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# **Value Relevance of Accounting Information**

## **– A Swedish Perspective**

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## Summary

**Bachelor thesis in business administration, accounting, School of Economics and Commercial Law at Gothenburg University, spring term 2009.**

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**Title:** Value Relevance of Accounting Information – A Swedish Perspective

**Background and problem:** The research field of value relevance examines the relationship between stock prices and accounting information. It is comprehensive and constitutes a large body of literature. However, value relevance studies from different countries often show contradictory results, partly because accounting regulations differ between countries. Earlier research on the value relevance of accounting information in Sweden has been conducted and suggests that accounting information is value relevant in Sweden. However, the development in the field of accounting is rapid and there is a need for new research using fresh data.

**Purpose:** The study examines the value relevance of earnings in Sweden. The purpose is to find out whether there has been a change in the value relevance of accounting information since the study by Marton (1998), which included data until 1995.

**Delimitations:** While the purpose of the study is to find out whether there has been a change in the value relevance of earnings, the study does not attempt to explain why such a change might have occurred. Neither does it attempt to explain stock prices in whole; only the explanation power of earnings is accounted for in this paper.

**Empirical method:** Earnings and market values from 30 companies and over ten years (1999-2008) were collected and put into a regression model. The model specifies that market return, that is the change in market value during a year, depends on the level of earnings and the change in earnings from the previous year. The data was analyzed in SPSS using a linear multivariate regression analysis.

**Results and conclusions:** The regression analysis generated an adjusted  $R^2$  of 9.3 per cent, suggesting that earnings are value relevant in Sweden. This is in line with several US studies that have found  $R^2$ 's in the range between five and ten per cent. In comparison with the results of the Marton (1998) study, one can conclude that the value relevance of earnings in Sweden has stayed much the same over the years. However, no dot-com companies were included in this study, which, if they had been, might have generated quite different results. With these findings at hand, we feel that the purpose of this thesis has been achieved.

**Suggestions for further research:** This study found that earnings are value relevant in Sweden, for further research it would be interesting to find out the value relevance of other accounting figures, such as owner's equity, cash flow, and earnings components. It would also be interesting to see more comparative studies between the value relevance of accounting information in Sweden and the value relevance in another country.

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The writing of the thesis was a demanding process, in which we deepened our knowledge and understanding within the fields of accounting and finance. We have also developed an understanding of general research methodology and how to conduct an academic study.

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# 1 Introduction

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*This chapter serves as an introduction to the thesis. It provides a background to the research field of value relevance that puts the thesis into context. The introduction also describes the problem to be examined as well as the purpose and scope of the study.*

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## 1.1 Background

According to the International Accounting Standards Board (1989), the objective of financial statements is to provide information about the financial position and performance of an enterprise that is useful to an array of stakeholders in making economic decisions. Investors are among the most important users of such information since it is concluded that if financial statements meet investors' needs, it will also meet most of the needs of other users. (International Accounting Standards Board, 1989)

High quality accounting information is a necessity for well functioning capital markets and the economy as a whole. Hence, it should be of considerable importance to investors. A basic attribute of accounting quality is value relevance, that is the relevance of accounting information for equity valuation. According to Francis et al. (2004 as referenced in Hellström, 2005), value relevance seems to be more important than either timeliness or conservatism.

According to Nilsson (2003), the importance of accounting information to equity investors has led to a large body of literature studying the relationship between accounting information and the stock market. This relationship is one that intuitively exists since the value of a firm is strongly related to its financial status and performance. Valuation models used by equity investors often include both the book value of equity and earnings (see, e.g., Ohlson, 1995).

The research field of value relevance is a discipline under *market based accounting research* (MBAR) and has grown rapidly since the early research in the 1960's. The larger field of MBAR now contributes to the major journals with more than one thousand published papers, which makes it one of the most frequently researched areas in accounting (Kothari, 2001 as referenced in Brimble, 2003).

One of the main purposes of MBAR is to examine the value relevance of accounting information. Research questions involve: How well do accounting figures measure value? What accounting figures capture information about value? Do investors use accounting information for valuation purposes? Can accounting figures be used to predict future value? Since the normal method of examining these questions is based on statistical association studies, MBAR is said to be empirical in nature. (Nilsson, 2003)

Francis and Schipper (1999) have identified four approaches to studying the value relevance of accounting information. They are: the fundamental analysis view, the prediction view, the information view, and the measurement view of value relevance. This thesis adopts the measurement view of value relevance. Following is a short description of this approach; all four approaches are described in the theoretical framework.

Under the measurement view of value relevance, accounting figures are value relevant if they capture or summarize information that affects stock prices (Francis and Schipper, 1999). According to this perspective on value relevance, financial statements do not have to be used by investors per se; it is merely their ability to summarize information that has affected stock

prices that make them relevant in equity valuation (Nilsson, 2003). Earnings, for example, summarize many important economic events that have taken place during the year, as well as decisions made by management. Hence, earnings serve as an aggregate measure of company performance.

While the early value relevance studies focused on the information content of earnings, recent studies have examined the alleged diminishing relevance of financial statement information for equity valuation (Dontoh et al., 2004). Nowadays, less and less of a company's stock price can be explained by accounting information, while more and more of it can be attributed to a gray zone where other factors are at play (Bider, 2002). Bider (2002) argues that the lack of accounting regulation in this area gives way for speculation based on unreliable information.

Various value relevance studies have examined whether there has been a change in the value relevance of accounting information due to, for example, decreased timeliness of financial statement information, increased reporting of losses and one-time or special items, and increased importance of unreported intangible assets because of the increased relative importance of high-tech industries (see, e.g., Amir and Lev, 1996; Lev and Zarowin, 1999; and Francis and Schipper, 1999 as referenced in Nilsson, 2003).

Other researchers (see, e.g., Elliott and Jacobsen, 1991; Jenkins, 1994; and Sever and Boisclair, 1990 as referenced in Dontoh et al., 2004) argue that financial statements have lost their value relevance because of a shift from traditional capital-intensive economy into a high technology and service-oriented economy. In particular, they state that accounting information is less relevant for valuation of high technology, service-oriented firms because they are knowledge-intensive. Such firms usually have significant intangible assets that are generally not recognized on the balance sheet, which can contain value relevant information and thus explain part of the gap between equity book values and market values. (Dontoh et al., 2004)

## **1.2 Problematization**

Since the main objective of financial statements is to support users in their decision-making, it is interesting to examine whether accounting information achieves this objective, especially with regards to the "relevance lost" debate. Since this thesis deals with the value relevance of accounting information, it is natural to take on the perspective of the equity investor. The natural question to ask, thus, is whether the information contained in accounting figures is relevant to investors in equity valuation. From the measurement view of value relevance, the question can be raised as to how well accounting figures capture or summarize value relevant information.

According to Nilsson (2003), the same concerns can be raised in Sweden about the value relevance of accounting information. He argues that it is not obvious to what extent Swedish accounting information is useful in equity valuation. And even if accounting information is useful for valuation, it is not clear what kind of accounting information should be used.

Moreover, in light of the dot-com bubble that shook the world's stock markets at the end of the 1990's and the beginning of the 2000's, when high technology companies were valued at millions of dollars without having anything of substance on their balance sheets and without showing any profits, the question of value relevance can only have become even more important. Can investors trust accounting information having in minds the cases of Enron, WorldCom, and Boo.com?

Earlier studies of the value relevance in Sweden include the study by Marton (1998), who provided evidence of the value relevance of earnings in Sweden. Marton (1998) found that earnings could explain up to 13 per cent of stock prices when using a 12-month return window. However, the last data used in the Marton (1998) study dates back to 1995 and development in the field of accounting is rapid. Hence the need for new research that uses fresh data to find out whether the value relevance of earnings in Sweden has changed over the past 14 years.

### **1.3 Problem statement**

- What is the value relevance of earnings in Sweden?

### **1.4 Purpose**

The purpose of this study is to examine the value relevance of earnings in Sweden in order to find out whether there has been a change in the value relevance of earnings in Sweden since the study of Marton (1998).

### **1.5 Delimitations**

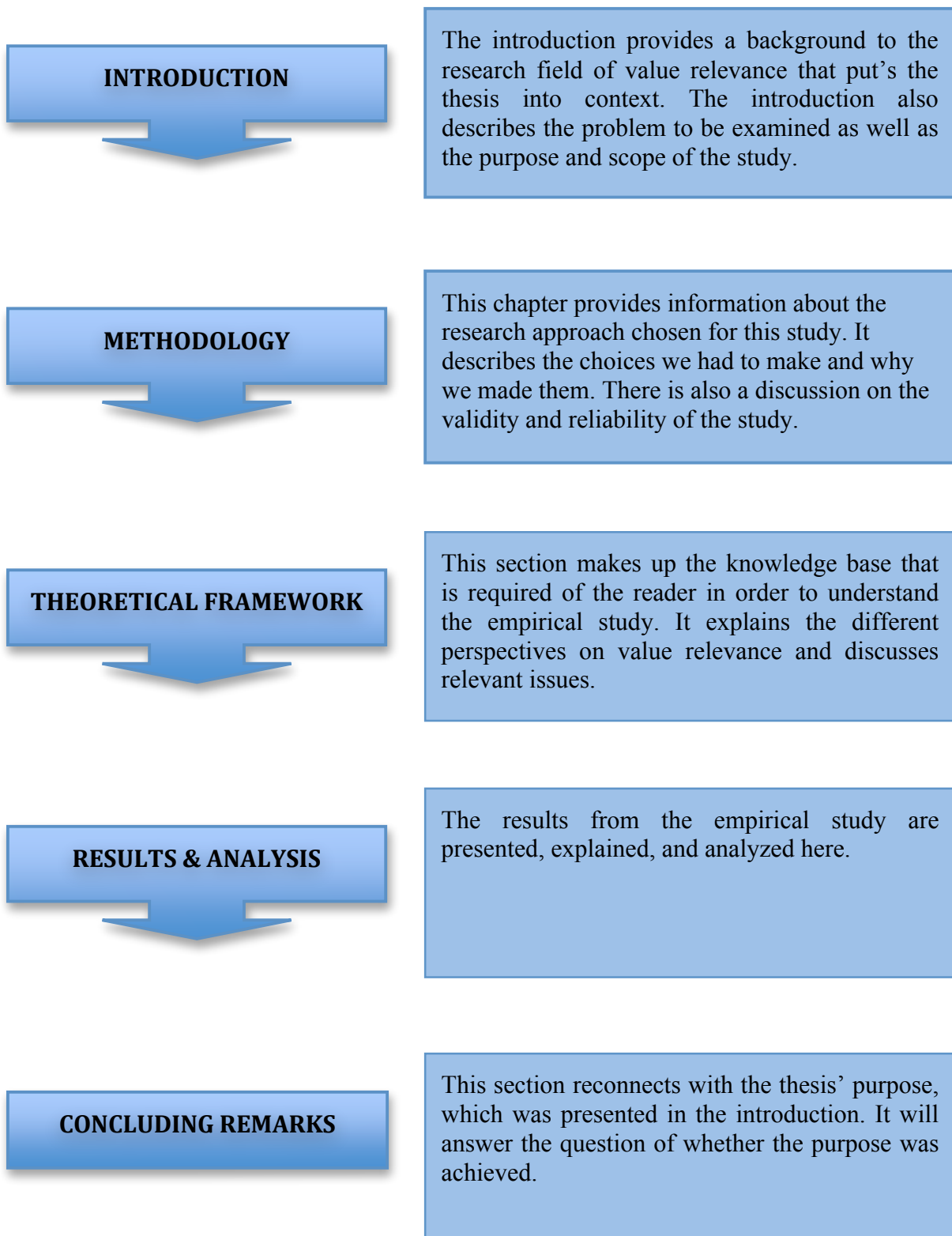
While the purpose of the study is to find out whether there has been a change in the value relevance of earnings, the study does not attempt to explain why such a change might have occurred. Furthermore, the study does not attempt to explain stock prices in whole. It merely examines how much of stock prices that can be explained by reported earnings figures. Hence, the stock price of a firm is treated as a variable dependent on various factors and is used as a proxy for the consensus beliefs of the shareholders about firm value.

### **1.6 Definitions**

Market based accounting research (MBAR) is a wide research field and often vaguely defined. One of the main purposes of MBAR, however, is to examine the relevance of accounting information for stock market participants. Other areas of research within MBAR include: market efficiency, analysts' behavior, Feltham-Ohlson modeling, and discretionary behavior (Beaver, 2002 as referenced in Beisland, 2009). These research fields deserve to be mentioned but are not dealt with in this paper.

The term *value relevance* can be interpreted in various ways: in this paper it refers to the ability of accounting figures to capture and summarize information that affects stock prices. This interpretation is referred to as the measurement view of value relevance in Francis and Schipper (1999). Accounting figures, in turn, are defined as the variables found in financial statements, variables such as earnings, cash flow, and owner's equity.

## 1.7 Dissertation outline





## 2 Methodology

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*This chapter provides information about the research approach chosen for this study in order for the results to be reproducible. It describes the choices we have made and why we made them. There is also a discussion on the validity and reliability of the study.*

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### 2.1 Research approach

In order to achieve the purpose of this thesis, we needed to examine the value relevance of accounting information in Sweden and determine if it has changed since the Marton (1998) study. Therefore, a good starting point was to clarify the meaning of value relevant accounting information.

In this thesis we define value relevance in accordance with the *measurement view*, which is described in Francis and Schipper (1999). Under this view of value relevance, accounting figures are value relevant if they capture or summarize information that has affected stock prices. The value relevance is determined by regressing market returns on accounting figures in order to find out if there is a statistical association between the variables. The study is thus based on mathematical models and a hypothesis, which means that it adopts a quantitative research approach as opposed to a qualitative one. The results of this study are based on observations of market value and earnings; from there, conclusions were drawn from inductive reasoning, that is the forming of a general understanding based on individual observations.

The reason we chose to adopt the measurement view of value relevance is that the results show us how much of stock prices can be explained by accounting earnings. If we instead had used, for instance, the information view of value relevance, the results would have shown us whether earnings are actually used by investors in setting market prices. While research under the measurement view measures the whole market return during a longer period, such as a year, research under the information view only measures the market reaction to the release of new information.

For the empirical study, we needed to determine the scope of the study, that is the number of companies included, the time period, and the specific accounting figures to be used. For this purpose, earlier research was examined to find out what had been done in the past. We eventually decided to collect data from 30 companies listed on the Stockholm Stock Exchange during a ten-year period, from 1999 to 2008. The data collected comprises earnings and historical market values (as measured by the value of the company stock times the number of issued stocks).

In order for the reader to understand our study and the results derived from it, we constructed a theoretical framework comprised of past research, theories and findings. This framework goes into depth about the concept of value relevance and investigates the role of accounting regulation in value relevance research. The purpose of the framework is to provide the reader with sufficient insight into the field of value relevance research. Hence, the framework serves as the knowledge base needed to understand the results of our study.

## 2.2 Validity and reliability

Validity refers to the extent to which this study has measured what it was supposed to measure (Le Duc, 2009). The purpose of this study is to examine the value relevance of earnings in Sweden and, according to prior research such as Francis and Schipper (1999) and Easton and Harris (1991), a proven research approach is to regress stock returns on accounting earnings over a longer time period, which is the approach taken in this study. Further, we think that we used reliable measures to collect the needed data, which is a prerequisite for validity. The measures used to collect data are described in the subsequent paraphrase that covers reliability.

Reliability refers to the accuracy of the measures employed in this study and the ability to reproduce the results (Nationalencyklopedin, search term: reliabilitet). Conducting the same study under the same research approach should therefore generate similar results, provided that all measures were accurate and reliable in the first place. In this study, the collected data comprises stock values and earnings from 30 companies over 10 years, 1998-2008. Stock values were collected from Dagens Industri (a Swedish business daily), while earnings were collected from the companies' annual reports. However, we did not control the information by using multiple sources since we had some trouble finding the stock values over such a long time period in the first place. As for earnings, annual reports are generally regarded as reliable publications regulated under Swedish law and audited by external parties.

In conclusion, we believe that the results of this study are valid in the sense that they provide a valid answer to the research question – what is the value relevance of earnings in Sweden? – based on an accepted and proven research approach involving accurate and reliable measures.

## 2.3 Source criticism

When conducting a study, it is important to evaluate the quality of the information and data that are used for drawing conclusions. We have made a strong effort to single out the most accurate and reliable data that we could find. For instance, the theoretical framework is based on the writings of acclaimed specialists and highly regarded articles to the largest extent possible. The articles referenced are mainly published in renowned accounting journals like the *Journal of Accounting Research* and the like. Furthermore, earnings figures have been collected from annual reports regulated under Swedish law and subject to external and independent audit. As for the collected market values, *Dagens Industri* is a renowned business daily in Sweden, which should grant a degree of reliability. Nevertheless, one cannot say for certain that these numbers are accurate since we failed to find additional sources to back them up.

## 2.4 Empirical Method

After reviewing past research in the field of value relevance, we decided that we wanted to examine the value relevance of earnings under the measurement view of value relevance. While the original purpose was to examine the value relevance of many other accounting figures as well, we had to limit the study to earnings due to problems relating to research design. Nevertheless, earnings are the number one performance measure and represent the aggregate bottom-line value creation during a period (Runsten, 1998).

Most value relevance studies under the measurement view use a quantitative approach based on regression analysis, which examines the statistical association between dependent and independent variables. We wanted to find out if information contained in the earnings number

affects the market value of a firm (stock value). The normal way of doing this is by regressing market returns on earnings to find out the explanatory power of earnings on market value, which is the approach taken in this study.

#### **2.4.1 Choice of accounting figure**

Value relevance studies have been conducted on various accounting figures, of which earnings and equity book value are the most frequent. The underlying intuition behind these measures could be that earnings represent the value creation of a company and thus should have some kind of relationship to stock prices. While earnings focus on performance, the equity book value represents the value of a firm as defined in accounting regulations and law. It makes sense that these measures could be associated with stock prices provided the relative importance of performance and value estimates to investors.

We chose to examine the value relevance of earnings, partly because it has an intuitive connection to stock prices that we could understand, and partly because we ran into trouble trying to examine the value relevance of other accounting figures. It was also interesting to compare the results of our study to those of Marton (1998), who also examined the value relevance of earnings in Sweden.

#### **2.4.2 Choice of companies**

We chose to include 30 companies in this study (see appendix 1), in part because it would provide a sufficient statistical significance, but also because the length of the time period (10 years) is relatively long. A sufficient statistical significance refers to the normal distribution of a population. According to Körner and Wahlgren (2006), the sum of “n” independent variables will be normal distributed if “n” is of adequate size, that is at least 30. Achieving normal distribution is very important in statistical studies because it reduces the influence of chance.

In choosing what companies to include in the study, we decided on well-established companies listed on the Stockholm Stock Exchange. The criteria on which the companies were selected were that they had to have existed longer than ten years, that they were not “growth companies” ten years ago, and that they did not belong to the dot-com industry. The main reason for these criteria was to reduce the influence of growth opportunities and intangible assets on stock prices.

In searching for suitable companies to include, we made an effort to find companies from different industries in order to avoid industry-specific discrepancies as much as possible. Our intention was to choose companies from as many different industries as possible, except for the IT industry. Industry classification was determined according to the companies’ own classifications in their annual reports. If a company operated in more than one industry, it was classified to the industry that generated the majority of the company’s revenues.

We chose not to include any companies from the dot-com industry in the study, mainly because these companies would have distorted the results too much and we would not have been able to compare our results to earlier studies conducted before the bubble. The dot-com bubble has probably affected the results of this study but not to the same extent as it would have if we had included dot-com companies.

#### **2.4.3 Choice of time period**

The time period that this study examines is ten years, which is quite a long time period for value relevance studies. We wanted a long enough time period to more accurately measure the

value relevance of earnings. A ten-year period also corresponds to recommendations given by Easton et al. (1992), who state that a period of ten years is able to considerably explain stock returns. It should also be noted that it was important that the time period did not overlap the period of the Marton (1998) study, with which we intended to compare our results.

### 2.4.3 Choice of return window

The return window is the time period over which returns are measured. We chose to use a 12-month return window in which the period starts at the beginning of the accounting year and ends at the accounting year-end. Using a 12-month window means that both market return and earnings cover the same period of time.

We could also have used a 15-month return window, which has the benefit of covering the time when the accounting information is made public through the annual reports (usually 2-3 months after the accounting year-end). The reason we did not choose this window is that there is a risk for serial correlation since the return window of one year will overlap with that of the next.

### 2.4.4 Statistics

In order to regress market returns on earnings, one must define a suitable regression model to use. In our case, we rely on a basic multivariate regression model:

$$Y = \beta_0 + \beta_1 X_1 + \dots + \beta_m X_m + \epsilon$$

Figure 1. Multivariate regression model.

The dependent variable (Y) equals the explanatory power ( $\beta$ , beta) of the constant ( $\beta_0$ ) and the independent variables ( $X_1$ ,  $X_2$  etc). Multivariate regression models allow for more than one explaining variable, which in our case means that two different expressions of earnings can be used to explain the market return. In this way, we can find out the explanatory power of each of these factors. The return model that we use was originally developed by Easton and Harris (1991) and was also used by Marton (1998).

$$\frac{MV_{jt} - MV_{jt-1}}{MV_{jt-1}} = \beta_0 + \beta_1 \frac{E_{jt}}{MV_{jt-1}} + \beta_2 \frac{E_{jt} - E_{jt-1}}{MV_{jt-1}} + \epsilon$$

Figure 2. The return model.

$MV$  = Market value (stock value)

$E_{jt}/MV_{jt-1}$  = Earnings year  $t$  divided by market value year  $t-1$

$(E_{jt} - E_{jt-1}) / MV_{jt-1}$  = Change in earnings from year  $t-1$  to year  $t$  divided by market value year  $t-1$

$\beta$  = beta

$j$  = company index

$t$  = year index

The return model used here (fig. 2) examines the explanatory power of earnings divided by market value (stock value) in the beginning of the year and of the change in earnings from one year to the next divided by market value in the beginning of the year. Earnings divided by market value could be regarded as some kind of return on investment (ROI) while the change in earnings divided by market value has a somewhat different interpretation.

The underlying intuition in using the change in earnings is that it could perhaps explain the change in market return better than just the earnings level. This goes back to the pioneering work of Ball and Brown (1968) who argued that only unexpected earnings cause price revisions since expected earnings are already incorporated in stock prices. Some researchers use last year's earnings as expected earnings and the residual as unexpected earnings. In this way, the change in earnings could be seen as unexpected earnings and should thus have a

intuitive connection to market returns.

Finally, the return model will calculate the explanatory power (as measured by  $R^2$ ) of the whole model (both factors together) on the dependent variable as well as the betas of each factor. The coefficient of determination ( $R^2$ ) describes the proportion of variability in the data set that can be accounted for by the regression model (that is the independent variables). In other words,  $R^2$  tells us how much of the variability in market return from year to year that can be explained by the two variations of independent earnings variables.

While  $R^2$  describes the explanatory power of the whole model, the individual betas ( $\beta$ ) make it possible for us to find out the explanatory power of each variable in the return model. More specifically, the beta describes the impact on market return if one of the factors changes by one unit. In our case, beta describes how many per cent the market return would increase or decrease if, for example, the earnings level divided by market value increase by one per cent.

In order to find out the value relevance of earnings, the results of the study must also be significant. That is, the influence of chance on the results must be limited and very small; no conclusions can be made otherwise since we cannot be sure that results depend on chance. It would, as a matter of course, also harm the reliability of the study. Results are said to be statistically significant within the 0.05 level, which means that the significance value must be smaller than 0.05. The significance is determined by the t-value, which indicates how many standard error means the sample diverges from the tested value. We do not go into greater detail about this measure as it is not of immediate relevance for the study.

When we ran the regression analysis using the statistics software “SPSS”, we wanted to test if the results would improve by excluding extreme values in the data. Excluding extreme values can sometimes generate more precise results; we chose to run the regression analysis both with and without outliers. The exclusion was done by removing all values from the independent variables (earnings level and earnings change) that exceeded three standard deviations. However, excluding outliers generated results exceeding the 0.05 significance level, suggesting that the influence of chance cannot be rejected. Hence, the results from excluding outliers serve no purpose and are not used in this study.

### 3 Theoretical framework

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*This chapter is comprised of past research, theories and findings within the field of value relevance. It contains a discussion on relevant issues and serves as the knowledge base needed for the reader to understand the results of this study.*

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#### 3.1 What is value?

*According to economic theory, the value of an asset for its owner is the discounted value of all future cash flows which the owner expects to receive as a consequence of the possession and decisions regarding the asset's use.*

(Runsten, 1998, p. 3)

As mentioned earlier, one of the main purposes of MBAR is to examine the value relevance of accounting information. The assumption behind the measurement view of value relevance is that the information disclosed in financial statements relates to firm value by capturing information that affects stock prices (Francis and Schipper, 1999). Firm value is thus defined as the total value of a company's stock and accounting figures are value relevant if they can capture or summarize information that affects the value of a company's stock.

However, firms and other assets are valued differently depending on the context. Runsten (1998) defines three value concepts: economic value, market value, and accounting value. Economic value refers to the notion that the value of any asset equals the future cash flows that can be gained from the asset. This value concept is consistent with the discounted cash flow model, which states that the value of an asset equals all future cash flows discounted to present value.

Market value is the value of a firm on the stock market and is based on trade and investors' consensus beliefs about firm value (Barth, 2000 as referenced in Brimble, 2003). According to Runsten (1998), information is often assumed to be the basis on which investors' beliefs and expectations about market value are formed. He argues that observed stock prices could be viewed as a measure of the market's valuation of the claim on companies' future value creation. He concludes that stock prices thus serve as indicators of the market's expectations of the future success of the firm.

Accounting value refers to the book value of equity found in the balance sheet. While information is often assumed to be the basis on which investors' beliefs and expectations about market value are formed, accounting value is the result of a measurement procedure that corresponds to accounting regulations and law. Accounting generates a description of the firm in an attempt to measure and describe its financial position and performance. (Runsten, 1998)

According to Runsten (1998), a close correspondence between equity book value and market value can be achieved if accounting information conveys a good description of the firm's value. He argues that all three value concepts could even coincide, provided a strong set of assumptions. In practice, however, this is not very realistic. Rather than separate systems generating identical descriptions, one type of description may in practice facilitate the functioning of another. "The output of the accounting procedure may, for example, be used as input in the pricing procedure" (Runsten, 1998, p. 6).

The various concepts of value have implications for accounting, which objective it is to provide information about the financial position and performance of companies (IASB, 1989), as well as for the value relevance of accounting information. If accounting provides a poor description of the firm, the value relevance of such information will likely be low.

### **3.2 Accounting regulations and value relevance**

According to Beaver (2002 as referenced in Hellström, 2005), value relevance research requires an in-depth knowledge of accounting institutions and accounting standards. He argues that differences in accounting regulations between countries favor research based on case country studies rather than comparative studies where the researcher has limited possibilities to understand the accounting institutions and standards of all countries researched.

There are concerns as to whether differences in accounting regulations between different countries cause differences in the quality of accounting information (see, e.g., Harris et al., 1994; Joos and Lang, 1994; Alford et al., 1993 and Amir et al., 1993 as referenced in Hellström, 2005). According to Marton (1998), there are significant differences in the value relevance of harmonized and non-harmonized accounting. He argues that choices on content affect the value relevance of accounting information. For example, US accounting regulation is entirely focused on the needs of capital market investors while the needs of users outside the capital markets are more concrete in Sweden, partly because of the connection between tax accounting and financial reporting.

However, there has been a continuous process of harmonization in Swedish accounting regulation since the 1980's: first with Generally Accepted Accounting Principles (GAAP), and later with the International Accounting Standards Committee (IASC) (Jönsson and Marton, 1994 as referenced in Marton, 1998).

Gjerde et al. (2009) investigated the value relevance of financial reporting in Norway between 1965 and 2004 to find out if the work of accounting legislators and standard setters has increased the value relevance of such reports. Their main findings are that the overall value relevance attributed to accounting quality had increased significantly over the period, which, according to Gjerde et al. (2009), suggests that public regulatory efforts have been successful at achieving more relevant financial reporting over time. They especially point out the positive effect on value relevance of the Accounting Act of 1998 as the overall value relevance increased in the period 1999 to 2004 after this law was enacted.

#### **3.2.1 Usefulness of value relevance research to standard setters**

Provided the relation between value relevance and accounting regulations, it has been debated whether value relevance research is useful to standard setters (Brimble, 2003). Brown and Howieson (1998 as referenced in Brimble, 2003) discuss five issues that limit the usefulness of value relevance research to standard setters. These are: (1) That standard setters can not possibly meet the information requirements of all users of accounting information; favoring investors would necessitate limiting the usefulness for other groups of users. (2) The value relevance literature has not provided very strong results in terms of the strength of the association between stock returns and accounting information (particularly earnings), as suggested by Lev (1989). (3) The results generated by value relevance studies are inevitably influenced by externalities that weaken the inferences that can be drawn from such studies. (4) Concerns can be raised as to the relative sophistication of market participants, particularly as to whether the complex statistical association models employed in value relevance studies can

be interpreted by investors. (5) Standard setters require conclusive results and emphasize questions that comprehensively deal with an issue, which is not the case in value relevance studies since they are often incremental in nature.

Despite these issues, Brown and Howieson (1998 as referenced in Brimble, 2003) are optimistic about market based accounting research (MBAR). Their optimism is based on the increasing availability and accuracy of electronic data sources and the developments in research methods, which will help overcome these issues.

Moreover, Barth et al. (2001 as referenced in Brimble, 2003) refute the concerns raised about the usefulness of value relevance research to standard setters. They argue that: (1) The value relevance literature does provide insights useful to standard setters because it is based on well-accepted valuation models. (2) Investors are the main users of accounting information; focusing on this group of users is thus relevant and useful. (3) Despite simplifying assumptions, empirical valuation models can be used in a value relevance research design. (4) Conservatism can be dealt with by means of research design. (5) Value relevance research is not designed to test the usefulness of accounting amounts. (6) Common econometric issues in research design can be, and are, mitigated by applying various statistical techniques.

### **3.2.2 Accounting regulation and declining value relevance**

Several researchers are of the opinion that deficiencies in accounting regulation have caused the value relevance of accounting information to decline. For example, Rimerman (1990 as referenced in Brimble, 2003) argues that one of the reasons for the declining value relevance of accounting information is that the current business environment is significantly different from the one that existed when Generally Accepted Accounting Principles (GAAP) were developed.

Further, Lev (1989), who provided evidence of the information content of earnings, proposes a shift in focus from earnings studies toward the regulations that determine earnings. He argues that although deficiencies in research methods and the existence of investor irrationality contribute to the weak association between earnings and stock returns, low information content of earnings has a big part of that. He states that while current research takes accounting information at face value and focuses on research design, it should focus more on accounting issues and the quality of reported information.

Researchers have also discussed the increasing need for more relevant and timely accounting information due to the increased sophistication of investors (see, e.g., Rimerman, 1990; Elliott and Jacobson, 1991; Jenkins, 1994 as referenced in Brimble, 2003). According to these researchers, an increased focus on this issue would perhaps reduce investors' reliance on non-accounting sources of information.

### **3.3 Developments in accounting and stock markets**

According to Marton (1998), there are two trends in worldwide stock markets: increasing internationalization and increasing importance. Internationalization refers to increasing cross-border investment activities while importance refers to the increasing activity on stock markets by both companies and people.

Marton (1998) argues that stock markets are historically national in scope but that they are currently going through an increasing internationalization. Financial market deregulation and technological change are seen as explanatory factors behind this occurrence (Smith, 1991; OECD, 1996 as referenced in Marton, 1998). He points out that the geographic location of



companies and investors are becoming less relevant due to increased activity in foreign countries by both these market actors. This internationalization of stock markets, he argues, has consequences for accounting and has led to increasing efforts to achieve accounting harmonization (i.e. the removal of country-specific differences) by governments, professional organizations, and individual companies.

Moreover, investors are increasingly active in foreign countries due to the attraction of higher investment return and a more effective diversification (Euroweek, 1996 as referenced in Marton, 1998). As an example, foreign investments in the US accounted for 0.7 per cent of GDP in 1989, while it accounted for 6.9 per cent in 1995 (OECD, 1997 as referenced in Nilsson, 1998). There has also been an increase in the interest in Swedish equities from foreign investors: at the end of 1996, foreign investors owned 31 per cent of Swedish equities, compared to 8 per cent in 1990 (Bohlin and Carlsson, 1994 as referenced in Marton, 1998). Further, between 1989 and 1995, the trading volume accounted for by foreign investors increased from 9.7 per cent of total volume to 33.9 per cent (Stockholm Stock Exchange, 1996 as referenced in Marton, 1998).

As part of the ongoing internationalization of stock markets, the number of Swedish companies listed on US stock exchanges increased from one in 1981 (Didner, 1993 as referenced in Marton, 1998) to seven in 1995 (Stockholm Stock Exchange, 1996 as referenced in Marton, 1998). 31 Swedish companies were listed on one or more foreign stock exchanges at the end of 1995. (Marton, 1998)

According to Marton (1998), the implication for accounting of internationalized stock markets is that financial statements that are regulated on a national level are now issued in other countries to investors that might be used to different accounting regulations. He argues that annual reports from different countries differ both in terms of valuation and disclosure. Where as valuation issues determine the values of accounting figures, disclosure relates to how much information is included in financial statements. Marton (1998) concludes that investors may encounter difficulties when comparing accounting information from different countries.

Provided these issues: governments, professional organizations, and individual companies are working toward accounting harmonization. Governments work through their memberships in international organizations like the UN, the EU, and the OECD. They also make an effort to make their own accounting rules become internationally acceptable. (Marton, 1998)

Regarding professional organizations, the International Accounting Standards Committee (IASC) has the largest influence in the area of accounting harmonization. IASC develops accounting standards and tries to impose them globally. In addition, auditing organizations work toward harmonization on a national level through accounting recommendations. (Marton, 1998).

According to Marton (1998), individual companies can, and do, participate in the accounting harmonization process by adapting their annual reports to international requirements. The purpose of these efforts is to attract foreign investors (Meek and Gray, 1989; Meek et al., 1995 as referenced in Marton, 1998). As an example, a number of Japanese companies issue financial statements in which both the language and the format differ from traditional Japanese financial statements (Radebaugh and Gray, 1997 as referenced in Marton, 1998).

However, although actions are being taken toward accounting harmonization, it is not a trivial process (Marton, 1998). Several obstacles remain, such as negative economic consequences of harmonization and institutional inertia in accounting systems (Nobes and Parker, 1995 as

referenced in Marton, 1998). Hence, accounting differences remain between countries (Flower, 1994; Joos and Lang, 1994; Cairns, 1996; Ordelheide, 1989 as referenced in Marton, 1998).

As mentioned, Marton (1998) also claims that stock markets are becoming increasingly important due to a larger interest by people in stocks and mutual funds as potential investments. He argues that it is becoming more common that companies use stock markets as a source of finance and as a vehicle for growth.

The increasing importance of stock markets has led to a greater demand for reliable information. Accounting in the form of financial statements is the most systematic source of information available to investors. The issuance of the annual report, for instance, is required of all listed companies. (Marton, 1998)

According to Marton (1998), the Swedish stock market reflects the global trend of increasing importance of stock markets. He states that in Sweden, most of the capital has historically been provided by banks or generated internally. However, the stock market as a source of capital has become more important since the 1960's. While SEK 531 million were raised in 1970, SEK 40.1 billion were raised in 1995 (SCB, 1975; SCB, 1997 as referenced in Marton, 1998). In addition, the number of investors increased from 166,000 in 1972 to 2.9 million in 1995 (SCB, 1975; SCB, 1997 as referenced in Marton, 1998).

### **3.4 Perspectives on value relevance**

There are different ways of interpreting value relevance. Francis and Schipper (1999) have identified four different approaches to studying the value relevance of accounting information. They are: the fundamental analysis view, the prediction view, the information view, and the measurement view of value relevance. According to Nilsson (2003), the various studies differ, among other ways, in the perspective on accounting (measurement versus information), market assumptions (efficient versus inefficient), and research methods applied.

As mentioned in the introduction, this thesis adopts the measurement view of value relevance. However, in order to gain a deeper understanding of the term value relevance, all four research approaches identified by Francis and Schipper (1999) are briefly described next. Each perspective is illustrated by past studies that serve as examples of the implementation of the different approaches.

#### **3.4.1 The fundamental analysis view of value relevance**

This approach is related to fundamental analysis research in accounting, which involves determining the intrinsic value of a firm without reference to the stock price (Bauman, 1996, as referenced in Nilsson, 2003). The fundamental analysis approach to value relevance focuses on the usefulness of accounting information in equity valuation. Financial statement information is assumed to be relevant for valuation if portfolios based on this information are associated with abnormal returns. Thus, it is not assumed that the market is at all times efficient but that there is the possibility of earning abnormal returns simply by using accounting information. The value relevance is examined by measuring returns generated by implementing trading strategies based on accounting information. (Nilsson, 2003)

Nilsson (2003) presents several studies that have adopted the fundamental analysis view of value relevance. He mentions Chan et al. (1996 as referenced in Nilsson, 2003), who dealt with investment strategies based on historic accounting earnings growth; Sloan (1996 as referenced in Nilsson, 2003), who examined trading strategies that imply a long position in

firms with relatively less accruals and selling short firms with relatively more accruals in their accounting earnings; Lakonishok et al. (1994 as referenced in Nilsson, 2003), who studied investments in firms with low ratios of market value to accounting fundamentals. Nilsson (2003, p. 3) concludes that “most of these studies indicate that accounting information is useful in predicting future returns”.

### **3.4.2 The prediction view of value relevance**

This interpretation of value relevance is also related to fundamental analysis research. Accounting information is assumed to be value relevant if it can be used in forecasting underlying value attributes derived from valuation theory; that is, if it can be used to predict future earnings, dividends, or future cash flows. Most researchers adopting this view of value relevance have studied the usefulness of accounting information for earnings prediction. (Nilsson, 2003)

Ou and Penman (1989) studied whether the information contained in financial ratios can be combined to yield accurate forecasts of future earnings. They also examined whether trading strategies based on information about future earnings growth generated abnormal returns, which relates to the fundamental analysis view of value relevance. The study serves as an example of how closely related the prediction view is to the fundamental analysis view.

Another study that adopts the prediction view of value relevance is the study by Skogsvik (2002), who examined whether one could accurately predict future return on equity (ROE) by the means of information contained in a large number of financial ratios. Like Ou and Penman (1989), Skogsvik (2002) then implemented trading strategies based on these predictions.

A third study adopting the prediction view is that of Lev and Suogiannis (1996 as referenced in Nilsson, 2003). In their study, they examined whether current research-and-development expenditures were associated with future earnings.

### **3.4.3 The information view of value relevance**

According to this interpretation of value relevance, accounting information is value relevant if investors use it in setting market prices (Francis and Schipper, 1999). However, researchers adopting this approach typically refer to accounting figures as having “information content” instead of using the term “value relevance” (Beaver, 1997 as referenced in Nilsson, 2003).

Accounting figures are assumed to have information content if the release of new information modifies investors’ beliefs about future cash flows and thus causes price revisions. Information content studies use statistical association models to examine how the stock market reacts to the disclosure of new accounting information. Hence, returns is the natural market metric in such studies. (Nilsson, 2003)

Early studies under the information view of value relevance were the groundbreaking works of Ball and Brown (1968) and Beaver (1968). Ball and Brown (1968) studied the market reaction in terms of returns while Beaver (1968) examined the reaction in terms of trading volume. The purpose was to find out if investors use information about earnings when setting market prices, which was examined by measuring the market response to new earnings information.

Ball and Brown (1968) examined the effect on the stock market of unexpected earnings following the disclosure of the annual report. They also conducted an association study that tested the correlation between earnings and returns in one year return windows. The

underlying assumption in using unexpected earnings is that only unexpected earnings will have an impact on stock prices since expected earnings should already be incorporated in stock prices (Lev, 1989). Studies adopting this approach will thus have a problem in distinguishing between expected and unexpected earnings. According to Lev (1989, p. 6), "The emphasis on unexpected earnings led to the use of proxies for expected earnings, such as time-series or analysts' forecasts". In the case of Ball and Brown (1968), however, they used both a random walk and a market model for expected earnings to see if unexpected earnings would be followed by abnormal returns.

Ball and Brown (1968) concluded that there is a statistically identifiable relationship between unexpected earnings and market returns. In particular, they found that earnings capture at least half of all information about a company that is released during a year. Hence, they came to the conclusion that the information content of earnings is considerable. They add, however, that although earnings have information content, the earnings measure is not timely. They base this remark on the fact that 85 to 90 per cent of the information conveyed in earnings had already been released by more prompt media.

Beaver (1968) focused on changes in trading volume associated with the release of new earnings information. He found that both trading volume and return volatility increase at the time of earnings announcements.

Together, Ball and Brown (1968) and Beaver (1968) were the originators of empirical association studies using statistical models in the field of value relevance of accounting information (Neelan, 2007). The motivation for their work was the assertion that accounting information, as a measure of company performance, should be reflected in stock prices and thus useful for investors. Their conclusion was that financial statements must have some worth to shareholders since they cost money to produce.

According to Nilsson (2003), the work of Ball and Brown (1968) and Beaver (1968) led to the large body of literature that examines the value relevance of accounting information. He argues that numerous researchers have used the research methodology established by these pioneers in studying the market reaction to announcements of accounting information. He states that the majority of these studies examine the relationship between the earnings measure and its components and stock prices.

Other studies under the information view of value relevance include Foster (1976 as referenced in Nilsson), who studied the information content of quarterly earnings announcements in the US; Pope and Inyangete (1992 as referenced in Nilsson, 2003), who found a strong increase in the volatility of stock returns around the annual earnings announcement date in a sample of UK firms; Kallunki (1997 as referenced in Nilsson), who examined the earnings/returns relationship in Finland.

Freeman (1987 as referenced in Brimble, 2003) studied the impact of firm size on the information content of earnings. He found that the information content of earnings is lower for large firms than for small firms and argues that this is because of the larger amount of earnings information available for investors in large firms due to the greater following of these firms. Greater media coverage, more supplements to annual reports, and greater interest from analysts make expected earnings more accurate for large firms than for small firms.

Several studies have investigated the market reaction to other accounting figures and adjusted measures of earnings (Nilsson, 2003). One example is Booth et al. (1996 as referenced in Nilsson, 2003), who suggest that earnings in Finland might be strongly manipulated by

management. They therefore used various adjusted earnings measures in order to mitigate the manipulated earnings measure. Another example is Livnat and Zarowin (1990 as referenced in Nilsson, 2003), who investigated whether the information in various cash flow components is more value relevant than the information in a summary cash flow number.

#### **3.4.4 The measurement view of value relevance**

The relationship between accounting information and stock prices received renewed interest in the beginning of the 1990's under the label *value relevance* (Ryan et al., 2002 as referenced in Nilsson, 2003). The researchers behind these studies focused more on the view that accounting information captures or summarizes events that have affected the firm over the reporting period (Easton, 1998 as referenced in Nilsson, 2003). Hence, they moved away from the information view of value relevance that requires new information to actually be used by investors and moved closer to a measurement view of accounting (Marton, 1998). However, according to Skogsvik (2002), the terms *information content* and *value relevance* have both been used in the meaning of accounting information as being useful in equity valuation.

Under the measurement view of value relevance, accounting information is value relevant if it captures or summarizes information that in turn affects stock prices (Francis and Schipper, 1999). Nilsson (2003, p. 5) states that "if an accounting item has a reliable association with a market metric, then the accounting metric captures or aggregates the information that is used by market participants to determine prices or returns". This is the definition of value relevance under the measurement view.

According to Nilsson (2003), both price and returns can be used as market metrics under the measurement approach, unlike in information content studies. He argues that researchers that use price as the market metric study the validity of accounting information as summary measures of the events that have affected firms up to a specific date. Return-based studies, on the other hand, study the ability of accounting information to capture events that have affected the firm over the return interval. The study conducted in this thesis is a return based study that uses returns as the market metric.

Another difference between the information view and the measurement view of value relevance is that the timeliness of new information is less important. The information view does not presume that investors actually use accounting information in their valuations; it is good enough if it summarizes the information and events that have affected stock prices during the return window. Hence, accounting information does not have to be decision relevant if more timely information exists. (Nilsson, 2003)

One last distinction between information content studies and the measurement view of value relevance is the research methods applied. Nilsson (2003, p. 7) states that: "information content studies often adopt an event-study method, while regression analysis is the bread and butter of value relevance research from the measurement perspective".

Most recent value relevance studies focus on the measurement view of value relevance (Easton, 1999 as referenced in Nilsson, 2003). According to Nilsson (2003), many of these studies have examined the value relevance of earnings, equity book values, or combinations of the two. He mentions Easton and Harris (1991) for an early US example. Easton et al. (1992 as referenced in Nilsson, 2003) extend that study by aggregating earnings and returns over periods up to 10 years. Their results suggested that a ten-year return period is capable of significantly explaining stock returns (Brimble, 2003).

Using somewhat different approaches, Runsten (1998) and Marton (1998) provided evidence

of the value relevance of earnings and book values in Sweden. Runsten (1998) found that changes in equity book values could describe an increasing amount of stock prices. According to Runsten (1998, p. 302): “it has been argued that the observation that one unit of change in equity seems to be associated with more than one unit of change in stock price, largely stems from the general use of a prudent cost-based accounting convention”.

Marton (1998) examined the value relevance of earnings in Sweden between 1983 and 1995. In addition, he examined the difference before and after the harmonization efforts made in Sweden in the early 1990’s. He used both a 12-month return window and a 15-month return window. For the full sample, he found that earnings could explain up to 13 per cent of stock prices using the 12-month return window and excluding outliers, and up to 12 per cent using the 15-month return window and excluding outliers.

When stratifying into pre- and post harmonization, Marton (1998) found that earnings could explain up to 26 per cent of stock prices post harmonization (12-month, excluding outliers) while the explanation power was only 8 per cent before the harmonization efforts. He concluded that earnings are value relevant in Sweden and that the value relevance has increased due to the harmonization efforts made in the early 1990’s.

### **3.4.5 Value relevance and the efficient markets hypothesis**

*The efficient markets hypothesis states it is impossible to “beat the market” because stock market efficiency causes existing share prices to always incorporate and reflect all relevant information.*

(Investopedia, 2009, search term: emh)

According to Holthausen and Watts (2002 as referenced in Nilsson, 2003), most value relevance studies assume market efficiency. However, value relevance research under the measurement view does not require this assumption (Barth et al, 2002 as referenced in Nilsson, 2003). The only assumption required is that market value reflects investor’s beliefs and estimates (Nilsson, 2003).

Although most value relevance studies adopt the measurement view nowadays, the efficient markets hypothesis has implications for any value relevance study adopting an event-study approach, which is the normal method of information content studies. According to Nilsson (2003), market efficiency is crucial for information content studies, which presume that investors actually use accounting information for making decisions. He argues that inefficient markets would cause such studies to suffer in reliability since they depend on the assumption that investors immediately react to new information and use it to revise stock prices. This is apparent with regards to the small return windows often used in information content studies, usually the days or weeks around the announcement date.

Moreover, according to Barth et al. (2002 as referenced in Nilsson, 2003), the efficient markets assumption is important when testing estimated coefficients on accounting variables to see if they differ from theoretical benchmark values derived from theoretical valuation models.

Nevertheless, the evidence against market efficiency is mounting (see Kothari, 2001; Lee, 2001; Holthausen and Watts, 2001 as referenced in Brimble, 2003). In information content

studies, this problem reveals itself in what is sometimes called post-announcement drift, that is price revisions associated with new information disclosed after the announcement date and outside the return window (Brimble, 2003). Attempts to get around this problem include extending the return window in order to allow the market to catch up.

In defense of the value relevance literature, Barth (2000 as referenced in Brimble, 2003) and Barth, Beaver and Landsman (2001 as referenced in Brimble, 2003) argue that there is significant evidence suggesting that markets are reasonably efficient at processing publicly available information. They also point out that markets does not have to be totally efficient since stock prices reflect the consensus beliefs of investors and therefore serve as a common proxy for value.

Finally, Lee (2001, p. 237 as referenced in Brimble, 2003) states that “Price discovery is an ongoing process and the current price of a security is best regarded as a noisy (or incomplete) proxy for a security’s true fundamental value”. Hence, stock prices are relevant as a proxy for firm value but one has to be careful about inferences drawn from evidence that uses the stock price as a proxy for firm value.

In conclusion, market efficiency is not a requirement for this study since the research approach adopts the measurement view of value relevance. We will not go into greater detail on whether or not the Swedish stock market is efficient.

### **3.5 Relevance lost?**

In light of the dot-com bubble that shook the world’s stock markets at the end of the 1900’s and the beginning of the 2000’s, where high technology companies were valued at millions of dollars without having anything of substance on the balance sheet and without showing any profit, questions arise as to the value relevance of accounting information. Especially the value relevance of the equity book value can be questioned provided the very high market-to-book ratios (i.e. the ratio between equity book value and stock value) during this time (Johansson and Hellman, 2007).

Nowadays, according to Bider (2002), less and less of stock prices seems to be explained by accounting information, while more and more of stock prices can be attributed to a gray zone where other factors are at play. He argues that the lack of accounting regulation in this area gives way for speculation based on unreliable information.

According to Nilsson (2003), various value relevance studies have examined whether there has been a change in the value relevance of accounting information due to, for example, decreased timeliness of financial statement information, increased reporting of losses and one-time or special items, and increased importance of unreported intangible assets because of the increased relative importance of high-tech industries (see, e.g., Amir and Lev, 1996; Lev and Zarowin, 1999; Francis and Schipper, 1999 as referenced in Nilsson, 2003).

In particular, the expanding high technology industry has received much attention. Researchers argue that financial statements have lost their value relevance because of a shift from traditional capital-intensive economy into a high technology and service-oriented economy (see, e.g., Elliott and Jacobsen, 1991; Jenkins, 1994; and Sever and Boisclair, 1990 as referenced in Dontoh et al., 2004). In particular, they state that accounting information is less relevant for valuation of high technology, service-oriented firms because they are knowledge-intensive. These firms usually have significant intangible assets that are generally

not recognized on the balance sheet, which can contain value relevant information and thus explain part of the gap between equity book values and stock values (Dontoh et al., 2004).

According to Brimble (2003), concerns over the declining value relevance of accounting information stem from both academic literature and the professional literature. Early discussion was stimulated by various articles in the professional literature that questioned the relevance of financial statements for assessing value, arguing that investors increasingly turn to other sources of information to meet their requirements.

Brimble (2003) notes that the debate about the declining value relevance of accounting information has led to a pool of literature dealing with this issue by using a variety of research designs in order to find an answer to the debate. He mentions, for example, that a range of accounting and non-accounting variables have been examined and more sophisticated econometric methods have been employed.

According to Brimble (2003), early studies in this area suggested that earnings information has become less value relevant (see, e.g., Berger et al., 1996; Collins et al., 1997 as referenced in Brimble, 2003). Collins et al. (1997 as referenced in Brimble, 2003). However, these early studies also found an increasing relevance of balance sheet information, such that accounting information as a whole had not lost relevance. There was in fact some evidence suggesting an improvement in value relevance.

These early findings have since been refuted by more recent research. Brown et al. (1999 as referenced in Brimble, 2003) raise concerns over the research design of the early studies and suggest that deficient research methods generated the conclusion of increasing value relevance of balance sheet information. A study by Lev and Zarowin (1999 as referenced in Brimble, 2003) also conflicts with the Collins et al. (1997 as referenced in Brimble, 2003) study. They argue that both book values and earnings had lost value relevance over time.

In his influential review paper, Lev (1989) suggests that earnings have low explanatory power in terms of stock prices. He argues that the literature generally provides weak results in terms of the statistical association between earnings and stock returns, typically with explanatory power (as measured by  $R^2$ ) of 5 per cent in the early research. Lev (1989) also found that the earnings/returns relation exhibits significant instability over time.

According to Lev (1989), there are several reasons why the value relevance of earnings is weak. He refers to manipulation by management, investor irrationality, and biases induced by accounting measurement and valuation principles. He also notes that information other than earnings has an impact on stock prices. In terms of the quality of the earnings measure, he suggests that it should include earnings components in order to be more comprehensive. He remarks that if the earnings number used in regression studies is not accurate in depicting the performance of the company, then the regression result will show a weak value relevance of earnings.

Brimble (2003) studied the value relevance of accounting information in Australia between 1974 and 2001. He found that there has indeed been a decline in the value relevance of earnings. His results indicate that earnings are more important for small firms, whilst equity book values are more important for large firms. Brimble (2003) concludes, therefore, that firm size is an important factor in the long-term relationship between equity book values and stock prices.

Hellström (2005) studied the value relevance of accounting information in the Czech



Republic between 1994 and 2001; she also had a sample of Swedish companies to compare with. She found that the value relevance of accounting information is lower in the Czech Republic than in Sweden. However, while the value relevance in the Czech Republic was increasing, it was decreasing in Sweden. According to Hellström (2005), there seems to be higher expectations on future profitability in Sweden than in the Czech Republic as expressed in price-earnings ratio and market-to-book ratio. Also, she argues that the dot-com bubble could probably explain the decrease in value relevance in Sweden.

### 3.6 Hypothesis

This study relies on the hypothesis that earnings are indeed value relevant in Sweden. The hypothesis is based on the earnings-related findings of Ball and Brown (1968) and Marton (1998), which suggest that earnings are value relevant. It is also our intuitive understanding that earnings should be value relevant provided that earnings are assumed to be a bottom-line performance measure.

Earnings are value relevant if the coefficient of determination ( $R^2$ ) is positive and not zero, which means that earnings explain part of the variation in market returns. In order to minimize the influence of chance, the results must also have a certain statistical significance. The results in this study are significant within the 0.05 level.

The hypothesis states that  $R^2$  does not equal 0 but is positive, which suggests value relevance provided that the results are statistically significant. In order to accept the hypothesis, one must be able to reject the null hypothesis ( $H_0$ ), which can only be done if  $R^2$  is positive, not zero, and statistically significant (within the 0.05 level). The purpose of the study is to test the value relevance of earnings to see if the null hypothesis can be rejected. The results from the study will be presented next.

$$H_0: R^2 = 0$$

$$H_1: R^2 \neq 0$$

## 4 Results and analysis

Table 1 presents the data collected in the form of average earnings and market values at the end of each year. This will depict the average progression over the years.

	<b>Earnings</b>	<b>Market Value</b>
<b>1998</b>	1304.42	37507.31
<b>1999</b>	2324.91	69408.43
<b>2000</b>	2428.51	72571.70
<b>2001</b>	41.17	63061.78
<b>2002</b>	252.23	38274.70
<b>2003</b>	800.39	32418.88
<b>2004</b>	2154.92	39550.60
<b>2005</b>	2574.55	52870.97
<b>2006</b>	4663.68	61921.17
<b>2007</b>	3788.37	51131.13
<b>2008</b>	1447.34	33996.50

*Table 1. Average earnings and market values at year-end (SEK millions).*

Looking at the average market value for the 30 companies in our study, one can clearly see the rise and fall around the millennial shift caused by the dot-com bubble. If the numbers look too positive, that is because we have not included any dot-com companies in the study. However, the companies included were clearly affected by this event: market values doubled on average between 1998 and 2000 (end of years), only to fall back to a level below that of 1998 during the years that followed. This shows that dot-com companies were not the only ones affected by the recession, but that large and established companies took a hit as well.

One can speculate in the effect on value relevance that this worldwide event may have had. The value relevance of earnings was probably more intact than the value relevance of equity book values since both earnings and market values dropped during the period, although earnings seem to have dropped more heavily than market values. The equity book value on the other hand, may have actually increased during the recession since we can see that the earnings average is positive during the period, indicating that, on average, the 30 companies were still profitable during the recession. Intuitively, rising book values and negative market returns are contradictory in terms of value relevance, which harms the correlation between the two during the period.

We can also make out the financial crisis of today if we look at the market value high in the end of 2006 and the subsequent halving in the following two years. The level of earnings follows the same pattern as the market value, indicating a correlation between the two. In fact, just from looking at table 1, one can discern a correlation between earnings and market values. However, one cannot ascertain whether there is a statistical association between the two; that is if one affects the other or the other way around. They could, for all we know, depend on a third independent variable that affects them both. This is exactly the reason why we needed to do the regression analysis, so that we could find out the explanatory power and impact of one variable on the other. The results from the regression analysis are presented next.

$$\frac{MV_{jt} - MV_{jt-1}}{MV_{jt-1}} = \beta_0 + \beta_1 \frac{E_{jt}}{MV_{jt-1}} + \beta_2 \frac{E_{jt} - E_{jt-1}}{MV_{jt-1}} + \epsilon$$

	$\beta$	t	Sig.
Constant	-	4.350	0
E/MV	0.122	2.202	0.028
$\Delta E/MV$	0.304	5.485	0
Dependent variable:	Market return		
Adjusted R2	0.093		

Table 2. Regression analysis results.

$E/MV$  = Earnings level,  $Earnings_{jt} / Market\ value_{jt-1}$

$\Delta E/MV$  = Earnings change,  $(Earnings_{jt} - Earnings_{jt-1}) / Market\ value_{jt-1}$

Market return =  $(MV_{jt} - MV_{jt-1}) / MV_{jt-1}$

Table 2 presents the  $R^2$  of the model and the variables' betas. The coefficient of determination ( $R^2$ ) tells us that earnings can explain 9.3 per cent of the market return over the research period; it is also statistically significant. Hence, it is safe to say that there is a statistical association between accounting earnings and market returns, which means that the null hypothesis can be rejected in favor of the hypothesis that earnings are value relevant in Sweden.

Furthermore, the betas of the independent variables indicate that when  $\beta_1$  (E/MV) or  $\beta_2$  ( $\Delta E/MV$ ) changes by one unit, the market return changes by 0.12 units or 0.3 units respectively. They are both statistically significant. It is interesting that the earnings change variable ( $\beta_2$ ) has a significantly greater correlation with the market return than do the earnings level variable. One possible explanation, based on the reasoning of Lev (1989), is that some level of earnings is expected by investors and is thus incorporated in stock prices. Therefore, reports of earnings up to this level do not affect stock prices, thus rendering a poor correlation with the market return. In contrary, the earnings change variable is based on all new information, which has probably affected stock prices in its entirety.

Putting this study in its context, one can compare the results found here to the existing literature. The obvious research to compare with is the study by Marton (1998), who examined the value relevance of earnings in Sweden using both 12- and 15-month return windows, presented the results both including and excluding outliers, and stratified the results into pre- and post-harmonization periods. The results that are most comparable to our study are those based on a 12-month return window, including outliers, and focuses on the post-harmonization period (since this study, technically, is conducted in the post-harmonization period).

Marton (1998) found an explanatory power of earnings of 11.7 per cent (as measured by adjusted  $R^2$ ): a comparison with the  $R^2$  of 9.3 per cent in this study suggests that the value relevance of earnings has declined since the Marton (1998) study. However, the difference is not substantial and nothing conclusive can be said since our study is comprised of only 30 companies while the study by Marton (1998) relied on many more.

Nevertheless, it is worth noting that the results are so similar when taking into account the changing circumstances over the last 15 years. For example, it would have been reasonable to expect a larger difference in the value relevance of earnings due to the substantial developments in the field of accounting, the dot-com bubble in the early 2000's, the increasing importance of intangible assets, and the increasing interest in stock markets.

In section 3.3, we discussed the increasing interest in stock markets by both individuals and corporations, increasing interest and activity should intuitively affect the value relevance of accounting information, both positively and negatively. For one thing, it could lead to more educated investors that make well-grounded decisions based on available information, which would increase the value relevance of accounting information.

However, more individuals attracted to the stock markets by hopes of higher returns may not be a good thing in terms of value relevance since many of them are likely to lack education on investing and make decisions based on rumors, emotions, and unreliable information. Investors like that do not look at the numbers found in financial statements, they look at newspaper headlines and talk about stock market psychology instead. An increasing amount of such market players would naturally distort the value relevance of accounting information since it increasingly is the market psychology and all its mood swings that determine stock prices as opposed to raw accounting information. However, provided the similarity in value relevance in this study and the Marton (1998) study, such a hypothesis can not be taken seriously.

Nevertheless, it is possible that circumstances that can affect the value relevance of accounting information negate each other. The increasing importance of intangible and unreported assets and speculations about the future may have harmed the value relevance of accounting information while being negated by developments in accounting regulations and law. Increasing harmonization seems to increase value relevance, as observed in the Marton (1998) study. One example of such a harmonization effort during the time period of this study occurred in 2005 when it was decided that all listed EU companies have to use the International Financial Reporting Standards (IFRS). Such a change could have improved the value relevance of accounting information, offsetting the impact of harmful events such as the dot-com bubble. Our choice to exclude dot-com companies from the study could also have helped offset a potential decrease in the value relevance of accounting earnings.

According to Marton (1998), US studies generally report  $R^2$ 's around 5 or 10 per cent when using one-year return windows (see, e.g., Easton and Harris, 1991). These numbers are supported by the influential review paper by Lev (1989), in which he states that earnings usually have an explanatory power of 5 per cent. According to Lev (1989), the earnings-returns relation also exhibits significant instability over time.

Our study, reporting an explanatory power of earnings of 9.3 per cent, is within the range of the US studies mentioned by Marton (1998). However, the  $R^2$  is higher than that reported by Lev (1989), which indicates that the value relevance of earnings have increased over the last 20 years. This is worth noting in our times where so many talk about decreasing value relevance of accounting information. However, the review by Lev (1989) deals mostly with US research and as we have already discussed in the theoretical framework, value relevance differs between countries due to, for example, different accounting regulations.

Finally, the similarity in results between this study and the study by Marton (1998) suggests that the earnings-returns relation is not as unstable as Lev (1989) once reported.

## **5 Concluding remarks**

The purpose of this thesis was to examine the value relevance of earnings in Sweden and compare it to the study by Marton (1998), which resulted in the finding that earnings are value relevant in Sweden. According to our results, earnings can explain 9.3 per cent of the market return, which is quite high compared to other studies conducted in the US. However, when we compare to Marton's (1998) study, we find that the value relevance has dropped from 11.7 to 9.3 percent. The change in value relevance of earnings can probably be explained by developments in the field of accounting, increasing importance of intangible assets, increasing interest in stock markets, and the dot-com bubble.

Moreover, the most important finding is the apparent stability in the value relevance of accounting earnings over the years. Our results differed only slightly from the results provided by Marton (1998), which contradicts the statement by Lev (1989) that the earnings-returns relation exhibits significant instability over time.

Provided the findings presented here, we feel that the purpose of this thesis has been achieved.

### **5.1 Further research**

This thesis examined the value relevance of earnings in Sweden and suggests that it has changed only slightly from the time of the Marton (1998) study. For further research, it would be interesting to find out the value relevance of other accounting figures, such as owner's equity, cash flow, and earnings components.

Furthermore, this study excluded dot-com companies to be able to compare the results with that of Marton (1998). However, it would be interesting to see the effect of the dot-com bubble in the early 2000's on the value relevance of accounting information.

Finally, it would be interesting to see more comparative studies between the value relevance of accounting information in Sweden and the value relevance in other countries. One such example is the study by Hellström (2005), who compared the value relevance of accounting information in the Czech Republic to Sweden.

## 6 References

- Ball, R., Brown, P. *An Empirical Evaluation of Accounting Income Numbers*. Journal of Accounting Research, autumn, 1968.
- Beaver, W. *The Information Content of Annual Earnings Announcements*. Journal of Accounting Research 6:67, 1968.
- Bider, I. *Accounting for Post-Industrial Age*. IbisSoft, 2002.
- Brimble, M.A. *The Relevance of Accounting Information for Valuation and Risk*. Ph.D. thesis, Griffith University, 2003.
- Dahmström, K. *Från datainsamling till rapport*. Pozkal, 2005.
- Dontoh, A, Radhakrishnan, S, Ronen, J. (2004) *The Declining Value Relevance of Accounting Information and Non-Information-Based Trading: An Empirical Analysis*. Contemporary Accounting Research, forthcoming.
- Easton, P.D. & Harris, T.S. *Earnings As an Explanatory Variable for Returns*. Journal of Accounting Research 29:1, 1991.
- Eriksson, L. & Wiedersheim-Paul, F., *Att utreda, forska och rapportera*. Malmö: Liber Ekonomi, 2001.
- Francis, J. & Schipper, K. *Have Financial Statements Lost Their Relevance?* Journal of Accounting Research 37:2, 1999.
- Gjerde, Ø., Knivsflå, K., Sættem, F. *The value relevance of financial reporting in Norway 1965-2004*. Norwegian School of Economics and Business Administration, 2009.
- Hellström, K. *The Value Relevance of Financial Accounting Information in a Transitional Economy: The Case of the Czech Republic*. Stockholm School of Economics, working paper no 2005:10.
- IASB (International Accounting Standards Board). *Framework for the Preparation and Presentation of Financial Statements*, 1989.
- Investopedia. *Efficient market hypothesis - EMH*  
URL: <http://www.investopedia.com/terms/e/efficientmarkethypothesis.asp>  
Accessed: May 20, 2009
- Johansson, S., Hellman, T. *Värderrelevansen av bokföringsdata*. Master thesis, School of Business, Economics and Law at Gothenburg University, 2007.
- Körner, S., Wahlgren, L. *Statistik Dataanalys*. Lund: Studentlitteratur, 2006.
- Le Duc, M., *Metodhandbok som tankekarta*  
URL: [http://www.eki.mdh.se/personal/mlc01/metod\\_0\\_7/Validitetochreliabilitet.html](http://www.eki.mdh.se/personal/mlc01/metod_0_7/Validitetochreliabilitet.html)  
Accessed: May 22, 2009
- Lev, B. *On the Usefulness of Earnings and Earnings Research: Lessons and Directions from Two Decades of Empirical Research*. Journal of Accounting Research 27, 1989.

Marton, J. *Accounting and stock markets*. Grafikerna i Kungälv AB, 1998.

Nationalencyklopedin. *Validitet (Validity)*

URL: <http://www.ne.se/validitet>

Accessed: May 22, 2009

Neelan, M.H. *Focus on Finance and Accounting Research*. Nova Science Publishers, 2007.

Nilsson, H. *Essays on the value relevance of financial statement information*. Print & Media, 2003.

Ohlson, J.A. *Earnings, Book Values, and Dividends in Equity Valuation*. Contemporary Accounting Research 11(2):661-687, 1995.

Ou, J., Penman, S. *Financial statement analysis and the prediction of stock returns*. Journal of Accounting and Economics 11:295-329, 1989.

Runsten, M. *The Association between Accounting Information and Stock Prices*. Elanders Gotab, 1998.

Skogsvik, S. *Redovisningsmått, värder relevans och informationseffektivitet*. Ph.D. thesis, Stockholm School of Economics, 2002.

## Appendix 1

The 30 Swedish companies we chose to include in the study are the following:

A-Com	Holmen
Astra Zeneca	Hufvudstaden
Atlas Copco	JM
Axfood	Kinnevik
Boliden	NCC
Brio	Ratos
Castellum	SAS
Claes Ohlson	SCA
Elekta	Semcon
Elektrolux	Skanska
Ericsson	SKF
Fabege	Swedish Match
Getinge	Trelleborg
H&M	Volvo
Hexagon	Ångpanneföreningen