Value $_{it}$ = c_0 + c_1 Modified Asset Size + Error $_{it}$

APPENDIX K: Descriptive Statistics for Enterprise Value, After Tax Operating Profit and Modified Asset Size for large EV firms

PANEL A: Descriptive Statistics for 175 firm-year observations between 1997 - 2006

Variable	Mean	Standard Deviation	Median	Maximum	Minimum
Enterprise Value $_{it}$	1.448.457.201,488	2.065.988.954,228	839.162.728,000	15.718.329.132,600	13.431.586,000
After Tax Operating Profit $_{it}$	74.975.433,171	148.455.173,977	27.478.279,000	968.382.000,000	-184.529.669,000
Modified Asset Size $_{it}$	638.999.200,451	956.601.373,632	238.365.444,000	4.716.915.000,000	-24.984.124,000

PANEL B: Descriptive Statistics for 175 firm-year observations between 1997 - 2006

Variable	Skewness	Kurtosis
Enterprise Value $_{it}$	3,855	20,180
After Tax Operating Profit $_{it}$	2,929	11,304
Modified Asset Size $_{it}$	2,408	5,911

PANEL C: Correlation among variables for 175 firm-year observations between 1997 - 2006

Variable	Enterprise Value $_{it}$	After Tax Operating Profit $_{i}$	Modified Asset Size $_{it}$
Enterprise Value $_{it}$	1,000	0,812	0,802
After Tax Operating Profit $_{it}$		1,000	0,806
Modified Asset Size $_{it}$			1,000

APPENDIX L: Investigation of Value Relevance for After Tax Operating Profit and Modified Asset Size for large EV firms

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
175	374,768,591.651	6.585	0.908	0.718
t-Statistic	3.749	6.953	6.176	
t-Statistic *	2.69	3.67	3.37	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
175	601,265,517.733	11.300	0.657
t-Statistic	5.867	18.296	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
175	342,063,572.233	1.731	0.641
t-Statistic	3.036	17.641	

Model I: Enterprise Value $_{it}$ = a_0 + a_1 After Tax Operating Profit + a_2 Modified Asset Size + Error $_{it}$

AR[1] test : N(0,1) = 2,056 [0,040] Autocorrelation rejected at 1% significance level

AR[2] test : N(0,1) = 1,805 [0,071] **

* Heteroscedasticity robust t-values are reported in the associated row

** Tests for first and second order autocorellations. The p-values are given in the brakets.

Model II: Enterprise Value $_{it}$ = b_0 + b_1 After Tax Operating Profit + Error $_{it}$

Model III: Enterprise Value $_{it}$ = c_0 + c_1 Modified Asset Size + Error $_{it}$

APPENDIX M: Descriptive Statistics for Enterprise Value, After Tax Operating Profit and Modified Asset Size for medium EV firms

PANEL A: Descriptive Statistics for 162 firm-year observations between 1997 - 2006

Variable	Mean	Standard Deviation	Median	Maximum	Minimum
Enterprise Value $_{it}$	215.799.258,316	213.416.571,687	142.762.576,500	1.026.444.000,000	7.582.199,000
After Tax Operating Profit $_{it}$	19.262.839,054	40.133.231,657	9.367.010,490	221.364.682,000	-85.965.693,000
Modified Asset Size $_{it}$	139.069.290,161	176.020.092,438	76.848.246,000	1.099.110.000,000	-17.788.099,949

PANEL B: Descriptive Statistics for 162 firm-year observations between 1997 - 2006

Variable	Skewness	Kurtosis
Enterprise Value $_{it}$	1,761	3,070
After Tax Operating Profit $_{it}$	2,637	11,508
Modified Asset Size $_{it}$	2,553	8,286

PANEL C: Correlation among variables for 162 firm-year observations between 1997 - 2006

Variable	Enterprise Value $_{it}$	After Tax Operating Profit $_{i}$	Modified Asset Size $_{it}$
Enterprise Value $_{it}$	1,000	0,458	0,811
After Tax Operating Profit $_{it}$		1,000	0,409
Modified Asset Size $_{it}$			1,000

APPENDIX N: Investigation of Value Relevance for After Tax Operating Profit and Modified Asset Size for medium EV firms

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
162	73,979,171.580	0.802	0.909	0.673
t-Statistic	5.992	3.053	15.171	
t-Statistic *	4.51	2.70	5.43	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
162	168,932,507.804	2.433	0.204
t-Statistic	10.177	6.509	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
162	79,020,547.512	0.984	0.656
t-Statistic	6.296	17.546	

Model I: Enterprise Value it = a0 + a1 After Tax Operating Profit + a2 Modified Asset Size + Error it
AR[1] test : N(0,1) = 2,364 [0,018] Autocorrelation rejected at 1% significance level
AR[2] test : N(0,1) = 1,765 [0,078] **

* Heteroscedasticity robust t-values are reported in the associated row
** Tests for first and second order autocorellations. The p-values are given in the brakets.

Model II: Enterprise Value it = b0 + b1 After Tax Operating Profit + Error it
Model III: Enterprise Value it = c0 + c1 Modified Asset Size + Error it

APPENDIX O: Descriptive Statistics for Enterprise Value, After Tax Operating Profit and Modified Asset Size for small EV firms

PANEL A: Descriptive Statistics for 171 firm-year observations between 1997 - 2006

Variable	Mean	Standard Deviation	Median	Maximum	Minimum
Enterprise Value $_{it}$	98.384.063,253	77.570.385,647	81.585.364,000	473.359.945,000	7.062.991,000
After Tax Operating Profit $_{it}$	5.916.578,374	11.311.280,611	5.087.256,000	45.394.135,000	-47.273.372,000
Modified Asset Size $_{it}$	74.564.017,410	79.580.821,660	39.116.291,000	349.227.485,000	-3.546.530,000

PANEL B: Descriptive Statistics for 171 firm-year observations between 1997 - 2006

Variable	Skewness	Kurtosis
Enterprise Value $_{it}$	1,625	3,950
After Tax Operating Profit $_{it}$	-0,287	5,805
Modified Asset Size $_{it}$	1,387	1,096

PANEL C: Correlation among variables for 171 firm-year observations between 1997 - 2006

Variable	Enterprise Value $_{it}$	After Tax Operating Profit $_{i}$	Modified Asset Size $_{it}$
Enterprise Value $_{it}$	1,000	-0,017	0,572
After Tax Operating Profit $_{it}$		1,000	-0,009
Modified Asset Size $_{it}$			1,000

APPENDIX P: Investigation of Value Relevance for After Tax Operating Profit and Modified Asset Size for small EV firms

	MODEL I			
Number of Observations	**a_0**	**a_1**	**a_2**	**Adjusted R^2**
171	57,264,972.753	-0.082	0.558	0.320
t-Statistic	7.952	-0.188	9.049	
t-Statistic *	5.15	-0.10	5.51	

	MODEL II		
Number of Observations	**b_0**	**b_1**	**Adjusted R^2**
171	99,067,694.425	-0.116	-0.006
t-Statistic	14.748	-0.219	

	MODEL III		
Number of Observations	**c_0**	**c_1**	**Adjusted R^2**
171	56,774,743.166	0.558	0.324
t-Statistic	8.482	9.077	

Model I: Enterprise Value it = a0 + a1 After Tax Operating Profit + a2 Modified Asset Size + Error it
AR[1] test : N(0,1) = 2,187 [0,029] Autocorrelation rejected at 1% significance level
AR[2] test : N(0,1) = 2,254 [0,024] **

* Heteroscedasticity robust t-values are reported in the associated row
** Tests for first and second order autocorellations. The p-values are given in the brakets.

Model II: Enterprise Value it = b0 + b1 After Tax Operating Profit + Error it
Model III: Enterprise Value it = c0 + c1 Modified Asset Size + Error it

Curriculum Vitae

Buğra Baban was born in Istanbul in 1971. He received his BS degree in Mechanical Enginering in 1993 and his MBA with a concentration in Finance and Entrepreneurship from the University of Texas at Austin in 1996, where he managed to obtain a GPA of 4.0 and graduation rank 1. During his last year at the Masters program at the University of Texas, he worked as a Teaching Assistant to Professor Steve Magee in the Multinational Corporate Finance course. In 2006 and 2007, he taught the Portfolio Management course at Bilgi University's Masters Program in Financial Economics for two semesters.

Buğra Baban's professional career started at the automotive department of Koç Holding in 1993 where he worked as an internal consultant to group companies for one year. Thereafter, upon completion his MBA degree, he worked as an investment banker in the equity research and corporate finance disciplines of various leading institutions in Turkey. Currently, he works as the Group Head of Corporate Finance at OYAK Yatırım Menkul Değerler A.Ş. in Istanbul.