

# The impact of IFRS' accounting for goodwill

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the value relevance of financial reporting in the Netherlands

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## 1. Introduction

This section will introduce value relevance and provides a brief overview of the developments of European financial accounting regulation and the collateral implication for the Dutch financial reporting environment. Further sections will further elaborate on these subjects. Section 1.1 will provide the background information for this research, section 1.2 will provide objectives and motives for conducting this research. Section 1.3 will elaborate on the problem statement of this research and section 1.4 will provide the hypotheses that follow from this problem statement. Section 1.5 concludes with a description of the structure of this thesis.

### 1.1 Background

The degree of explanatory power conveyed in financial reporting in respect to the market performance of a company is known as “the value relevance of financial accounting”. This concept captures the association between a company’s presented accounting numbers (e.g. net income, book value of equity) and its market performance or market value. In the existing literature an accounting amount is defined as value relevant if it has a predicted association with equity market values<sup>1</sup> (Barth et al., 2008, pp. 468).

Accounting information (e.g. the financial statements) generated by a company that is related to a company’s periodic profits & current value is based on the economic reality and therefore adds value to the information available of that company at a particular point in time. This information bares information value for economic agents to base their (investment) decisions on.

Since the first of January 2005 all European enterprises with a quotation on a stock exchange (ENS) should compose their consolidated financial reporting in line with the International Financial Reporting Standards (IFRS)<sup>2</sup>. Both the decision to implement the IFRS and the further international harmonization of the accounting standards are an ongoing subject of discussion. The IFRS framework was developed based on the intention to make the reported accounting numbers more relevant, transparent and comparable (IFRS Framework).

The pre-IFRS accounting perspective in the Netherlands is based on the Dutch Company Law which is embedded in the Dutch Civil Code (DCC). The main financial reporting regulation is found in Title 9 of Book 2 of the DCC and is supplemented with the ‘Richtlijnen voor de Jaarverslaggeving’ (RJ). The mandatory implementation of the IFRS has changed the applicable reporting regulation and objectives of financial reporting for ENS in the Netherlands.

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<sup>1</sup> Equity market values are also known as share prices. These definitions are used interchangeable throughout this research.

<sup>2</sup> IFRS have to be approved by the EU.

When examining the existing literature about the comparison between Dutch General Accepted Accounting Principles<sup>3</sup> (Dutch GAAP) and IFRS two main (general) differences stand out. These differences are: i) Dutch GAAP permits a less stringent application of principles than IFRS and ii) the main goal of Dutch GAAP is to give account of the past period. Therefore it is more orientated  
5 towards the profit and loss statement. This instead of the more future orientated approach of IFRS which emphasize the accurate composition of the balance sheet to provide information about the value of the company at the moment the balance is made up (Backhuijs, 2008, pp. 34). This long run shift of focus fits the conclusions of Collins et al. (1997). In their research they find an increasing value relevance of the balance sheet in respect of a decreasing value relevance of the profit and loss  
10 statement over time.

It must be acknowledged that Dutch GAAP has strongly developed in the direction of IFRS before the mandatory introduction of IFRS in 2005. However, when looking at the details of the two sets of accounting rules, the distinct difference in the accounting treatment of goodwill can be addressed.

Under Dutch GAAP goodwill can be written down at once through the P&L or the equity. Another  
15 possibility is the activation on the balance sheet followed by a yearly depreciation. IFRS only allows activation of goodwill on the balance sheet and a yearly test of impairment.

The changes in accounting for goodwill have an impact on the solvency and other performance indicators of ENS. It also affects the comparability of financial statements, since write downs are only allowed when it is founded on an economic basis. Write down schemes do no longer apply. This is  
20 why the choice is made to focus on the differences of the accounting for goodwill between Dutch GAAP and IFRS to zoom in on the value relevance development.

This will answer whether ENS with specific characteristics (in this case a certain amount of goodwill recognised) experience value relevance effects after the implementation of IFRS. The existing literature perceives the IFRS method of goodwill accounting as complex and recognises a relation between  
25 different methods of goodwill depreciation and value relevance.

Among other things, Hoogendoorn (2006, pp. 24-25) identifies impairment testing, which is strongly related to the IFRS' goodwill accounting, as one of the most difficult issues in the accounting practice. Also, impairment testing has been claimed to be subjective and complex (Wines et al., 2007, pp. 863). However accounting for goodwill is complex, it is an important subject for the composition off the  
30 financial statements. Vincent (1997) concludes that investors view acquisition goodwill as an asset. The base for his conclusion is a reliable statistical association between share prices and the acquired goodwill. In contrary he finds that investors do not seem to recognise the periodic amortisation on acquisition goodwill as a cost. This supports the conclusion that the recognition of goodwill is based

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<sup>3</sup> The notion of traditional Dutch GAAP refers to the pre-IFRS regulation for Dutch ENS.

on economic reality and bares information content, in contrary to the arbitrary depreciation of goodwill.

Schipper (2003, pp. 64) states that goodwill is an asset with an unidentifiable service life and therefore should be activated at the date of the business combination and should not be amortised periodically.

5 In stead of this periodic amortisation it should be subject to impairment testing. Impairment testing, based on conclusions of Schipper (2003), should enhance the relevance of the reported amount of goodwill. Under IFRS accounting for goodwill has changed from an annual depreciation regime into annual testing for impairment. Based on the previous argumentation, the change should contribute to a more value relevant set of financial statements.

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## 1.2 Objectives and motives

This research investigates the development of the value relevance of financial reporting during the years 2002 until 2007 of ENS in the Netherlands. The choice for investigation period of six years is made based on the availability of data and for practical reasons. It should be possible to generate

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The goal of this research is to identify the effects of the implementation of IFRS on the relationship between investment decisions and the information conveyed in the financial report. Hence, the objective of this research is to investigate whether the value relevance of financial reporting has changed after the introduction of IFRS. This study will accomplish this goal by comparing the value

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relevance of the financial statements of Dutch ENS before and after the implementation of IFRS. Due to the fact that most of the RJ at the time of this implementation were (and still are) a translated reproduction of IFRS it can be expected that, on average, the value relevance of the financial statements has stayed the same.

25

This does not mean that there has been no change in value relevance since the implementation of IFRS. To address these possible effects, the focus of this study is to investigate the value relevance effects of the change in accounting for goodwill under IFRS. As stated above the accounting for goodwill under IFRS is not free off criticism and implementation problems. This study chooses to identify the effects on value relevance of the different accounting treatment. Therefore it will not go into details on the content of the Dutch GAAP goodwill standard and the IFRS standard. This study

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merely addresses major differences and explains their effect on the value relevance of the financial statements.

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This research adds value to the existing value relevance literature in an international context, by developing a broader understanding of the value relevance effects of IFRS on annual statements. The results of this research can contribute to the discussion regarding the necessity and the effects of a more stringent, balance focused and future orientated accounting standard such as IFRS. This research

can also contribute to the further development of IFRS and its pursuit of generating value relevant information. On a more abstract level it can contribute to the discussion about the decision-making relevance of the financial statements based on IFRS.

5 There are several reasons to conduct this type of research. First of all, the implementation and construction of IFRS heavily rests on the conclusions of value relevance literature based on the US environment and US data. Many US authors have found declining value relevance for earnings information in the annual statements based on conventional accounting (Collins et al., 1997). Based on their results they have pointed at the declining information content for companies and investors to base their decisions on and advocate a more balance sheet focused accounting approach.

10 Secondly, the implementation of IFRS was not an easy task for the companies involved. In his speech to the 29<sup>th</sup> Annual EAA congress of 2006 Hoogendoorn (pp. 24) stated that “listed entities have underestimated the complexities, effects and costs of IFRS” and “entities report high costs of compliance”. Finally, more recent literature (e.g. Collins et al., 1997, Brimble and Hodgson, 2007) impose doubts about the declining value relevance of financial statements in the period prior to the  
15 introduction of IFRS.

It’s interesting to research if the implementation of IFRS has led to more value relevant financial statements in a country other than the United States (US)<sup>4</sup> given that the focus in the IASB conceptual framework lies on the relevance and reliability of financial information. Also, the high rate of sacrificed resources by Dutch ENS to comply with IFRS contributes to the attractiveness of this research. Finally,  
20 by executing this research it is possible to judge the prospects of IFRS based financial statements as a source of economic relevant information.

### 1.3 Problem statement and research questions

Based on the brief background and the objectives of this study a main research question is formulated.  
25 The secondary research questions of this study help answering the main research question and provide the necessary information to put the main problem of this study in its context. To address the empirical nature of this research, several hypotheses that are based on the theoretical background and research questions have been developed. These hypotheses are tested in the quantitative part of this research. The hypotheses will be extensively discussed in the proposed research design which can be  
30 found in section 4.

This research investigates the development of value relevance of financial statements of Dutch ENS after the mandatory introduction of IFRS in the Netherlands in 2005. IFRS are more rigid principles comparing to Dutch GAAP, which leaves less room for manipulation of accounting numbers. Next to

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<sup>4</sup> IFRS are not accepted as accounting standard in the US.



this, IFRS are more future orientated which should lead to a closer link between balance sheet and stock market. These characteristics will presumably lead to higher association between accounting numbers and stock market values in the Netherlands.

5 To identify the trend off and factors that influence the development of value relevance in the Netherlands the supporting research question of this study is: How has the value relevance of Dutch ENS financial reporting developed after the implementation of IFRS?

10 Since the Dutch financial reporting regulation has followed the developments of IFRS I do not expect to find strong evidence on any positive or negative value relevance development. To partially identify the effects on value relevance of IFRS I'll focus on one of several differences between Dutch GAAP and IFRS. That is the value relevance effects of the recognition and measurement of goodwill and its depreciation after the transition of Dutch GAAP to IFRS for ENS.

This focus leads to the main research question.

***How does the goodwill recognition and measurement of IFRS influence the value relevance of the financial statements of ENS with goodwill on their balance sheet after the implementation of IFRS, in respect to Dutch GAAP?***

15 It is not expected that examining the supporting research question will provide evidence of a fluctuation in the value relevance after the implementation of IFRS, in line with the reasons stated above. If the research on the supporting research question indicates that the value relevance of financial reporting has not changed after the implementation of IFRS, then an identified positive or negative relation between the IFRS goodwill treatment and value relevance in the second research question can still indicate value relevance effects under the IFRS treatment for specific balance sheet  
20 compositions.

This would provide basis to conclude that the value relevance of ENS financial statements with a significant amount of goodwill recognised, has improved or worsened after the implementation of IFRS. More specific research could complement the existing knowledge of the influence of IFRS on the value relevance of financial statements of ENS.

25 To achieve a better understanding of the subject, to divide the main research question in more apprehensible pieces and to gradually arrive at conclusions the following secondary research questions have been set in place:

What is value relevance and how is it linked to financial reporting?

Why is value relevance important for the financial reporting process?

How can you measure value relevance?

How did the Dutch accounting regulation develop during 2002-2007?

How did the value relevance of financial statements of ENS develop after the implementation of IFRS?

What is the effect of the IFRS goodwill accounting treatment on the value relevance of financial statements of Dutch ENS?

#### 1.4 Hypotheses

Given upcoming sections and the background of the problem statement this research expects to encounter: i) a possible change in the aggregate value relevance of financial statements for the average ENS, ii) an increasing aggregate value relevance of financial statements for ENS with goodwill recognised, after the introduction of IFRS. Based on this expectations two hypotheses have been developed:

- 1 The total explanatory power of earnings and book value has stayed equal for ENS after the introduction of IFRS.
- 2 The total explanatory power of earnings and book values has stayed equal for ENS with goodwill recognised on their balance sheet.

Section 4.1 will further specify the hypotheses.

## 1.5 Structure

This thesis consists of eight sections and is composed as follows:

### 1) Introduction

5 The first section gives an introduction to the subject of this thesis, the problem statement with the corresponding research questions, the objectives and motives for engaging this study and the composed hypotheses.

### 2) Aspects of value relevance

10 In this section the concept of value relevance is further explored and the types of value relevance studies, their underlying theories and valuation models are described. This section concludes with an overview of the most important implications from prior value relevance studies which are relevant for this study.

### 3) Financial reporting regulation and the impact of IFRS

15 The third section elaborates on several aspects of the financial reporting environment. Subsequently, this section will set forth the implications of the introduction of IFRS for ENS. The major differences between Dutch GAAP and IFRS are stated and this section identifies some specific differences between the two accounting frameworks. This section concludes with an overview of relevant prior literature regarding the influence of reporting standards on value relevance.

### 4) Goodwill and its accounting treatment

20 This fourth section will introduce the concept of goodwill and explains the accounting treatment of goodwill under Dutch GAAP and IFRS. Furthermore, this sections links the accounting for goodwill to the value relevance concept based on prior literature.

### 5) Research design

25 The research design sets forth the way research is conducted. It provides information about how the hypotheses are examined. The section will provide information regarding the data collection method and the research model applied to arrive at valid conclusions.

### 6) The aggregate value relevance developments after IFRS

30 The sixth section will describe the results of the conducted empirical research. It will provide the results in regard to the aggregate value relevance development of ENS in the Netherlands before and after 2005.

7) Value relevance effects of the IFRS goodwill treatment

Section 7 describes the results regarding the development of the value relevance of ENS with a significant amount of goodwill recognised on their balance sheet. The results of section 7 quantify the effects of the change in accounting for goodwill for the value relevance of the specific companies.

5

8) Conclusion

This section presents the conclusions of this research and suggests future research objectives.

## 2. Aspects of value relevance

This research investigates the development of the value relevance of financial statements after the introduction of IFRS (2005) in the Netherlands between 2001 and 2007. This is accomplished by investigating the development of the association between accounting values and share prices in the Netherlands. Because of this, it is necessary to develop a full understanding of the relationship between earnings and share returns and the concept of ‘value relevance’. Section 2.1 determines what value relevance is and section 2.2 explains how it is theoretically linked to financial reporting. Section 2.3 will discuss the different interpretations of value relevance. The main objectives of value relevance studies and the types of value relevance studies are discussed in section 2.4, respectively 2.5. Section 2.6 will discuss the different value relevance theories. Section 2.7 concludes with a discussion of the different valuation models. An overview of the relevant prior value relevance literature is given in section 2.8. Section 2.9 summarizes and concludes this section.

### 2.1 An introduction to value relevance

Value relevance captures the association between accounting numbers (e.g. net income, book value of equity) with market performance and the value of a company. The degree of explanatory power conveyed in financial reporting regarding the market value and performance of a company is called “the value relevance of financial accounting”. Barth et al. (2008, pp. 469) define an accounting amount as value relevant if it has a predicted statistical association with equity market values. In this concept accounting earnings represent the accounting measure of performance. On the other hand, share returns, which equal the change in a company’s market value over a certain period of time plus any dividends paid, represent the capital market’s assessment of performance of a company (Nichols and Wahlen, 2004). Similar reasoning can be applied to the relationship between accounting book values and share price levels because they are both stocks of wealth and represent a certain level of value. Accounting book values represent the accounting view on the wealth of a company, where share price levels represent the capital market’s valuation of the company’s wealth. Hence, share prices are the result of trade between investors. In this way the capital market’s equilibrium prices represent the aggregate view of all investors on a company’s expected performance and wealth.

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## 2.2 The relationship between accounting numbers and share prices

In their article, Nichols and Wahlen (2004, pp. 264) make three assumptions regarding the link between a company's earnings and its share returns. These assumptions are made in respect to the information content of share prices and earnings: i) financial reporting provides information to equity shareholders, ii) current and expected future profitability provide investors with a company's current and expected future dividends, iii) share prices equal the present value of expected future dividends. These links imply that new accounting earnings information that changes the aggregate investor's expectations for future dividends, should correspond with a change in market value of the company.

Hence, value relevance is based on a theoretical framework that assumes that market values and book values are both measures of a company's intrinsic value (stock of wealth).

The following equations explain the relationship between accounting numbers and stock prices and are based on and extracted from the work of Deegan and Unerman (2006, pp. 397-399).

At any point in time:

$$MV_{it} = BV_{it} + \varepsilon_{it} \quad (1)$$

where  $MV_{it}$  is the market value of a company at a point in time,  $BV_{it}$  the book value of the shareholders equity of a company at a point in time and  $\varepsilon_{it}$  is the error-term. "If market values and book values of a company are 'stocks' of wealth or levels of wealth, then changes in these measures between two points of time can be considered as a 'flows' of wealth". Flows of wealth represent income during a particular period, for instance a year. This can be equated as:

$$\Delta MV_{it} = \Delta BV_{it} + \varepsilon'_{it} \quad (2)$$

where  $\Delta MV_{it}$  is the difference in market capitalization of a company between two points in time. This difference can be expressed on a 'per share' basis, which is the same as the change in price or return of one share. This means that:

$$\Delta MV_{it} / \text{no. of shares} = P_{it} - P_{it-1} \quad (3)$$

where  $P_{it}$  is the price of one share of company  $i$  at a point in time and  $P_{it-1}$  is the price of one share of company  $i$  at one point in time before  $t$ . If we assume that there have been no additional capital contributions during the period,  $\Delta BV_{it}$  can be measured by considering the change in retained earnings for the period per share. This can be expressed as:

$$\Delta BV_{it} / \text{no. of shares} = E_{it} - D_{it} \quad (4)$$

where  $E_{it}$  represents the earnings per share of company  $i$  at time  $t$  and  $D_{it}$  the dividends paid per share of company  $i$  at time  $t$ .

This concept is based on the theory of clean surplus earnings, which assumes that all changes in book value pass through financial performance statement. Substituting equation 3 and 4 in equation 3 gives:

$$5 \quad P_{it} - P_{it-1} = E_{it} - D_{it} + \varepsilon'_{it} \quad (5)$$

which represents the theoretical relationship between the price change and the change in retained earnings during a period.

When a market value per share is related to a book value per share, returns per share are related to accounting earnings per share. It can be expected that returns are related to accounting earnings over  
10 time. This relationship is the basic link between accounting numbers from the financial statement of a company, which arise from the financial accounting process, and the share prices of a company which are established on the capital market. This link is at the basis of the valuation model<sup>5</sup> adopted by this research. This research is based on the assumptions applied by Nichols and Wahlen (2004).

### 15 2.3 Interpretations of value relevance

Francis and Schipper (1999, pp. 325-326) distinguish four different interpretations of the construct of value relevance. The first interpretation is that information from the financial statement leads the development of share prices by capturing the intrinsic share values where stock prices eventually drift to. This interpretation measures value relevance as the maximal profit that can be generated when  
20 implementing accounting-based trading rules. Francis and Schipper (1999) do not assess this as an applicable interpretation because it can not provide the basis to change the financial reporting model. Implementing the interpretation implies assuming that stock prices do not reflect intrinsic values but accounting numbers do.

Interpretation two is that financial information is value relevant if it contains the variables used in a  
25 valuation model or assists in predicting those variables. Hence, value relevance of earnings can be measured by the ability of those earnings to predict future cash flows, future dividends, etc, depending on the implemented valuation model. Francis and Schipper (1999) do not use this second interpretation since the predictive power of share values is only indirectly related to the evaluation of a financial reporting model.

30 Interpretation three and four are based on value relevance which is conveyed in the statistical association between the financial information and prices or returns. Interpretation three states that the

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<sup>5</sup> Valuation models will be discussed in section 2.7.

statistical association measures whether the users of information actually use the financial information in setting prices. In this concept value relevance is measured by the ability of financial statement information to change the total mix of information in the market place. This implies that value relevance is measured in term of news value, the degree of influence on the expectations of investors.

5 When using interpretation three in an empirical research it is necessary to recognize the link between timelines and expectations formation. This means that information content does not need to influence the decisions of investors when the information is irrelevant and already impounded in the stock prices through the expectations of those investors.

10 The final and fourth interpretation of value relevance states that a statistical association between financial information, found in the annual statement, and market values or returns exists. This means that that the financial information is correlated with information used by investors. Hence, captures reality. In this view value relevance is measured by the ability of the financial statement to capture information or summarize information, regardless of the source, that influences stock prices. This interpretation does not require that the financial statement is the timeliest source of information. In  
15 this final interpretation value relevance of financial reports can originate from the content of financial statements themselves or originate through the corrective role of audited financial statements in correcting expectations on more timely information disclosures. For the existence of an association between share values and accounting numbers it satisfies to observe a correlation between accounting information and information used by investors. Interpretation four satisfies the conditions necessary  
20 when evaluating a financial reporting model. Table 2.1 will summarize the aspects of the four interpretations.



NO.	VALUE RELEVANT WHEN	MEASURED BY
1	Financial statement information leads share prices	Maximal possible profit when implementing accounting trading rule
2	Financial statement information contains variables listed in valuation models or assists in predicting those variables	The ability of a variable from the financial statement to predict future values of that variable
3	Financial statement users actually use the information to set prices	News value, the degree of influence on the expectations of investors of new information.
4	Financial statement information is correlated with information used by investors	The ability of the financial statement to capture information or summarize information, regardless of the source, that influences stock prices.

**Table 2.1: Overview value relevance interpretations (Francis and Schipper, 1999)**

### 5 2.3.1 The appropriate value relevance interpretation

For this research it suffices to use interpretation 4 in stead of 3. This study is only interested in the implications of the implementation of IFRS in the Netherlands as a reporting model on the ability of the financial report to capture reality, in respect to Dutch GAAP.

10 This research investigates the ability of the financial statement to capture information or summarize information, regardless of the source, that influences stock prices. The degree of timelines of information is not important for this study.

## 2.4 Objectives of value relevance research

15 The main purpose of value relevance research is to extend our knowledge regarding the relevance and reliability of accounting. There have been numerous studies which have researched the relationship between accounting numbers and stock market values. The shared goal of these studies is to asses the predictive value of the accounting numbers. In general, value relevance studies investigate the relevance and reliability aspect of accounting information. Relevant information means that the information contributes to decisions of the financial statement users. Reliable information is  
20 information that represents what it's supposed to represent. Based on the adopted interpretation of value relevance, this means that relevant and reliable accounting numbers are value relevant.

Equity values reflect an accounting number (when value relevant) if they are correlated (Barth et al., 2001, pp. 80). Value relevance studies assume some model of capital market equilibrium and therefore do not test hypotheses relating to how the capital market operates (Barth et al., 2001, pp. 82).

5 Barth et al. (2001, pp. 91-92) state that the difference between value relevance studies which examine price levels and studies which examine the value relevance of price changes lies in the objective of the studies. The objective of value relevance studies concerned with price levels is to determine what accounting information is reflected in the company's value. The objective of the studies concerned with price changes is to determine which accounting information is reflected in changes in firm value over a period of time. If the research question demands that the timeliness of information is  
10 determined, the research should focus on changes in prices. As already stated this research is not concerned with the timeliness of information and therefore it will focus on share price levels.

## 2.5 Types of value relevance research

In their article, Holthausen and Watts (2001) distinguish between several types of value relevance  
15 studies. They distinguish the relative association studies which relate a particular stock market value to accounting summary measures. They also distinguish the incremental association studies, which try to indicate if a particular accounting number contributes to the explanation of stock market performance. The goal of incremental value studies is to identify the superior indicator of firm performance. Finally, they identify the marginal information content studies, which "investigate whether a particular  
20 accounting number adds to the information set available to investors" (pp. 6). These types of value relevance studies will be discussed in the following subsections. Section 2.2.1 will discuss the aspects of the relative association studies. Section 2.2.2 and section 2.2.3 discuss the incremental association studies respectively the marginal association studies. Section 2.2.4 will conclude this discussion by providing the choice and motivation of a type of value relevance research for this study.

### 25 2.5.1 *Relative association studies*

Relative association studies compare the association between stock market values (price levels) and/or changes in stock market values (price changes) and alternative accounting measures or accounting reporting models. These types of studies examine, for example, whether a particular accounting framework, which leads to certain accounting numbers, yields a higher  
30 association with stock market prices than another type of framework. These studies usually test for differences in the  $R^2$  of regressions which use different bottom line accounting measures. The accounting number or set of accounting numbers that generate the higher  $R^2$  is more value relevant. This means that the accounting framework with the highest association between accounting numbers and the stock market values represents the most value relevant  
35 framework.

In their research Harris et al. (1994) compare, among other things, the value relevance of accounting measures for United States (US) and German companies. In respect to this part of their research they conclude that the German accounting data is significantly associated with share price levels and returns. They also conclude that the explanatory power of earnings for returns of German companies is similar to that of US companies.

Barth et al. (2008) examine among other things if the application of IAS by companies from 21 companies is associated with a higher value relevance of accounting numbers in respect to the value relevance of accounting numbers from similar firms who do not apply IAS. They find that the application of IAS generally generates higher value relevance.

### 2.5.2 *Incremental association studies*

Incremental association studies are not very different from marginal association studies. They research if a particular accounting number contributes to the explanation of company value or performance given other variables. The accounting number is value relevant if its estimated regression coefficient is significantly different from zero (Holthausen and Watts, 2001, pp. 6), which means that the number significantly influences either company value or performance.

Collins et al. (1997) investigate systematic changes in the association between accounting values and share prices over time. Their partial conclusion is that: i) the combined value relevance of earnings and book values has not declined over the past forty years, ii) the incremental value relevance of earnings have declined and have been replaced by the increase of value relevance of book values.

Brimble and Hodgson (2007) investigate if the value relevance of conventional accounting information for valuation has declined in Australia during a period of 28 years. After controlling for several variables they conclude that the value relevance of core accounting earnings has not declined, with a possible exception for small stocks.

### 2.5.3 *Marginal information content studies*

Marginal information content studies research if an accounting number adds value to information set available to investors. These studies concentrate on the market reaction on unexpected earnings. They typically use an event study to examine if the release of certain information, in most cases the release of an accounting number, has an impact on market value. "Marginal information content studies assume that capital markets are semi-strong form efficient, which means that they react swiftly and in an unbiased manner to publicly available information. Significant share price reactions are considered evidence of value relevance. This price movement implies that the new information has been incorporated in the share price through activities of investors in the market" (Deegan and Unerman, 2006, pp. 387). Through the use of the market model (derived from the Capital Asset Pricing Model) share price

movements can be controlled for market wide events that influence share prices to distillate share price movements that can be specifically addressed to news about the company. No price reaction indicates a zero news value in the released information.

5 In one of the first major capital market research<sup>6</sup> Ball and Brown (1968) investigated the value relevance of accounting earnings under a historical cost model. Ball and Brown (1968) tested whether companies with unexpected increases in accounting earnings have positive abnormal returns, and companies with unexpected negative accounting earnings have negative abnormal returns. They conclude that the accounting information from the financial statement is used in investment decisions, despite the limitations of historical cost accounting.

10 Foster (1981) investigated abnormal share price reaction of companies after an earnings announcement of a company in the same industry. In his marginal information content study Foster (1981) concluded that the earnings announcements of other firms in the same industry have information content for other companies in that industry.

#### 2.5.4 *Appropriate type of research*

15 This study will compare the association between stock market values and accounting numbers of Dutch ENS before and after the mandatory implementation of IFRS as the obliged accounting framework. This study examines which accounting framework (Dutch GAAP or IFRS) yields a higher association with stock market prices and therefore generates the most value relevant financial reporting information. Therefore, the appropriate research perspective  
20 for this study is the “relative association study”.

## 2.6 Underlying theories of value relevance

The choice of an underlying theory of value relevance for a study influences the econometric techniques that can be used to mitigate the effects of common econometric issues. Also, it contributes  
25 to the objective of the research. Based on their study, Holthausen and Watts (2001, pp. 11) distinguish between two types of underlying theories. The different objectives of studies based on the two different theories lead to different hypotheses and the use of different specifications of the estimation equations. Section 2.6.1 will provide information about the direct valuation theory, section 2.6.2 will discuss the input-to –valuation theory and section 2.6.3 concludes with the choice and motivation for  
30 the theory adapted in this research.

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<sup>6</sup> in the form of a marginal association study

### 2.6.1 *Direct valuation theory*

The first theory that Holthausen and Watts (2001, pp. 11) specify is the direct valuation theory. This theory states that accounting earnings should measure or should be highly associated with equity market values or equity levels (through permanent income). The book value of equity should also measure equity market values or should be highly associated with equity market values. “The objective of direct valuation research or fundamental analysis research is to estimate firm value. The estimation equations in fundamental analysis research include all variables that can help explain current or predict future firm value, including those not yet reflected in financial statements” (Barth et al., 2001, pp. 15-16). This implies that relevant information in studies based on this theory is not only gathered from financial statements, but also from other sources.

### 2.6.2 *Input-to-valuation theory*

The input-to-valuation theory assumes that accounting’s role is to provide information that is relevant for investors to base their economic decisions on (Holthausen and Watts, 2001, pp. 12) and to readjust earlier decisions. Hence, accounting should provide value relevant information, which is both relevant and reliable so that it can be used in the valuation models of investors. According to Barth et al. (2001, pp. 16) the input-to-valuation theory adequately models the Conceptual Framework of the Financial Accounting Standards Board (FASB) and this makes it possible to draw standard setting inferences based on research that adopts the input-to-valuation theory.

### 2.6.3 *Appropriate type of valuation theory*

It can be argued that the same simplification implied by the input-to-valuation theory also implies on the Conceptual Framework<sup>7</sup> (Framework) of the International Accounting Standards Board (IASB). The IASB’s conceptual framework assumes that there are several stakeholders which have different information needs (IASB, 2001). The IASB also states that “investors need information to help them determine whether they should buy, hold or sell” (IASB, 2001). In addition to this the IASB states: “while all of the information needs of these users cannot be met by financial statements, there are needs which are common to all users. As investors are providers of risk capital to the entity, the provision of financial statements that meet their needs will also meet most of the needs of other users that financial statements can satisfy” (IASB, 2001). From the former can be concluded that when the information objectives of investors are met, the IASB assumes that the information needs of the remaining

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<sup>7</sup> Which also aligns it with the Dutch Conceptual Framework, since it is almost a complete translation of the Framework

stakeholders are sufficiently covered<sup>8</sup>. With this in mind it can be assumed that the IASB applies a valuation approach in designing the International Financial reporting Standards (IFRS) where they put most weight on the relevance and reliability (qualitative) characteristics of financial information. This focus on relevance and reliability of financial information is appropriate when the financial information has to convey value relevance for investors. Also, taken into account that the IASB strives for an ongoing convergence with the FASB's conceptual framework, the former argumentation is even more plausible. The appropriate valuation theory for this study is the input-to-valuation theory.

## 2.7 Valuation models

The use of the input-to-valuation theory to determine a company's value implies the use of an equity valuation model to specify and investigate the company's attributes that affect value and their relationship to value (Holthausen and Watts, 2001, pp. 52). In this section the different valuation models are being evaluated. In section 2.7.1 the balance sheet model is discussed. The balance sheet model states that the market value of equity is equal to the market value of assets minus the market value of liabilities. In section 2.7.2 the earnings model is discussed. Finally in section 2.7.3 the Ohlson model is discussed. The Ohlson model states that, "given a dividend valuation model and clean surplus accounting, share prices can be written as a linear relation between book value of equity and earnings. Abnormal earnings can be seen as an attribute investor's value, an informational link to earnings is not required" (Holthausen and Watts, 2001, pp. 53-54). Section 2.7.4 will conclude this discussion by describing which model was chosen and why to conduct this research.

### 2.7.1 The earnings model

The earnings model assumes that accounting earnings convey information about future cash flows or are valued directly. Given this assumption, share markets rates of return are regressed on: i) components of earnings and/or earning component changes; ii) earnings and/or earnings changes (Holthausen and Watts, 2001, pp. 56).

Francis and Schipper (1999) use the following regression model to test for value relevance of earnings:

$$R_{it} = \beta_{EM,0} + \beta_{EM,1}E_{it} + \beta_{EM,2}\Delta E_{it} + \varepsilon_{EM,it} \quad (6)$$

where  $R_{it}$  is the share return of company  $i$  at fiscal year end  $t$ ,  $\beta_{EM,0}$  is the intercept,  $\beta_{EM,1}$  and  $\beta_{EM,2}$  are the slope coefficients,  $E_{it}$  the reported earnings before extraordinary

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<sup>8</sup> This argumentation is based on content of the master thesis of Ammelrooij (2006)

items per share of company  $i$  at the end of fiscal year  $t$ ,  $MV_{it}$  the market value equity of company  $i$  at the end of fiscal year  $t$  and  $\varepsilon_{EM,it}$  is the error term.

The sum of the two slope coefficients represents the earnings response coefficient, which indicates the influence of changes in reported earnings on the share price. A high earnings response coefficient indicates a high value relevance of earnings, in contrast a low value indicates the lack of value relevance.

### 2.7.2 The balance sheet model

The balance sheet model assumes that there are markets for company shares, assets and liabilities. It also assumes that these markets are competitive, which means that there are no above competitive returns (rents) available for the company (Holthausen and Watts, 2001, pp. 53). This model also takes the liquidation option into account by assuming that management will liquidate the company if that is the optimal economic decision. Book values of accounting assets and liabilities inhabit information about the market values of those assets and liabilities, which are incorporated in share prices.

Francis and Schipper (1999) use the following regression model to test for value relevance of book value:

$$MV_{it} = \beta_{BSM,0} + \beta_{BSM,1} ASSETS_{it} + \beta_{BSM,2} LIABS_{it} + \varepsilon_{BSM,it} \quad (7)$$

where  $MV_{it}$  is the market value of equity per share of company  $i$  at fiscal year end  $t$ ,  $\beta_{BSM,0}$  is the intercept,  $\beta_{BSM,1}$  and  $\beta_{BSM,2}$  are the slope coefficients,  $ASSETS_{it}$  the book value of assets per share of company  $i$  at the end of fiscal year  $t$ ,  $LIABS_{it}$  the book value of liabilities per share of company  $i$  at the end of fiscal year  $t$  and  $\varepsilon_{BSM,it}$  is the error term. The slope coefficient  $\beta_{BSM,1}$  is expected to be positive, since book value of assets is positively related to the market value of equity. The slope coefficient  $\beta_{BSM,2}$  is expected to be negative, since the book value of liabilities is negatively related to the market value of equity.

### 2.7.3 The Ohlson model

Just as the balance sheet model and the earnings model, the Ohlson model assumes a link between book values and earnings and market value of equity. The Ohlson model (Ohlson, 1995) is derived from the dividend discount model which defines a company's share price as the present value of expected future dividends discounted at their risk-adjusted expected rate of return. The residual income valuation model defines price as the sum of current book value and the discounted present value of expected future abnormal earnings, defined as forecasted earnings minus a capital charge equal to the forecasted book value times the discount rate (Kothari, 2001, pp. 142).

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In their research Brimble and Hodgson (2007) express the market value of a company's equity by using the Ohlson model. This model gives total explanatory power that earnings and book values have for prices.

$$P_{it} = \alpha_0 + \alpha_1 EARN_{it} + \alpha_2 BV_{it} + \varepsilon_{it} \quad (9)$$

where  $P_{it}$  is the price of a share of company  $i$  at fiscal year end  $t$ , three months after the end of fiscal year  $t$ ,  $\alpha_0$  is the intercept,  $\alpha_1$  the slope coefficient of earnings,  $\alpha_2$  the slope coefficient of book value,  $EARN_{it}$  the earnings per share of company  $i$  at fiscal year end  $t$ ,  $BV_{it}$  the book value per share of company  $i$  at fiscal year end  $t$  and  $\varepsilon_{it}$  is other value relevant information of company  $i$  at fiscal year end  $t$ .

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Collins et al. (1997) decompose the Ohlson model to compare and distinguish between the explanatory power that earnings and book values have for stock prices. The total explanatory power is divided in three parts: i) the common explanatory power of earnings and book value ii) the incremental explanatory power of earnings and (iii) the incremental explanatory power of book value.

This decomposition leads to the following equations:

25

$$P_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 BV_{it} + \varepsilon_{it} \quad (10)$$

$$P_{it} = \beta_0 + \beta_1 E_{it} + \varepsilon_{it} \quad (11)$$

$$P_{it} = \chi_0 + \chi_1 BV_{it} + \varepsilon_{it} \quad (12)$$

30

Where  $P_{it}$  is the price per share of company  $i$  at the end of year  $t$  lagged three months,  $E_{it}$  the earnings per common share of company  $i$  at the end of year  $t$ ,  $BV_{it}$  the book value per share



of company  $i$  at the end of year  $t$  and  $\epsilon_{it}$  the other value relevant information of company  $i$  for year  $t$ .

#### 2.7.4 *Appropriate type of valuation model*

5 The different valuation models differ among the variables they relate to share prices and whether they focus on price changes and or levels. Table 3 provides an overview of the differences between the valuation models.

10 This study focuses on the reliability and relevance of accounting numbers under two different reporting frameworks. As already discussed, timeliness is not one of the aspects this research tries to address when evaluating the development of value relevance of the generated accounting numbers by Dutch GAAP and IFRS. Therefore this research is not interested in the association between share price changes and changes in accounting numbers. The first part of this study is interested in the combined and separate aggregate influence of earning numbers and book values on stock prices. This leads to the conclusion that the Ohlson model is the appropriate valuation model for this part.

15 The second part of this study focuses on the way that IFRS has changed the development of recognised goodwill on the balance sheet. It has focused on the recognition of goodwill on the balance sheet and has transferred the write downs to unusual items. Therefore it is expected that the balance sheet model is better capable to address the value relevance development of recognised goodwill.

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MODEL	VARIABLES	PRICE LEVEL OR PRICE CHANGE
Earnings model	Accounting earnings	Price levels and price change
Balance sheet model	Accounting book values	Price levels and price change
Ohlson model	Accounting earnings and accounting book values	Price levels

**Table 2.2: Overview valuation models**

## 2.8 Prior Research

25 Several studies have been conducted the past decades regarding the development of value relevance and the variables that influence this development. The value relevance research

originates from the capital market research field by investigating the relationship or association between share values and accounting numbers. Most of the value relevance literature and its conclusions are based on the US situation with data of US companies. The last couple of years there have been more attention for non US data. This has led to several contradictory conclusions regarding the development of value relevance. Most of these new insights are gained by methodological refining of earlier research. This is why this section will describe the most important value relevance literature and its contents based on a chronological order. The main focus will lie on the different conclusions regarding the development of value relevance over time and the variables that influence this development. Table 2.3 provides an overview.

### 2.8.1 *Collins et al. (1997)*

One of the main papers in the field of value relevance, and the main source of inspiration for this research, is the study of Collins et al. (1997). In this paper they research how the value relevance of accounting earnings and book values has developed during 1953 until 1993. Collins et al. (1997) express the value of a company's equity with the Ohlson model as described in section 2.4. Their inquiry is motivated by recent research on the value relevance of earnings and book values and related claims from the professional community. They notice an impression among researchers and the professional community that financial statements have lost their value relevance because of systematic changes in the economy. They point at the leading claim that the shift from an industrialized economy to a more technological, service orientated economy has invoked decreasing value relevance for traditional financial reporting. A sample of 119.389 company-year observations is selected from the NYSE, AMEX and NASDAQ. The share price observations are corrected for stock splits and dividends. They identify, through studying prior research, four factors that are likely to influence to changes of value relevance between accounting numbers and share prices over time: i) the increased importance of service and technology based companies who invest relatively more in intangible assets, ii) the frequency and magnitude of transitory items, iii) size and iv) the frequency of negative earnings. From their research Collins et al. (1997) conclude: i) that the combined value relevance of financial reporting has not decreased during 1953 until 1993, ii) that an inverted relationship exists between the incremental value relevance of earnings and book values<sup>9</sup>.

In regard to the control variables they conclude that in their sample the overall explanatory power of earnings and book values increase slightly for intangible firms. Intangible firms have lower incremental explanatory power from earnings and higher incremental explanatory power of book values. Transitory items also influence the association between share prices and

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<sup>9</sup> Where the earnings relevance has decreased over time it has been replaced with an increasing incremental value relevance of book values

accounting numbers. The overall explanatory power of earnings and book values increases. The incremental value relevance of earnings increase with one and half while the incremental value relevance of book values increase four times. The inclusion of the earnings sign improves the total value relevance. On an incremental basis this addition leads to a decrease of the value relevance of earnings and an increase of the value relevance of book values. The earnings sign of the reported profit of a company also improves the overall association between share values and accounting numbers. Like transitory items, company-years with a negative earnings sign lower incremental value relevance. For companies the negative earnings sign leads to higher incremental value relevance for book values.

### 2.6.1 *Francis and Schipper (1999)*

Following Collins et al. (1997) Francis and Schipper (1999) investigate how the value relevance of financial statements has developed between 1952 and 1994. In their paper they address the concern that accounting numbers in financial statements have lost a significant part of their relevance for equity investors. Data for their sample is gathered from companies noted at the NYSE, ASEX and NASDAQ. Following other researchers, who attribute the decline in value relevance of accounting numbers to the relative increase of technology they test the relevance of accounting numbers controlled for technology intensity. In high technology firms, financial statements may have lost their relevance due to a failure of financial statements to recognize certain items which determine a part of the future cash which are relevant to investors. They implement this control through setting up a two-sided sample. One sample consists of high-technology companies and the other sample consists of companies where technological levels are less important. Francis and Shipper's research consist of a portfolio approach (returns based approach) and an explanatory approach to the determination of value relevance. This research will only focus on the explanatory approach. To measure the incremental value relevance of earnings and book values they utilise the earnings model (section 2.4.1) and the balance sheet model (section 2.4.2). To determine the overall association between accounting numbers and share prices they implement the Ohlson model (section 2.4.3).

As Collins et al. (1997), Francis and Schipper (1999) do not find evidence that the overall value relevance of earnings and book values has declined over their sample period. Evidence exists that the incremental value relevance of earnings has decreased and the incremental value relevance of book values during the sample period. Contradicting Collins et al. (1997), Francis and Schipper (1999) do not find evidence for differences in the relevance of accounting numbers between the high- and low-technology. They do find evidence indicating that balance sheet values explain a higher portion of the variability in share prices for low-technology companies than for high-technology companies and they also observe increases in the explained variability of this relation for both types of firms.

AUTHOR	VALUATION MODEL	SIGNIFICANT VARIABLES	NON SIGNIFICANT VARIABLES	RELEVANT CONCLUSIONS
Collins et al. (1997)	Ohlson model	<ul style="list-style-type: none"> <li>▪ Non recurring items</li> <li>▪ Intangible assets</li> <li>▪ Earnings sign</li> <li>▪ Size</li> </ul>		<ul style="list-style-type: none"> <li>▪ The combined value relevance of financial reporting has not decreased between 1953 and 1993 in the US</li> <li>▪ There exists an inverted relationship between the incremental value relevance of earnings and book values in the US.</li> </ul>
Francis and Schipper (1999)	<ul style="list-style-type: none"> <li>▪ Earnings model</li> <li>▪ Balance sheet model</li> <li>▪ Ohlson model</li> </ul>		<ul style="list-style-type: none"> <li>▪ Intangible assets</li> </ul>	<ul style="list-style-type: none"> <li>▪ The combined value relevance of financial reporting has not decreased between 1952 and 1994 in the US.</li> <li>▪ There exists an inverted relationship between the incremental value relevance of earnings and book values in the US.</li> </ul>
Lev and Zarowin (1999)	<ul style="list-style-type: none"> <li>▪ Earnings model</li> <li>▪ Ohlson model</li> </ul>	<ul style="list-style-type: none"> <li>▪ Business change</li> </ul>	<ul style="list-style-type: none"> <li>▪ Intangible assets</li> </ul>	<ul style="list-style-type: none"> <li>▪ The usefulness of reported overall earnings and book values has been deteriorating from 1978 until 1996 in the US. This decrease is attributable to business change.</li> </ul>
Brimble and Hodgson (2007)	<ul style="list-style-type: none"> <li>▪ Earnings model</li> <li>▪ Balance sheet model</li> <li>▪ Ohlson model</li> </ul>	<ul style="list-style-type: none"> <li>▪ Market inefficiencies</li> <li>▪ Size</li> </ul>	<ul style="list-style-type: none"> <li>▪ Leverage effects</li> <li>▪ Earnings sign</li> </ul>	<ul style="list-style-type: none"> <li>▪ The combined value relevance of financial reporting has not declined between 1983 and 2001 in Australia.</li> <li>▪ Earnings have a higher predictive power than book values</li> <li>▪ Linear models do not fully reflect the relationship between accounting numbers and share prices.</li> </ul>

**Table 2.3: Overview relevant prior value relevance literature**

### 2.6.2 *Lev and Zarowin (1999)*

An additional research paper in the field of value relevance is the one of Lev and Zarowin (1999). Based on prior research regarding the weakness between the reported earning and share price of a company this study examines the development of overall value relevance and the development of the incremental value relevance of earnings numbers from 1978 until 1996.

In their study Lev and Zarowin (1999) measure the incremental value relevance of earnings with the earning model (2.4.1) and the overall value relevance of earnings and book values with the Ohlson model (2.4.3). They also measure the value relevance of cash flows, but this is outside the range of this research. They conclude that the increasing rate of change in the business environment accompanied with biased and delayed recognition of change by the accounting system cause the financial statements to lose their value relevance. For this reason Lev and Zarowin (1999) control for business change when applying their regression on the different models. The control for business change is achieved by measuring the frequency and magnitude of portfolio switches. A portfolio switch is realized when companies are moving over time from one value portfolio to another. For example, if firm  $j$  is in book value portfolio 1 in 1977 and moved to portfolio 4 in 1978, its rank change measure is 3. A mean absolute rank change is calculated for every year, which reflects the aggregate portfolio switches experienced by all companies in the sample that year. The change measure will be high if a company is a relatively frequent switcher and vice versa.

Lev and Zarowin (1999) conclude that the usefulness of reported overall earnings and book values has been deteriorating over the past 20 years. They conclude that this deterioration is caused by change in the business environment. They blame the loss of relevance to the inadequacy of the financial reporting system to address the change of the business environment.

### 2.6.3 *Brimble and Hodgson (2007)*

Brimble and Hodgson (2007) investigated whether the relevance of conventional accounting numbers have been declining from 1983 until 2001. Motivation of their research is provided by valuation and standard setting issues induced by the US based value relevance literature that reports declining value relevance and the change to a balance sheet oriented accounting approach embedded in the developments and application of IFRS. Also the absence of value relevance literature based on non-US data, and the contradicting results of the few “international” studies of value relevance in respect to US based studies lead them to conduct this research. Brimble and Hodgson (2007) identify several observations of preceding research that endorse this viewpoint: i) a more volatile and service orientated business environment different from the environment where the national GAAP’s were based on, ii) changes in the

sources and levels of risk which leads to an overall increase of share returns volatility, iii) the presence of historical cost based accounting principles that fail to recognize all potential sources of future economic benefits, especially for intangible assets, iv) the technological developments and v) the more demanding and complex information needs of investors. In addition Brimble and Hodgson (2007) identify several policy and standard setting suggestions from prior research: i) modifying the accounting process in a way that it better supports the needs for a changing business climate, ii) identifying other forms of competing information so that financial reporting can be extended, iii) developing a standard setting policy that supports the preservation of value relevance, iv) setting up committees to constantly monitor the development of value relevance, v) promoting research that investigates standard setting issues in respect to value relevance.

Brimble and Hodgson (2007) enrich the value relevance literature with an international extension. They research the development of value relevance of Australian listed firms, excluding financial firms, between 1983 and 2001. They control for i) possible share market inefficiencies, ii) firm size and leverage effects and iii) the impact of new economy firms. They investigate the overall value relevance of accounting numbers by using the Ohlson model (section 2.4.3) and investigate the incremental value relevance of earnings and book values with the earnings model (2.4.1) and the balance sheet model (2.4.2), similar to the research design implemented by Francis and Schipper (1999). Brimble and Hodgson (2007) do not only use linear regression to measure the explanatory power of accounting numbers for share prices but also utilize a non-linear regression method to control for market inefficiencies. As a result the explanatory power in general of the models increases. In their study Brimble and Hodgson (2007) conclude that: i) the core value relevance of conventional accounting earnings has not decreased over time, ii) earnings have a higher predictive power than book values, iii) the nature of the share price-accounting numbers relation has changes in such a way that linear models do not fully reflect the relationship and iv) researchers need to utilize nonlinear models and have to adjust for market inefficiencies.

In respect to the control variables they conclude that size does influence the value relevance over time. When controlling for size Brimble and Hodgson (2007) conclude that small firms experience a drop of value relevance in all models. The control variable leverage, expressed as the debt-to-equity ratio does not influence value relevance. When controlled for company age and the effects of belonging to the new economy group of companies, Brimble and Hodgson conclude that younger firms and firms belonging to the new economy definition experience a slightly higher association between share prices and accounting numbers. Finally, they also control for the earnings sign and conclude that the positive sign was significant for only 6 years of the whole research period. In their non linear regression, this control variable was not significant.

## 2.9 Conclusion

Value relevance captures the association between accounting numbers (e.g. net income, book value of equity) with market performance and the value of a company. The degree of explanatory power conveyed in financial reporting regarding the market value and performance of a company is called “the value  
5 relevance of financial accounting”. This research addresses the difference in value relevance between accounting numbers composed under Dutch GAAP in respect to accounting numbers composed under IFRS.

To arrive at conclusions, this study has to adopt several assumptions regarding the relationship between accounting numbers and share prices. Nichols and Wahlen (2004) make three assumptions regarding the  
10 link between a company’s earnings and its share returns. These assumptions are made in respect to the information content of share prices and earnings: i) financial reporting provides information to equity shareholders, ii) current and expected future profitability provides investors with a company’s current and expected future dividends, iii) share prices equal the present value of expected future dividends. These assumptions imply that new accounting earnings information that changes the aggregate investor’s  
15 expectations for future dividends should correspond with a change in market value of the company. This research is based on these assumptions.

This study is tailored to address the implications of the implementation of IFRS in the Netherlands on the ability of the financial report to capture reality, in respect to Dutch GAAP. This means that the only concern is the ability of the financial statement to capture information, regardless of the source,  
20 that influences stock prices. This study will compare the association between stock market values and accounting numbers of Dutch ENS before and after the mandatory implementation of IFRS as the obliged accounting framework. Therefore, the appropriate research perspective for this study is the “relative association study”.

It can be argued that the same simplification implied by the input-to-valuation theory also implies on  
25 the Conceptual Framework<sup>10</sup> (Framework) of the International Accounting Standards Board (IASB). The IASB’s conceptual framework assumes that there are several stakeholders which have different information needs (IASB, 2001). Also, taken into account that the IASB strives for an ongoing convergence with the FASB’s conceptual framework, the former argumentation is even more plausible. The appropriate valuation theory for this study is the input-to-valuation theory.

30 The different valuation models differ among the variables that they relate to share prices and whether they focus on price changes and or levels. This study is concerned with the reliability and relevance of accounting numbers under two different reporting frameworks. This research is not interested in the association between share price changes and changes in accounting numbers. Given that this study is

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<sup>10</sup> Which also aligns it with the Dutch Conceptual Framework, since it is almost a complete translation of the Framework

interested in the combined and separate influence of accounting earning numbers and book values leads to the conclusion that the appropriate valuation for this research is the Ohlson model.

The balance sheet model is the appropriate model for the empirical research that addresses the influence of the changes in the accounting for goodwill after the implementation of IFRS.

- 5 Prior research suggests that the claim that value relevance of financial reporting has declined is false. Several authors have suggested and tested control variables to achieve strong evidence of this. The authors do find a decreasing incremental value relevance of earning and an increasing incremental value relevance of book values. This indicates a more value relevant balance sheet, in respect to the profit and loss statement over time. The upcoming section will elaborate on the implementation of
- 10 IFRS in the Netherlands.



### 3. Financial accounting regulation and the impact of IFRS on value relevance

Building on section 2, section 3 describes the financial reporting environment and the developments of Dutch financial reporting. This is necessary to understand the different aspects of financial reporting standards and how these aspects influence the value relevance of accounting numbers. The financial reporting environment and regulation are discussed in section 3.1 and section 3.2. The process of European harmonization is described in section 3.3. An insight in Dutch accounting regulation before and after IFRS is provided in section 3.4, respectively 3.5. Section 3.6 concludes with a discussion of differences between Dutch GAAP and IFRS. Section 3.7 discusses prior research and its conclusions about how these differences influence value relevance. Finally section 3.8 provides conclusions for section 3.

#### 3.1 An introduction to the financial reporting environment

In the extensive literature financial accounting is described as a process involving the collection and processing of financial information to support various decisions by several parties external to the organization (Deegan and Unerman, 2006, pp. 32). These external organizations have diverse information needs and because of this it isn't possible to satisfy every user's information need individually. As a consequence the financial accounting process generates general purpose financial reports. In its preface, the IASB defines 'general purpose financial statements' as reports 'directed towards the common information needs of a wide range of users' (IASB, 2007). The IASB defines that the objective of a financial statement is to provide information about the financial position, performance and cash flows of an entity that is useful to those users in making economic decisions' (IASB, 2007). This narrow definition of users of financial statements is called the shareholder approach. In contrast, some accounting standards' framework (e.g. German GAAP) target a wider range of users, involving more potential user groups, which is called the stakeholder approach.

#### 3.2 Financial accounting regulation

In most countries financial reporting is regulated through legislation, accounting standards and other regulation which prescribe how transactions and events have to be recognized, recorded and presented. When this body of regulation changes it will have an impact on the accounting numbers disclosed. For example, when applying a depreciation method allowed in one regulatory framework, this could lead to different book values in a certain year for certain assets than under another depreciation regime. This will not only lead to different book values but also to different (related) costs in a certain year. Hence, this will result in a different net income. Of course, the different outcomes under the different accounting frameworks do not change the economic reality. It is merely a way of expressing it.

At the basis of accounting lies the expectation that accountants are objective and free from bias when performing their duties. The information that they generate should faithfully present the underlying transactions and events and should be neutral and complete (IASB, 2007). On the international accounting field, standard setters consider economical and social consequences when they draw up new standards and regulation. If these economical and social consequences are perceived as negative, it is likely that a standard or part of new regulation will be abandoned, even when it will more accurately reflect the underlying transactions and events (Deegan and Unerman, 2006, pp.70). In his articles Zeff (2002) addresses international attempts by industry and other related parties to influence the outcome of the standard setting process. He describes the political pressures as obstacles which obstruct international convergence. Zeff (2002, pp. 47) describes political as: ‘self-interested considerations or pleadings by prepares and others that may be detrimental to the interest of investors and other users...’ (pp. 43) Zeff (2002) describes several examples of successful political pressure or lobbying during the realization of new standards such as IFRS by several standard setting bodies. Therefore the possibility exists that IFRS contain standards that are not developed to the interest of the investor’s information needs.

In the end accounting numbers will depend on the particular accounting methods chosen and on a great deal of professional judgement. Every accounting standard incorporates a certain degree of subjectivity that arises from the allowance of professional judgement and the specification chosen by the standard setting body of effectuated accounting standards<sup>11</sup>. Again, different ways of expressing the economic reality does not change the real economic reality. When assumed that the efficient market threshold holds, one can expect that investors or other economic decision makers see through these “changes” and that their decisions are not influenced by the form of financial information.

### 3.3 Dutch accounting regulation before IFRS

Before the introduction of IFRS Dutch ENS companies were obliged to compose their financial statement according to a body of Dutch regulation. This conventional Dutch accounting is better known as Dutch GAAP and is still mandatory for non ENS companies<sup>12</sup>. The term “Dutch GAAP” is used for a body of regulation with different origins. Legal provisions are provided by Book 2, Part 9 of the Dutch Civil Code (DCC). The DCC deals with the annual accounts and reports and provides principles of the valuation of assets and liabilities and determination of the periodic results. DCC is the starting point for financial reporting in the Netherlands. This legal source of regulation is complemented with several Orders in Council (Algemene Maatregelen van Bestuur) and law of

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<sup>11</sup> This does not imply automatically that the existence of professional judgment will automatically lead to less value relevant and subjective accounting numbers.

<sup>12</sup> Note that non-ENS have a choice to compose their annual statements according IFRS.

precedent. In addition to the described legal provisions, the Dutch Accounting Standards Board (DASB) issued several Guidelines. Based on decrees of the Dutch Ondernemingskamer<sup>13</sup> (institution of commercial law) it can be concluded that these Guidelines provide a more detailed and concrete interpretation and applicability of the law and give guidance in areas of annual reporting that are not fully covered by DCC. These aspects of the Guidelines are an important part of Dutch GAAP.

### 3.4 European harmonization of accounting standards

Several international developments heavily influenced the Dutch body of regulation during the past decade. This influence consisted of the implementation of the European accounting directives which were a first effort of the European Union (EU) to standardise the European accounting practice. Due to a broad spectrum of possibilities in implementing these guidelines in the national law, further accounting convergence among nations of the EU was not realized. Another influence on the Dutch regulatory body comes from the work of the IASB. When the DCAR composes and adjusts the Guidelines it rests heavily on the developments of IFRS and aims at harmonization of the Guidelines with IFRS. The Guidelines are designed based on the Dutch Framework which is mainly a translation of the IASB's Framework for the Preparation and Presentation of Financial Statements (Framework). On several occasions the Dutch Guidelines are an exact translation of the corresponding IFRS. This doENS't mean that they are totally similar, the main differences between traditional Dutch accounting standards and IFRS will be discussed in section 3.6.

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### 3.5 IFRS in the Netherlands

An amendment (IAS 39 directive and modernization directive) of DCC followed in 2005 after the decision of the European Union to accept IFRS<sup>14</sup> as the accounting standard for ENS. Since the first of January 2005 the Dutch ENS with a stock quotation are obliged to compose their financial reporting in line with IFRS<sup>15</sup>. IFRS are composed by the IASB, which originated from the International Accounting Standards Committee (IASC). The IASC was set up by several accountancy organisations throughout the world. The first standards of the IASC were merely best practices and offered a wide spectrum of choice to encompass financial statement preparers with their activities. These non stringent rules also did not interfere with the existing American and British accounting regulation and activities. As a result the transparency and the possibility to compare financial statements from different nations were not improved. In 1989 the IASC started a revision procedure

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<sup>13</sup> 2002 and 2003 regarding KPN vs. SOBI and Reed Elsevier vs. SOBI

<sup>14</sup> The European Union made this decision on 6-6-2002

<sup>15</sup> IFRS have to be approved by the EU

to confine accounting alternatives on several issues. Following this revision, the IASC started a project to further eliminate options of choice in the existing standards to arrive at a set of standards which would lead to comparable financial statements. On the first of April, 2001 the IASC changed its name in the IASB but decided that all International Accounting Standards (IAS) remained in place until  
5 changed or withdrawn. The new standards of the IASB after 2001 are called IFRS. In late 2003 the IASB eliminated accounting options in several standards with another “improvement project”. This elimination processes have lead to a more stringent set of IFRS.

IFRS has been developed in the light of the perceived (and researched) decreasing value relevance of accounting numbers. As set out in section 2.5, several developments that led investors increasingly  
10 seeking for alternative sources of financial information due to the decreasing value relevance of pre-IFSR financial statements. These developments have led to a deterioration of the importance that financial statements have for decision makers and has invoked a move towards more commercially-orientated accounting standards such as IFRS. Based on the US based value relevance literature Brimble and Hodgson (2007, pp. 601) identify three policy suggestions from the literature that appears  
15 to have influenced the IASB by designing the Framework and corresponding IFRS. These policy suggestions are: i) modifying the reporting process so it better connects to the needs of the changed and changing business climate, ii) identifying other forms of competing information that can expand the information spectrum of the financial report and iii) developing a standards setting policy that sees to the safeguarding of value relevance. They find that these policy suggestions influence the IASB on  
20 several aspects: i) profit measurement and revenue recognition is now linked to timely recognition and ii) the ‘fair value’ approach has been adopted as a working principle.

IFRS is not a legal regulation and this is why the IASB is not responsible for enforcement of this regulation<sup>16</sup>. IFRS finds its authority in the acceptance by the legal regulators in the concerned countries. The IASB began its operations in 2001 and is selected, overseen and funded by the  
25 International Accounting Standards Committee Foundation (IASCF). Further, the IASB is funded by the accounting companies, private financial institutions and industrial companies and other international and professional organizations. These financial interests make the IASB vulnerable for political pressure as defined by Zeff (2002) and could lead to suboptimal outcomes of the standard setting process.

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<sup>16</sup> In the Netherlands enforcement initiative lies with the Ondernemingskamer.

### 3.6 Differences between IFRS and Dutch GAAP

Dutch GAAP has followed the developments of IFRS, but with IFRS the financial reporting targets the change in value of assets and liabilities even more. This is in contrary to the realisation of profits through the earnings process. The information focus of the financial report has shifted to providing information about the value of the company at the moment the balance is made up. Because the value of a company is commonly seen as the difference between the assets and liabilities more weight was given to the accurate composition of the balance sheet. This should give the investor or other economic decision maker a more value relevant financial report.

The goal of the IASB is to develop an internationally acceptable and high quality set of accounting standards. To achieve this, the IASB has set up standards that are merely principles based, but has taken action to remove allowable accounting alternatives which leaves less room for professional judgement. Ewert and Wagenhofer (2005, pp. 1101-1102) identify two ways for standard setters to tighten standards: i) eliminate accounting options in standards and ii) limit the impact of (professional) judgement by managers and auditors. This can be achieved by providing clearer rules or more detailed guidance. The implementation of IFRS changed the main regulation and objectives of financial reporting for ENS in the Netherlands. IFRS converge with the developments of US GAAP which leads to a cut back on accounting options. As a result IFRS is becoming a more stringent approach than before. The “fair presentation override” row of figure 1 supports this conclusion. Under IFRS it is hardly possible to override standards, even when this serves a true and fair view. This is not the case for Dutch GAAP where the DCC requires a departure from the Code if this adds to a true and fair view.

There are differences between IFRS and Dutch GAAP. Since Dutch GAAP has evolved around the development of IFRS, differences are not plentiful. The main differences between the accounting framework of IFRS and Dutch GAAP since the mandatory implementation in the Netherlands are summarized in Table 3.1. To gain insight in the impact that the implementation of IFRS had on value relevance in the Netherlands, this study chooses to focus on the change in the goodwill accounting regime after 2005 for ENS.

The regime for accounting for goodwill has changed severely for ENS after implementation of IFRS in the Netherlands. As mentioned before, the IFRS accounting for goodwill is a complicated accounting issue and clearly different from the Dutch GAAP alternative. The impact on both the balance sheet and the profit and loss statement can be severe due to a different amortisation method. Based on the above the accounting for goodwill, as an object of study for this research, can be perceived as a cut down on accounting options and a product of the stronger focus on the value of the company. This is because before, under Dutch GAAP, it was allowed to periodically amortise goodwill (with several methods), while under IFRS goodwill has to be the subject to an impairment test. However because of

the impairment tests end the free choice regarding the amortisation down method, it is perceived as a rather subjective method (Wines et al., 2007, pp.863).

Section 4 will discuss goodwill and the treatment of goodwill under Dutch GAAP and IFRS. This chapter will also elaborate on goodwill and the relation of its accounting treatment to value relevance.

FRAMEWORK	IFRS	Dutch GAAP
Qualitative characteristics	Understandable, relevant, reliable, and comparable	True and fair view
Reporting elements	Assets, liabilities, equity, income and expenses	<i>Similar</i>
Historical cost	Main convention, permits revaluation of intangible assets, PPE and investment property / Certain categories of financial instruments and biological assets required at fair value	Allows historical cost method and forms of current value method <sup>17</sup>
Fair presentation override	Extremely rare and complicated in practice	The DCC requires a departure from the Code if this complements the true and fair view.
First time adoption	Specific standard	<i>Similar</i>

5 **Table 3.1: Differences among IFRS and Dutch GAAP (Backhuijs, 2008)**

The next section (3.7) will provide a summary of several studies which connect IFRS to value relevance.

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<sup>17</sup> If the current value method is used, a revaluation reserve is required, unless i) the revaluation is recognized directly into the income statement and ii) the asset has a published price quotation.

### 3.7 Prior literature

This section will provide a limited overview of literature that link IFRS to a more value relevant financial statement.

AUTHOR	RELEVANT CONCLUSIONS
Bartov et al. (2002)	▪ US GAAP is more value relevant than IAS while US GAAP and IAS are more value relevant than German GAAP.
Ewert and Wagenhofer (2005)	▪ Tighter standards reduce noise in reported earnings and make them more value relevant.
Barth et al. (2008)	▪ The application of IAS is associated with a higher value relevance of accounting numbers than the application of a non-US domestic standard.

5 **Table 3.2 Prior literature IFRS and value relevance**

#### 3.7.1 *Bartov et al. (2002)*

Bartov et al. (2002) examine the comparative value relevance of accounting numbers among German, US and IAS from 1991 until 2000. Their research is motivated by the consideration of the Security and Exchange Commission (SEC) to accept the use of IAS to fill listing requirements. They find that there is minimal market based evidence to support a decision about the comparative quality of US GAAP and IAS. To arrive at conclusions regarding value relevance the earnings model is used. They conclude that US GAAP is more informative as IAS but both standards are more informative than German GAAP. They point at the different target user group of US GAAP or IAS and German GAAP. German GAAP has traditionally aimed at a wider range of stakeholders where US GAAP and IAS mainly target investors. The more stringent accounting regime is the most value relevant. This research provides an indication that IFRS is more value relevant than Dutch GAAP, since IFRS is perceived as more stringent than Dutch GAAP.

#### 3.7.2 *Ewert and Wagenhofer (2005)*

The paper of Ewert and Wagenhofer (2005) examines the claim that tighter accounting standards provide more relevant information to capital markets. Hence, they examine if tighter standards will lead to more value relevant information. In their research they adopt a rational expectations equilibrium model and find that earnings quality<sup>18</sup> for accounting numbers improves under tighter accounting standards. Ewert and Wagenhofer (2005) measure the value relevance of accounting

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<sup>18</sup> Hence, earnings management decreases and value relevance of accounting numbers increase.

numbers based on principle-based standards versus rules based-standards. They measure the value relevance by the association between reported earnings and the change in market prices and earnings variability (efficiency). Tighter standards reduce the noise in reported earnings and make them more value relevant.

### 5 3.7.3 *Barth et al. (2007)*

Barth et al. (2007) examine if the application of IAS by companies is associated with higher accounting quality than the application of non-US domestic standards by the same companies. They define less earnings management, more timely loss recognition and higher value relevance as higher accounting quality. For this research only their results regarding value relevance are important. There metrics for  
10 value relevance are the explanatory powers of net income and equity book value for prices and stock returns for earnings. This implies that they use a part of the Ohlson model (section 2.4.3) as their valuation model and to test for total value relevance and the incremental value relevance for earnings. Also, Barth et al. (2007) control for the earnings sign of earnings and find that this variable influences the incremental value relevance of earnings although this influence is not significant. Specifically, they  
15 find that a positive earnings sign is more value relevant for IAS companies than for non-IAS companies. A negative earnings sign is more value relevant for non-IAS companies than for IAS companies. They compare quality metrics for companies applying IAS in the pre- and post-adoption period, in this way using the company as its own control for pre-adoption period differences. Barth et al. (2007) find that in the post adoption period, companies applying IAS generate more value relevant  
20 accounting information. This conclusion is supported by the price regression (based on the Ohlson model) but not supported by the returns regression (based on the Ohlson model) and based on a sample from 1994 until 2003 consisting of all ENS which have adopted IAS.

## 3.8 Conclusion

25 This section has discussed how financial reporting influences value relevance, why value relevance is important for the financial reporting process and how IFRS influences value relevance.

Different users of external financial reports have different information needs. Since it is not possible to satisfy every user's independent information needs the financial accounting process generates general purpose reports based on a set of reporting standards developed for that goal. The IASB has defined  
30 investors or shareholders as its main target group of users and aims at providing information that is relevant for this group when making economic decisions. While the IASB aims at cutting back on accounting alternatives, accounting standards and their implementation remain subjective to a certain degree and subject to political pressure.

The legal basis for financial accounting in the Netherlands lies with the DCC, which is complemented  
35 with several other legal instruments. Originally Dutch GAAP had a more retrospective focus and was



less tightened than IFRS is nowadays. After the implementation of several European Union's directives the compliance with IFRS became mandatory for listed companies in Europe.

5 Prior literature identifies tighter standards as more value relevant (Ewert and Wagenhofer, 2005). Given that IFRS are tighter standards in regard to Dutch GAAP, one would expect IFRS to be more value relevant. Dutch GAAP has evolved in accordance with the developments of IFRS. In general this difference will be non significant. However, prior literature does identify IFRS as a more value relevant accounting standard in respect to non-US domestic standards (Bartov et al., 2002 and Barth et al., 2008). This could indicate that on a certain level IFRS is more value relevant than Dutch GAAP.

10 To magnify the difference between Dutch GAAP and IFRS, this study focuses on the different accounting for goodwill between the two standards. Section 4 will explain the concept of goodwill, how it is accounted for under Dutch GAAP and IFRS and how it's accounting treatment relates to value relevance.

## 4 Goodwill and its accounting treatment

The main goal of this section is to identify the difference between the accounting treatment of goodwill for Dutch GAAP and IFRS. Next to this, this section aims at linking the treatments to the value relevance concept. Section 4.1 discusses goodwill and how goodwill is created. Section 4.2 discusses the accounting treatment of goodwill for Dutch GAAP, section 4.3 for IFRS. As already explained in the introduction section of this thesis, this study does not seek to outline all the components of the two different accounting treatments and its exact differences. Instead it focuses on identifying main differences and their relation to value relevance as perceived in the existing literature. This relationship is presented in section 4.4. Finally, section 4.5 will summarize and provide the conclusion of this chapter.

### 4.1 A short introduction to goodwill

Goodwill can be defined as the difference between the amount one is willing to pay and the actual book value for an investment (Klaassen et al., 2001, pp. 244). Goodwill can also be defined as “future economic benefits arising that are not capable of being individually recognised” (Wines et al., 2007, pp. 864) from AASB3). Goodwill can only be measured and recognised in the case of a merger or take over. It is not possible to purchase it or sell it as a separate item (Wines et al., 2007, pp. 864) from: Hoggett and Edwards, 2002).

The way goodwill is defined and measured differs among legislation and accounting principles. We’ll discuss measurement and recognition of goodwill in regard to the Dutch GAAP treatment (section 4.2) and the treatment of goodwill under IFRS (section 4.3).

Goodwill is an immaterial asset, which is purchased from a third party and then recognised onto the balance sheet. As already stated, it is recognised because it is expected that future economic benefits will occur from owning this asset. Goodwill is the price paid by the acquiring party for the generated value, which is not yet translated on the balance sheet, of the purchased party. For example a circle of loyal customers, a strong brand, etcetera.

It is also possible that future, expected economic benefits will fall or will cease to exist. In that case the goodwill has to be amortised. The way this amortisation takes place differs strongly among Dutch GAAP and IFRS. This amortisation is related to value relevance which is subject to discussion in the prior literature.

Hoogendoorn (2002, pp. 19-20) acknowledges three basic alternatives for the accounting treatment of goodwill. These are:

- amortise goodwill after acquirement through the equity;
- recognise goodwill on the balance sheet and amortise periodically;
- recognise goodwill on the balance sheet and do not amortise periodically.

The first two options will be the subject of section 4.2, since these two alternatives are allowed by Dutch GAAP for ENS before the implementation of IFRS. The third option is presented in section 4.3 since this option forms the basis for IFRS 3, which is mandatory for Dutch ENS after the implementation of IFRS.

## 4.2 The accounting treatment of goodwill under Dutch GAAP

In his article Hoogendoorn (2002) states that under Dutch GAAP, amortising goodwill through the equity has been a popular alternative in the Netherlands in the past. This alternative assumes that goodwill is not an asset and therefore is not recognised on the balance sheet. When assuming that the value of goodwill is uncertain, amortising it through equity provides a cautious option. A third reason to utilise this option is that the periodic amortisation of goodwill will disturb the consolidated financial statements. The disadvantage of this method is that equity is lowered, which causes the rate of return on equity to rise. This is not a realistic reflection of reality.

For financial statements after 2000, the RJ stated that recognition of goodwill on the balance sheet with periodic amortisation was the preferable option (direct amortisation was still an option provided by the DCC), connecting Dutch GAAP to IAS 22 of the IASB (Eynde, 2007). Hoogendoorn (2002, pp. 18) states that this method is more economically realistic compared to allowing for immediate write off. The activation of goodwill assumes that it is an asset, from which economic benefits will arise. In this point of view goodwill is used in the production process and hence, its recognisable value that will change over time (decrease).

### 4.2.1 Recognition

The accounting for goodwill under Dutch GAAP is described in the DCC and RJ. RJ 214.333 states that goodwill is the positive difference between the acquisition price and the first recognition of all identifiable assets based on the equity method at fair value. Only externally acquired goodwill can be recognised (RJ 210.216). In the DCC we can find art. 2:385 lid 4 BW, that states that the recognised goodwill should be taken into account at the highest for the amount spent lessened with depreciation.

#### 4.2.2 Depreciation

Art. 2.389 lid 7 BW allows goodwill to be processed at once through equity, at once as a cost on the profit and loss statement. RJ 216.221 states that recognised goodwill should be amortised based on its economic lifespan. It assumes that its lifespan does not exceed 20 years starting from the moment of purchase. Next to this, RJ 216.222 states that the amortisation method used, should reflect the underlying pattern of the future economic benefits. If this pattern can not be established in a reliable manner, amortisation has to take place in a linear form. Chosen amortisation schedules should be applied consistent. This approach assumes a definite life of goodwill, which is also explicitly reflected in RJ 216.226.

RJ 216.227 provides the possibility of impairment if the recognized value lies below the remaining, aggregated economic benefits.

Finally RJ 216.228 concludes that the amortisation scheme should be reviewed at least at year end to identify possible significant gaps between: i) the economic lifespan and amortisation period and ii) the amortisation pattern and the development of the economic value.

### 4.3 The accounting treatment of goodwill under IFRS

After the implementation of IFRS all ENS had to utilise the IFRS treatment of goodwill, which is different from Dutch GAAP. The main difference is the way that reductions in economic value of goodwill are processed in the financial statements.

#### 4.3.1 Recognition

The recognition and measurement of goodwill with IFRS is similar to the method utilised by Dutch GAAP. Refer to section 4.2.1 for an outline of this method. The accounting treatment of goodwill can be found in IFRS 3, Business Combinations.

#### 4.3.2 Depreciation

Under IFRS it is not allowed to amortise acquired (business combination) goodwill. IFRS 3 prescribes an annual test for impairment or a test for impairment whenever events or circumstances indicate that the value of the recognised goodwill has been subject to impairment (Wines, et al., 2007, pp. 863). The carrying amount of the goodwill will be amortised down to the extent of the impairment. This impairment loss should be recognised in the profit and loss statement. Impairment testing is described in IAS 36: impairment of assets.

5 This interpretation views goodwill not as an asset that is been used as a resource in a  
production process, but recognises that it can maintain its value throughout multiple  
processes. To address the possibility of it becoming obsolete, its value developments have to  
be assessed periodically. This view acknowledges that some unidentifiable assets may have an  
infinite life (Wines et. al 2007, pp. 865), which is an assumption that differs from Dutch  
GAAP (goodwill has a definite economic lifespan). As stated in 4.2.2, Dutch GAAP also  
requires the carrying value to be reviewed each reporting period and depreciated if the  
recognized value lies below the remaining, aggregated economic benefits. However, this  
requirement is not that critical since the recognised goodwill is written down in a set number  
10 of periods.

#### 4.4 Prior literature

This section identifies the relationship between the accounting treatment of goodwill and value relevance. This argumentation will be supported by evidence and argumentation of the existing literature.

AUTHOR	RELEVANT CONCLUSIONS
Jennings et al. (1996)	<ul style="list-style-type: none"> <li>▪ Purchased and capitalised goodwill is value relevant and its economic value does not necessarily decline over time. The possibility of goodwill elements with an infinite economic life would implicate that the annual test for impairment, in contrast to periodic depreciation, is the most value relevant method to indicate a value reduction of goodwill.</li> </ul>
Elliot and Hanna (1996)	<ul style="list-style-type: none"> <li>▪ The earnings response coefficient decreases at the time of unusual write-offs and some time afterwards. This could indicate a deteriorating value relevance of earnings during and a while after unusual write-offs. An investor alters his emphasis he places on earnings in his valuation model, when unusual write-offs occur.</li> </ul>
Hirschey and Richardson (2002)	<ul style="list-style-type: none"> <li>▪ There is no link between the size of a write-off and the value relevance effect. Information effects tied to company goodwill write-offs announcements are negative and material and not all of the impact is embedded in the share price after the announcement period.</li> </ul>
Wines et al. (2007)	<ul style="list-style-type: none"> <li>▪ Subjective assumptions to determine fair values of goodwill worsen the transparency of the financial statement. The annual test for impairment, in contrast to periodic depreciation, is the most value relevant method to indicate a value reduction of goodwill.</li> </ul>

**Table 4.1: Overview relevant prior literature value relevance of goodwill**

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#### 4.4.1 Jennings et al. (1996)

Jennings et al. (1996) investigate the relation between accounting goodwill numbers and equity values. To arrive at their conclusions they use the following balance sheet model.

$$MV_i = \alpha_0 + \alpha_1 ABGWP_i + \alpha_2 GW_i + \alpha_3 PPE_i + \alpha_4 LIAB_i + \varepsilon_i \quad (13)$$

5 where  $MV_i$  is the market value of equity of company  $i$  three months after the fiscal year end,  $\alpha_0$  is the intercept,  $\alpha_1$ ,  $\alpha_2$ ,  $\alpha_3$  and  $\alpha_4$  are the slope coefficients,  $ABGWP_i$  the book value of assets exclusive of goodwill of company  $i$  at the end of the fiscal year,  $GW_i$  the book value of goodwill of company  $i$  at the end of the fiscal year,  $PPE_i$  the book value of net property, plant and equipment of company  $i$  at the end of the fiscal year,  $LIAB_i$  the sum of the book values of liabilities and the preferred stock component of stockholders' equity per share of company  $i$  at the end of the fiscal year and  $\varepsilon_i$  is the error term.

The sample of this study consists of the data of US firms during the period 1982-1988 based on four retention criteria:

1. positive net intangibles for any year during the period 1982 – 1987;
- 15 2. the 31<sup>st</sup> of December as the end of the fiscal year;
3. traded on the New York Stock Exchange or American Stock Exchange; and
4. Not a depository institution.

This study answers whether goodwill should be recognised as an asset or depreciated against owners' equity at the time of the balance sheet. To be capitalised, purchased goodwill should and its costs beyond the date of the acquisition should be associated with the future expected benefits. Jennings et al. (1996) conclude that results from their regressions indicate that there is a strong positive association between equity values and purchased goodwill. Hence, the purchased goodwill inhabits value relevance for investors and should be capitalised.

25 Jennings et al. (1996) state that if goodwill is capitalised, the question remains whether goodwill loses its value over time or that it maintains its value indefinitely. They find a weak, negative association between equity values and goodwill amortisation. They suggest that the weakness of this association could indicate that: i) "purchased goodwill may not be declining in value for many firms, and ii) for those firms where it is declining in value, the actual rate of declining may differ substantially from the accounting amortization rate." This argumentation supports the annual impairment test for goodwill, as the most value relevant method to account for goodwill, which could decline in value over time.

#### 4.4.2 *Elliott and Hanna (1996)*

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Elliott and Hanna (1996) examine the information content of earnings conditional on the presence of large nonrecurring or unusual charges during 1975 and 1994 based on available Compustat data. They state that “unusual items can obscure the information contained in earnings numbers”. The other issue they recognise is that unusual write-offs can lead to difficulties in interpreting the level of reoccurrence. Elliott and Hanna (1996) conclude that firms that report write-offs have a higher change of reporting write-offs in the future. Firms in this situation generally experience deteriorating economic circumstances. Elliott and Hanna (1996) also find that the earnings response coefficient decreases at the time of unusual write-offs and some time afterwards. This could indicate a deteriorating value relevance of earnings during and a while after unusual write-offs. They can conclude that an investor alters his emphasis he places on earnings in his valuation model, when unusual write-offs occur.

#### 4.4.3 *Hirschey and Richardson (2002)*

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Hirschey and Richardson (2002) utilise a event study from 1992 – 1996 on US companies to identify and investigate the value relevance effects of goodwill write-off (impairment) announcements. Hirschey and Richardson (2002) find that impairment of goodwill announcements communicate a deteriorating future profit potential of the company to the investor. They also find no link between the size of a write-off and the value relevance effect. They conclude that information effects tied to company goodwill write-offs announcements are negative and material and that not all of the impact is embedded in the share price after the announcement period.

#### 4.4.4 *Wines et al. (2007)*

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Wines et al. (2007) set off to critically examine the change in accounting treatment for goodwill after the implementation of IFRS in reference to Australian GAAP, which has a similar treatment of goodwill as Dutch GAAP. With their article, they criticise the increased reliance on fair values at the first recognition of goodwill. They state this will increase the reliance on professional judgement that will cause a worsened transparency. Wines et al. (2007, pp. 872) refer to Gowthorpe and Amat (2005) when they state that the replacement of the periodic amortisation of goodwill with impairment testing, which relies on fair values, creates opportunities for creative earnings management. Wines et al. (2007, pp. 864) also refer to Horton and Macve (2000) to underline the often subjective assumptions by estimating the fair value of an asset. They note that when capital markets are not perfect or incomplete, one fair value can not exist. This fair value is based on a portion of judgement and assumptions. This application of fair value, for instance on the initial measurement of goodwill can result in errors, affecting the relevance and reliability of reported accounting numbers.



Wines et al. (2007, pp. 865) also discuss the implications of maintaining a set amortisation period for goodwill. This assumes that goodwill is finite and ignores the possibility that some goodwill elements have an infinite life. Impairment testing of goodwill addresses the economic infinite elements.

5 The discussion is concluded with by discussing the implications of the new IFRS treatment of goodwill. They provide a summary of main potential accounting difficulties: i) the possibility of a subjective identification of the cash generating units, ii) cash generating units will be hard to identify for non active capital markets, iii) cost of compliance with the new treatment and iv) high subjectivity with the calculation of the recoverable amount.

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#### 4.5 Conclusion

Goodwill can be defined as the difference between the amount one is willing to pay and the actual book value for an investment (Klaassen, Hoogendoorn, Bak, 2000, pp. 14). The main difference between the accounting for goodwill under Dutch GAAP and IFRS is the way it is depreciated. Under Dutch GAAP goodwill is depreciated periodically. This assumes that all elements have a finite economic life. Under IFRS goodwill is tested periodically for possible impairment, which recognises the possibility that some elements of the recognised goodwill can have an infinite economic life.

Prior literature finds that capitalised goodwill contains information content for investors and that the economic value of goodwill not necessarily declines over time. This indicates that the annual test for impairment is the more value relevant depreciation method in respect to a periodic depreciation. Other researchers find that unusual write-offs, such as an impairment of goodwill will temporary deteriorate the value relevance of earnings (Elliot and Hanna, 1996). Investors alter their valuation model in the presence of unusual write-offs. This indicates a deteriorating value relevance of the reported goodwill depreciation costs (earnings), which is in line with earlier observations in prior literature, that over time the incremental value relevance of earnings has declined (e.g. Collins et al., 1997).

In accordance to this, Hirschey and Richardson (2002) find that write-off announcements are negative and material, but that not all impact is embedded in the share price after the announcement period. This finding supports the notion of a decrease in the incremental value relevance of earnings after goodwill impairment. Finally Wines et al. (2007) conclude that impairment testing of goodwill is the appropriate way of addressing the economic nature of goodwill, but the fair value estimates deteriorate the value relevance of the reported goodwill.

The main research question of this study is to identify the value relevance effects on the financial reports of ENS after the implementation of IFRS. Dutch GAAP has evolved in accordance with IFRS. This study chooses to focus on the differences of the accounting for goodwill between these frameworks to amplify the value relevance development after IFRS. This will answer the question

whether ENS with specific characteristics (an amount of goodwill recognised) do experience value relevance effects after the implementation of IFRS. Interesting is which aspect of the IFRS accounting for goodwill has the strongest effect on the value relevance: the improved presentation of economic reality (+) or the more subjective fair value accounting for goodwill with unpredictable costs (-).

- 5 Section 5 will provide the research design, the basis for the empirical part of this study to reach conclusions.

## 5 Research design

This section presents and discusses the research design of this study. The empirical research of this study determines how the value relevance of reported income, book value and reported goodwill has developed before and after the mandatory implementation of IFRS for ENS in 2005. The previous sections have elaborated on the significance of value relevance, the financial reporting environment, goodwill recognition and their relationship. While there are many value relevance studies, there has not been a great deal of research regarding the development of value relevance after the implementation of IFRS for ENS.

Barth et al. (2007) do investigate the development of value relevance after IFRS in the Netherlands, but use limited amount of control variables and only test the value relevance of earnings. This study will extend these results by also investigating the development of value relevance of book value and imposing two (shares outstanding & earnings sign) control variables upon the regressions. This study also investigates the change in value relevance of reported goodwill after the IFRS implementation to acquire a more detailed understanding of the influence of the shift in accounting for goodwill on the value relevance of financial reporting of ENS.

Section 5.1 specifies the hypotheses, section 5.2 elaborates on the utilised model to measure the development of value relevance. Finally, section 5.3 describes the sample selection process and provides descriptive statistics of the sample.

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### 5.1 Hypotheses

First of all, prior research (see section 3.6) proved a positive effect of IFRS compared to local non-US GAAP on the total value relevance of accounting numbers (Bartov et al., 2002 and Barth et al. 2008). More specifically this seems to be attributable to the increased strictness of IFRS. Ewert and Wagenhofer (2006) conclude that tighter standards reduce noise in reported earnings and make them more value relevant. When comparing Dutch GAAP and IFRS (see section 3.6), one of the general differences is the degree of freedom in interpreting and applying the principles for a more fair presentation of the underlying economic reality. This notion is important because it implies a greater strictness in IFRS than in Dutch GAAP and supports the conjecture that IFRS will lead to more value relevant financial statement information than Dutch GAAP does.

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However, Dutch GAAP has developed in line with IFRS before the mandatory implementation. It is expected that the average impact on value relevance is marginal. I do expect to identify a minor change in value relevance after the implementation for ENS in general. This argumentation leads to the first set of hypotheses:

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H1: The total explanatory power of earnings and book value has remained unchanged after the introduction of IFRS.

H1a: The total explanatory power of earnings and book value has increased or decreased after the introduction of IFRS.

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To address the difference in value relevance between Dutch GAAP and IFRS this study chooses to focus on one of several distinct differences between the two accounting standards. This study focuses on the two different methods to account for the depreciation of goodwill (section 4.2 and 4.3). Prior literature identifies the annual impairment test on goodwill as a better representation of reality compared to periodic amortisation. However, it also points at the disturbance caused by the subjective valuation and write downs (section 4.4). Therefore it is expected that the value relevance, for the specific 'goodwill companies' will change. Based on this the second set of hypotheses are composed:

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H2: The total explanatory power of goodwill on the balance sheet has remained unchanged after the introduction of IFRS.

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H2a: The total explanatory power of goodwill on the balance sheet has increased or decreased after the introduction of IFRS.

Secondly, prior literature (section 2.8) identified an inverse relationship between the incremental value relevance of earnings and book value (Collins et al., 1997 and Francis and Schipper, 1999). These studies found that (given constant total value relevance) a decrease over time of the incremental value relevance of earnings was compensated by an increase of the incremental value relevance of book value. This conclusion is relevant for this study since with IFRS the financial reporting system targets the change in value of assets and liabilities, rather than realisation through the earnings process (Brimble and Hodgson, 2007).

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Because of the more prospective approach of IFRS more weight has been given to the accurate composition of the balance sheet (rather than to the earnings statement) in order to support the investor in a more accurate prediction of company value. This suggests that the incremental value relevance of book value has increased at the cost of the incremental value relevance of earnings. As

addition to research results based on main research question, this study will also investigate the relative development of the incremental value relevance of earnings and book value.

## 5.2 Model

To answer the main research question, this section will determine the procedure that will be used to measure the development of the value relevance of accounting numbers of ENS from 2002 until 2007. Based on section 2, section 5.2.1 discusses the implications for the research model regarding the chosen value relevance interpretation and theory, 5.2.2 explains the research model to investigate the aggregate value relevance developments. Subsequently section 5.2.3 explains the research model to investigate the value relevance development of reported goodwill. Section 5.2.4 discusses the adopted research perspective and the corresponding adaption to the research models. Finally section 5.2.5 discusses the implemented control variables.

### *5.2.1 Implications of chosen interpretation and theory*

This study is interested in the effects of the implementation of IFRS in the Netherlands on the ability of the financial report to capture economic reality. This study interprets value relevance as a statistical association between financial information found in the annual statement and market values or returns. This means that the financial information is correlated with information used by investors.

To adopt the chosen value relevance interpretation in the model, the model has to measure the ability of the financial statement to capture information or summarize information that influences stock prices. This is achieved by measuring the correlation between information presented in the financial report and information used by investors<sup>19</sup>.

This interpretation does not account for timeliness of information, since it only measures if the information of the financial report is reflected in the corresponding stock prices. A correlation between changes in income number or book values and stock price changes would imply a timely incorporation of the financial information. As already stated, this research is only interested if the financial statement is able to capture information that is used by investors, not when or how fast. The objective of value relevance studies concerned with price levels is to determine what accounting information is reflected in the company's market value while the objective of the studies concerned with price changes is to determine which accounting information is reflected in changes in firm value over a period of time. Therefore the model does not have a focus on the association between accounting number changes and stock price changes.

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<sup>19</sup> This is represented by the stock prices.

This limitation to price levels is supported by the adopted value relevance theory. As argued in section 2, the inputs-to-valuation theory assumes that the role of financial reporting is to provide information that can be used by investors to base their decisions on or to readjust these decisions. The main point of the inputs-to-valuation theory is that financial reports provide relevant and reliable information to investors, the presence of timeliness of information is not one of its assumptions.

### 5.2.2 Price level model<sup>20</sup>

This study is interested in both the effects of reported book value and income numbers on stock prices. This study addresses the question if IFRS generates more reliable and relevant information than Dutch GAAP. Therefore the appropriate regression model is a price level model based on the Ohlson valuation model. The model for this study is similar to that of Collins et al. (1997) and is deflated by the number of shares outstanding by utilising earnings book values and goodwill per share.

This Ohlson model is decomposed to compare and distinguish between the explanatory power that earnings and book values have for stock prices. The total explanatory power is divided in three parts: (i) the common explanatory power of earnings and book value ii) the incremental explanatory power of earnings and (iii) the incremental explanatory power of book value.

This study also designs a basic regression equation based on the Ohlson model to measure the value relevance of reported goodwill.

The total explanatory power is determined with the following regression equation

$$P_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 BV_{it} + \varepsilon_{it} \quad (14)$$

The decomposition leads to the following regression equations:

$$P_{it} = \beta_0 + \beta_1 E_{it} + \varepsilon_{it} \quad (15)$$

$$P_{it} = \chi_0 + \chi_1 BV_{it} + \varepsilon_{it} \quad (16)$$

where  $P_{it}$  is the price of a share of company  $i$  at fiscal year end  $t$ , three months after the end of fiscal year  $t$ ,  $\alpha_0, \beta_0, \chi_0$  and  $\delta_0$  are the intercepts,  $\alpha_1$  and  $\beta_1$  are the slope coefficients of earnings,  $\alpha_2$  and  $\chi_1$  are the slope coefficients of book value,  $\delta_1$  the slope coefficient of reported goodwill,  $E_{it}$  the earnings per share of company  $i$  at fiscal year end  $t$ ,  $BV_{it}$  the book value per share of company  $i$  at fiscal year end  $t$ ,  $GW_{it}$  the reported goodwill per share of

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<sup>20</sup> The model utilized in this study is an adapted version of the model utilized by Collins et al. (1997).

company  $i$  at fiscal year end  $t$  and  $\mathcal{E}_i$  is other value relevant information of company  $i$  at fiscal year end  $t$ .

To ensure that any relevant information from the financial statement can be absorbed by the share prices, this study utilizes the share price three months after the end of the fiscal year.

5 The total value relevance of earnings and book value is measured by the adjusted  $R^2$ <sup>21</sup> of equation (14). To measure the incremental value relevance this regression formula needs to be split up in two additional models.

10 The incremental value relevance of earnings and book values is measured by the adjusted  $R^2$ 's of equation (14) – (16). The adjusted  $R^2$ 's of equations (14) – (16) are denoted as  $\overline{R^2}_T$ ,  $\overline{R^2}_R$  and  $\overline{R^2}_S$ . Since these  $R^2$ 's partially overlap, the incremental explanatory power of book value is calculated by  $\overline{R^2}_T - \overline{R^2}_R = \overline{R^2}_{BV}$  and the incremental explanatory power of earnings is calculated as  $\overline{R^2}_T - \overline{R^2}_S = \overline{R^2}_E$ .

By decomposing the model like this it is possible to gain understanding of the exact effects of IFRS on the value relevance of earnings and book value of ENS.

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<sup>21</sup> Note that adjusted  $R^2$ 's are biased upwards in smaller samples (Cramer, 1987, pp. 255)

### 5.2.3 Balance sheet model

Next to the aggregate value relevance effects of the IFRS adoption, this study aims at identifying the effects on the information content of reported goodwill. These effects are expected because off the different amortisation method that is prescribed by IFRS.

5 Former studies (e.g. Jennings, et al., 1996) have identified a relationship between equity values and reported goodwill. This study chooses to adapt the balance sheet research model as used by Jennings et al. (1996) to extract the contribution of reported goodwill to the aggregate value relevance of accounting numbers.

$$MV_{i,t} = \delta_0 + \delta_1 ABGWP_{it} + \delta_2 GW_{it} + \delta_3 PPE_{it} + \delta_4 LIAB_{it} + \varepsilon_{it} \quad (17)$$

10 where  $MV_{it}$  is the market value of equity of company  $i$  three months after the fiscal year end  $t$ ,  $\delta_0$  is the intercept,  $\delta_1$ ,  $\delta_2$ ,  $\delta_3$  and  $\delta_4$  are the slope coefficients,  $ABGWP_{it}$  the book value of assets exclusive of goodwill and net property, plant and equipment of company  $i$  at the end of the fiscal year  $t$ ,  $GW_{it}$  the book value of goodwill of company  $i$  at the end of the fiscal year  $t$ ,  $PPE_{it}$  the book value of net property, plant and equipment of company  $i$  at the end of the fiscal year  $t$ ,  $LIAB_{it}$  the sum of the book values of liabilities and the preferred stock component of stockholders' equity per share of company  $i$  at the end of the fiscal year  $t$  and  $\varepsilon_{it}$  is the error term.

All items are deflated by the total amount of commons stock outstanding to reduce problems regarding heteroskedasticity<sup>22</sup>. This way the model is deflated for size effects.

20 The new IFRS regulation transfers goodwill depreciation in an unusual item. As already discussed, more weight is assigned to the composition of the balance sheet. After all, IFRS prescribes impairment testing for goodwill, no systematic write-off will occur anymore<sup>23</sup>. A write-down in goodwill will be reflected in the reported goodwill on the balance sheet. Therefore the composition of the reported goodwill number reflects the total discounted future economic benefits.

25 The use of the balance sheet model generates additional added value because it facilitates a possible identification of balance sheet items, responsible for the changing value relevance. It

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<sup>22</sup> This is different than the model used by Jennings et al. (1996), where the model is deflated with total assets. When investigating the available data, stock outstanding appeared to be a non normally distributed variable. Therefore the model is deflated with total stock outstanding.

<sup>23</sup> Given that its impairment does not occur on a linear base.



could be possible that IFRS does not affect the information content of goodwill but the information content of another balance sheet item is affected.

#### 5.2.4 *Research perspective and its consequences for the research design*

This study investigates the effects on value relevance prior and after the introduction of IFRS in the Netherlands. This study is not interested in the exact development each year but in the aggregate effect of the implementation of IFRS.

Section 5.2.4.1 will discuss the adaptations to facilitate the identification of the aggregate value relevance effects of IFRS, while 5.2.4.2 discusses the necessary adaptations to investigate the information content for the reported goodwill.

##### 5.2.4.1 Adaptations to investigate the aggregate value relevance

The study investigates the development of the information content of reported accounting numbers before and after the introduction of IFRS. Because of this it is possible to divide the research sample of this study in two groups. One sample group consists of observations before the introduction of IFRS and the other sample group of observations after the introduction of IFRS. This way it is possible to test for differences in association between accounting numbers and share prices. The model of Cramer (1987) is utilized to accomplish this, following the similar relative association research of Harris et al. (1994). These statistical comparisons are based on the expectation and variance of  $R^2$ . Z-statistics to test for differences among the two samples are computed as:

$$\frac{\overline{R_{BEFORE}^2} + \overline{R_{AFTER}^2}}{\sqrt{\sigma^2(R_{BEFORE}^2) + \sigma^2(R_{AFTER}^2)}} \quad (17)$$

where  $\overline{R_{BEFORE}^2}$  represents the adjusted  $R^2$  or association between accounting numbers and share prices before the introduction of IFRS,  $\overline{R_{AFTER}^2}$  the adjusted  $R^2$  or association after the introduction of IFRS and the  $\sigma^2$ 's represent the variances of the adjusted  $R^2$ 's.

##### 5.2.4.2 Adaptations to investigate the information content of reported goodwill

Next to the aggregate value relevance, this study examines the information content of reported goodwill before and after the introduction of IFRS. Therefore this study needs to differentiate between two treatments for goodwill. These treatments are the Dutch GAAP treatment and the IFRS treatment.

To investigate the consequences of the IFRS treatment on the existing information content during the Dutch GAAP treatment, this study uses the Generalized Dummy Variable Approach (Gujarati, 1970). This way it is possible to identify the additional explanatory power of the IFRS treatment for the reported goodwill numbers and if this additional explanatory is significant.

To diversify between the two treatments, a dummy variable is added to the model:

$$MV_{i,t} = \delta_0 + \phi_0 F_1 + \delta_1 ABGWP_{it} + \phi_1 (F_1 ABGWP_{it}) + \delta_2 GW_{it} + \phi_2 (F_1 GW_{it}) + \delta_3 PPE_{it} + \phi_3 (F_1 PPE_{it}) + \delta_4 LIAB_{it} + \phi_4 (F_1 LIAB_{it}) + \varepsilon_{it} \quad (18)$$

Where  $F_1$  is the dummy variable that represents the IFRS treatment. This dummy variable takes the value 1 if the observation undergoes the IFRS treatment and 0 (zero) if it undergoes the Dutch GAAP accounting treatment.

$\phi_0$  represents the differential intercept for the IFRS group and  $\phi_1$  until  $\phi_4$  represent the differential slope coefficients with respect to the IFRS treatment.

Based on the regression analysis results and the differential intercepts and slope coefficients, the actual intercepts and slope coefficients for the two treatments can be derived.

Dutch GAAP:

$$MV_{i,t} = \delta_0 + \delta_1 ABGWP_{it} + \delta_2 GW_{it} + \delta_3 PPE_{it} + \delta_4 LIAB_{it} + \varepsilon_{it} \quad (19)$$

IFRS:

$$MV_{i,t} = (\delta_0 + \phi_0) + (\delta_1 + \phi_1) ABGWP_{it} + (\delta_2 + \phi_2) GW_{it} + (\delta_3 + \phi_3) PPE_{it} + (\delta_4 + \phi_4) LIAB_{it} + \varepsilon_{it} \quad (20)$$

Eventually, when  $F_1 GW_{it}$  is significant and for example  $(\delta_2 + \phi_2)$  is positive, it can be concluded that the IFRS accounting treatment provides more value relevant accounting for goodwill. The same logic applies to the other independent variables.

### 5.2.5 Control variables

Based on prior research, discussed in section 2.8, this study chooses to adopt control variables for the value relevance model (5.2.2) that investigates the aggregate value relevance development. The two control variables which have found to influence the association between accounting numbers and share prices: i) size and ii) earnings sign. The influence of size will be corrected by deflating the model for the number of shares outstanding (5.2.2).

Also, the research adds the earnings sign as a control variable. Former studies have reached ambiguous conclusions regarding the influence of the earnings sign but one could argue that negative earnings induce managers to engage in managing earnings which leads to less relevant accounting numbers, when positive earnings impose a less strong incentive in managing earnings. If this study finds control variables influence that influence the association between equity values and financial statement information on an aggregate level, these variables are implemented in hypothesis testing based on the main research question.

### 5.3 Sample selection

This section elaborates on the sample selection process by outlining the selection process in section 5.3.1. Section 5.3.2 and 5.3.3 provide the descriptive statistics from the Dutch GAAP sample (before IFRS) and IFRS sample (after IFRS). Finally section 5.3.4 (before IFRS) and 5.3.5 (after IFRS) provide the statistics for the goodwill samples.

#### 5.3.1 Sample selection

The total sample is selected from 2002 to 2007 using the following criteria:

- i) the necessary data elements are available from the Datastream database or the Wharton Research Data Service database;
- ii) the end of the fiscal year is at the 31<sup>st</sup> of December;
- iii) the accounting framework until 2005 is Dutch GAAP, after 2005 it is IFRS;
- iv) no financial company;
- v) traded on a Dutch stock exchange (AEX, AMX, AScX);

All incomplete items have been removed. Items with a fiscal year ending other than on the 31<sup>st</sup> of December have been removed. Items with an earlier or later IFRS implementation, or items with an accounting regime other than Dutch GAAP or IFRS (such as UK GAAP, etcetera) have been removed. This results in a total sample of 448 firm-year observations from 2002-2007.

The total goodwill sample is based on the total sample described above, but a selection is made based whether the company has reported goodwill on its balance sheet in a particular year. This results in a total goodwill sample of 337 firm-year observations from 2002-2007.

### 5.3.2 Dutch GAAP sample

Descriptive statistics of the Dutch GAAP sample are shown in table 4.1. The sample selection process yielded 203 company-year observations over the sample period from 2002 until 2004.

	Mean	Std. Deviation	N
price per share	13,08	13,43	203
earnings per share	0,91	3,72	203
book value per share	12,17	1,51	203
earnings sign	0,20	0,39	203

**Table 5.1: Descriptive Statistics of the Dutch GAAP sample**

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### 5.3.3 IFRS sample

Descriptive statistics of the IFRS sample are shown in table 4.2. The sample selection process yielded 244 company-year observations over the sample period from 2005 until 2007.

	Mean	Std. Deviation	N
price per share	20,42	13,77	244
earnings per share	1,60	1,86	244
book value per share	12,74	1,79	244
earnings sign	1,10	0,30	244

**Table 5.2: Descriptive Statistics of the IFRS sample**

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#### 5.3.4 Dutch GAAP goodwill sample

Descriptive statistics of the Dutch GAAP goodwill sample are shown in table 4.1. The sample selection process yielded 228 company-year observations over the sample period from 2002 until 2004.

	Mean	Std. Deviation	N
price per share	12,58	1,30	228
goodwill	2,52	5,63	228
assets minus goodwill	19,82	2,50	228
liabilities	21,04	2,87	228
net PP&E	10,26	1,45	228

5

**Table 5.3: Descriptive Statistics of the Dutch GAAP goodwill sample**

#### 5.3.5 IFRS goodwill sample

Descriptive statistics of the IFRS goodwill sample are shown in table 4.4. The sample selection process yielded 246 company-year observations over the sample period from 2005 until 2007.

10

	Mean	Std. Deviation	N
price per share	20,43	1,38	246
goodwill	2,96	4,40	246
assets minus goodwill	19,21	2,14	246
liabilities	18,43	2,15	246
net PP&E	8,92	1,57	246

**Table 5.4: Descriptive Statistics of the IFRS sample**

## 5.4 Conclusion

This chapter focussed on the outlay and foundation of the empirical research performed and provides the basis for understanding section 6 and section 7 where the results of this empirical research are presented. In the upcoming chapters, conclusions regarding the effects of IFRS on the value relevance of financial statements will be empirically founded. Assumptions of this research are that there exists a statistical association between financial information found in the annual statement and market values or returns. To research the hypotheses this research implements a price level regression model based on the Ohlson valuation model and an adjusted balance sheet model.

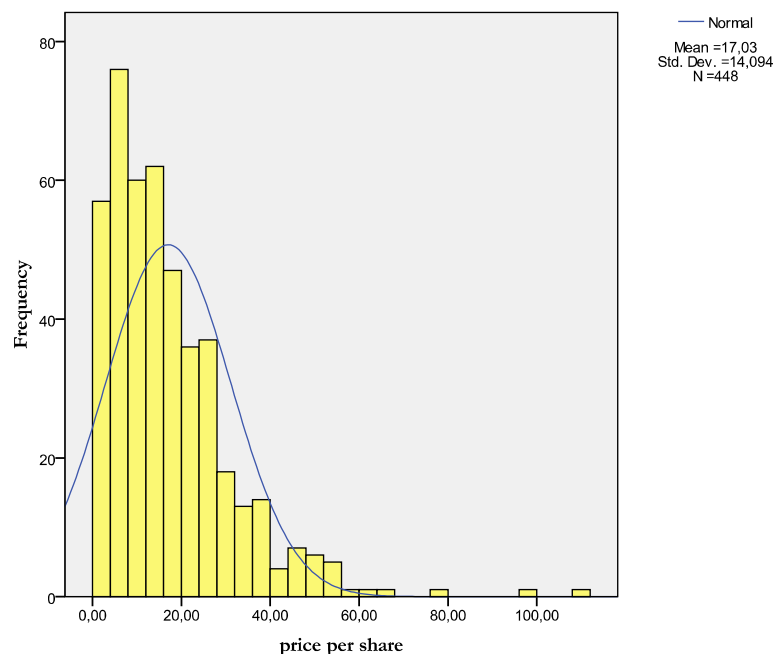
Section 6 will provide the empirical research regarding the aggregate value relevance effects of the implementation of IFRS. Section 7 will provide an empirical foundation of the value relevance effect of the change in the accounting regime for goodwill for ENS.

## 6 The aggregate value relevance development after IFRS

This chapter will present the research results on the development of the aggregate value relevance after the implementation of IFRS in the Netherlands. Section 6.1 provides the results of the assessment of normality for the sample. Section 6.2 provides the regression results for the Dutch GAAP sample and its interpretation. Section 6.3 provides the regression results for the IFRS sample and its interpretation. Section 6.4 presents the results of the model of Cramer (1987). These results are the basis for the conclusion on a possible positive or negative development of value relevance in section 6.5.

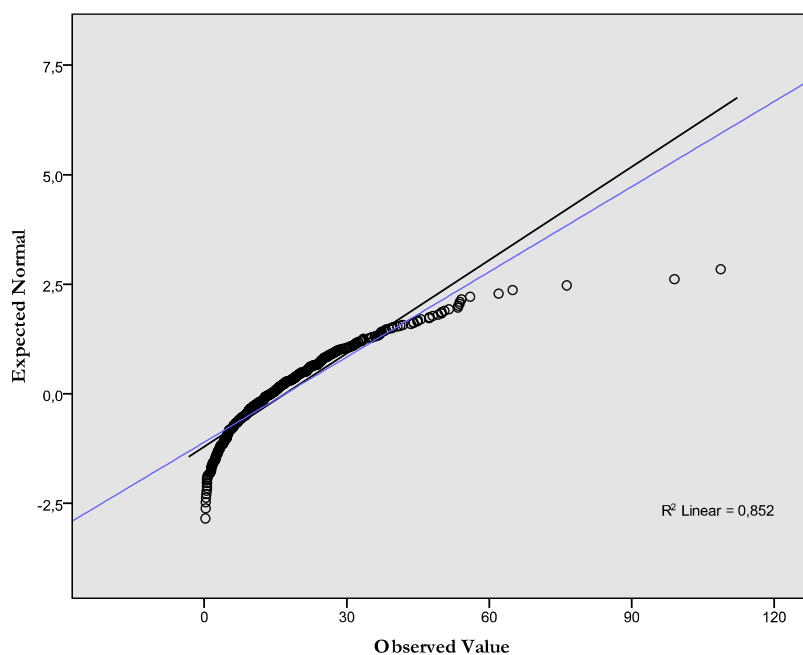
### 6.1 Assessment of normality

The normality of the distribution of the dependent variable “price per share” needs to be determined to successfully execute the regression analyses in further down section 6 and in section 7. Tabachnick and Fidell (2001, pp. 77) hand a formula to determine the minimal sample size:  $N > 50 + 8m$  (where  $m$  is the number of independent variables). In this case both samples should be  $50 + 8 * 3 > 74$ . For both the Dutch GAAP and IFRS sample  $N > 200$ . This makes skewness and kurtosis less of a problem. This is important, because when looking at the distribution pattern of the variable Price Per Share, it can be concluded that it is negatively skewed.



**Graph 6.1: Histogram distribution price per share**

However, when looking at the Q-plot off the variable. It can be concluded that the variable approaches a normal distribution.



**Graph 2: Q plot price per share**

5 Based on these observations, it can be concluded that a regression analysis is an adequate method to assess the relationship between the independent and dependent variables.

## 6.2 Value relevance under Dutch GAAP from 2002 – 2004

10 Based on the model outlined in section 5.2.2, the total value relevance, incremental value relevance of earnings and book value are determined for financial statements of ENS based on Dutch GAAP. After the deletion of the outliers, 190 observations remain. Section 6.2.1 will present the results regarding the total value relevance, section 6.2.2 the results on the incremental value relevance of book value, followed by the results on the incremental value relevance of earnings in section 6.2.3.

### 6.2.1 Total value relevance

15 When investigating the Pearson Correlations in output 6.1, it can be concluded that there exists no multicollinearity between the independent variables. This conclusion is based on the absence of extremely high correlations between the independent variables. All correlations are significant in the 0,95 confidence interval.

20 The model summary in output 6.1 provides the information necessary to assess the value relevance or explanatory power of financial statement prepared under Dutch GAAP for share prices during 2002 – 2004. The total explanatory power of the model ( $\overline{R^2}_{T,BEFORE}$ ) is 0,338. The F-test indicates that this is a significant value in the 0,95 confidence interval.



The overview of the coefficients indicates the significance of “earnings per share” and “book value per share” in relation to the variable “price per share”. These two variables are significant to the regression model in the 0,95 confidence interval. The values are significantly reflected in the share price three months after fiscal year-end. These results indicate that earnings per share and book value per share, presented in the Dutch GAAP financial statements from 2002-2004, have been value relevant for investors.

The earnings sign does not contribute significantly to the value relevance model. This variable is rejected at the p-value 0,764. The absence of a significant relationship between the variable “earnings sign” and “price per share” could indicate that investors do not perceive negative earnings as an indicator for earnings management.

### 6.2.2 Incremental value relevance of book value

Output 6.2 provides the details necessary to compute the incremental value relevance of book value. Remember from the research design (5.2.2) that,

*“the incremental explanatory power of book value is calculated by  $\overline{R^2}_T - \overline{R^2}_R = \overline{R^2}_{BV}$ ”*

The explanatory power of earnings ( $\overline{R^2}_{R,BEFORE}$ ) is 0,260. The corresponding F-test indicates that this is a significant value in the 0,95 confidence interval. The incremental value relevance of book value ( $\overline{R^2}_{BV,BEFORE}$ ) is  $0,338 - 0,260 = 0,078$ . This indicates the value relevance of the financial statement for stock prices solely contributed by reported book values.

### 6.2.3 Incremental value relevance of earnings

Output 6.3 provides the details necessary to compute the incremental value relevance of earnings. Remember from the research design (5.2.2.) that,

*“the incremental explanatory power of earnings is calculated as  $\overline{R^2}_T - \overline{R^2}_S = \overline{R^2}_E$ ”*

The explanatory power of book value ( $\overline{R^2}_{S,BEFORE}$ ) is 0,312. The corresponding F-test indicates that this is a significant value in the 0,95 confidence interval. The incremental value relevance of earnings ( $\overline{R^2}_{E,BEFORE}$ ) is  $0,338 - 0,312 = 0,028$ . This indicates the value relevance of the financial statement for stock prices solely contributed by reported earnings.

**Output 6.1 Total Dutch GAAP**

		price per share	earnings per share	book value per share	earnings sign
Pearson Correlation	price per share	1,000	,514	,562	-,228
	earnings per share	,514	1,000	,683	-,580
	book value per share	,562	,683	1,000	-,255
	earnings sign	-,228	-,580	-,255	1,000
Sig. (1-tailed)	price per share	.	,000	,000	,001
	earnings per share	,000	.	,000	,000
	book value per share	,000	,000	.	,000
	earnings sign	,001	,000	,000	.

**Model Summary**

	R		Adjusted R Square	Std. Error of the Estimate
	Dutch GAAP	R Square		
	,590 <sup>a</sup>	,348	,338	8,06755

**ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Regression	6464,208	3	2154,736	33,106	,000
Residual	12105,870	186	65,085		
Total	18570,079	189			

**Coefficients**

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	6,410	1,008		6,359	,000
earnings per share	1,624	,616	,261	2,638	,009
book value per share	,341	,073	,389	4,668	,000
earnings sign	,619	2,057	,023	,301	,764

5

**Output 6.2 Earnings Dutch GAAP**

**Model Summary**

	R	R Square	Adjusted Square	Std. Error of the Estimate
	Dutch GAAP			
	,514	,264	,260	8,52439

**ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Regression	4909,012	1	4909,012	67,557	,000
Residual	13661,067	188	72,665		
Total	18570,079	189			

**Output 6.3 Book value Dutch GAAP**

**Model Summary**

	R	R Square	Adjusted Square	Std. Error of the Estimate
	Dutch GAAP			
	,562 <sup>a</sup>	,316	,312	8,21985

5

**ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Regression	5867,672	1	5867,672	86,844	,000
Residual	12702,407	188	67,566		
Total	18570,079	189			

### 6.3 Value relevance under IFRS from 2005 – 2007

Based on the model outlined in section 5.2.2, the total value relevance, incremental value relevance of earnings and book value are determined for financial statements of ENS arranged according to IFRS. After the deletion of the outliers, 235 observations remain. Section 6.3.1 will present the results regarding the total value relevance, section 6.3.2 the results on the incremental value relevance of book value, followed by the results on the incremental value relevance of earnings in section 6.3.3.

#### 6.3.1 Total value relevance

When investigating the Pearson Correlations in output 6.4, it can be concluded that there exists no multicollinearity between the independent variables. This conclusion is based on the absence of extremely high correlations between the independent variables. All correlations are significant in the 0,95 confidence interval.

The model summary in output 6.4 provides the information necessary to assess the value relevance or explanatory power of financial statement prepared under IFRS for share prices during 2005 – 2007. The total explanatory power of the model ( $\overline{R^2}_{T,AFTER}$ ) is 0,417. The F-test indicates that this is a significant value in the 0,95 confidence interval.

The overview of the coefficients indicates the significance of “earnings per share” and “book value per share” in relation to the variable “price per share”. These two variables are significant to the regression model in the 0,95 confidence interval. The values are significantly reflected in the share price three months after fiscal year-end. These results indicate that earnings per share and book value per share, presented in the IFRS financial statements from 2005-2007, have been value relevant for investors.

The earnings sign again does not contribute significantly to the value relevance model. This variable is rejected at the p-value 0,764.

#### 6.3.2 Incremental value relevance of book value

Output 6.2 provides the details necessary to compute the incremental value relevance of book value. Remember from the research design (5.2.2) that,

*“the incremental explanatory power of book value is calculated by  $\overline{R^2}_T - \overline{R^2}_R = \overline{R^2}_{BV}$ ”*

The explanatory power of earnings ( $\overline{R^2}_{R,AFTER}$ ) is 0,365. The corresponding F-test indicates that this is a significant value in the 0,95 confidence interval. The incremental value relevance of book value ( $\overline{R^2}_{BV,AFTER}$ ) is  $0,417 - 0,365 = 0,052$ . This indicates the value relevance of the financial statement for stock prices solely contributed by reported book values.

### 6.3.3 Incremental value relevance of earnings

Output 6.3 provides the details necessary to compute the incremental value relevance of earnings. Remember from the research design (5.2.2.) that,

“the incremental explanatory power of earnings is calculated as  $\overline{R^2}_T - \overline{R^2}_S = \overline{R^2}_E$ ”

- 5 The explanatory power of book value ( $\overline{R^2}_{S,AFTER}$ ) is 0,341. The corresponding F-test indicates that this is a significant value in the 0,95 confidence interval. The incremental value relevance of earnings ( $\overline{R^2}_{E,AFTER}$ ) is  $0,417 - 0,341 = 0,076$ . This indicates the value relevance of the financial statement for stock prices solely contributed by reported earnings.

## 10 Output 6.4 Total IFRS

### Correlations

		price per share	book value per share	earnings per share	earnings sign
Pearson Correlation	price per share	1,000	,586	,604	-,278
	book value per share	,586	1,000	,683	-,176
	earnings per share	,604	,683	1,000	-,462
	earnings sign	-,278	-,176	-,462	1,000
Sig. (1-tailed)	price per share	.	,000	,000	,000
	book value per share	,000	.	,000	,003
	earnings per share	,000	,000	.	,000
	earnings sign	,000	,003	,000	.

### Model Summary

	R	R Square	Adjusted R Square	Std. Error of the Estimate
	IFRS			
	,651 <sup>a</sup>	,424	,417	9,72524

**ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Regression	16086,649	3	5362,216	56,695	,000 <sup>a</sup>
Residual	21848,043	231	94,580		
Total	37934,692	234			

**Coefficients**

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	11,577	1,044		11,084	,000
book value per share	,413	,085	,340	4,865	,000
earnings per share	2,754	,620	,345	4,444	,000
earnings sign	-2,491	2,465	-,058	-1,011	,313

**Output 6.5 Earnings IFRS**

**Model Summary**

	R	R Square	Adjusted R Square	Std. Error of the Estimate
IFRS	,606 <sup>a</sup>	,367	,365	10,17058

5

**ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Regression	14053,532	1	14053,532	135,861	,000 <sup>a</sup>
Residual	24205,106	234	103,441		
Total	38258,638	235			

**Output 6.6 Book value IFRS**

**Model Summary**

	R	R Square	Adjusted R Square	Std. Error of the Estimate
IFRS	,586 <sup>a</sup>	,343	,341	10,33891

## ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13028,602	1	13028,602	121,884	,000 <sup>a</sup>
	Residual	24906,090	233	106,893		
	Total	37934,692	234			

### 6.4 Cramer's Z-statistic

5 This section aims at comparing the explanatory power of the regressions before and after the introduction of IFRS. As explained in section 5.2.4.1, the Cramer Z-statistic will be used to determine whether the identified difference among the  $\overline{R^2}$ 's are significant. When such an identified difference turns out to be significant, it means that the total or incremental value relevance differs between the Dutch GAAP and IFRS period.

10 The Z-statistic was computed as:

$$\frac{\overline{R_{BEFORE}^2} + \overline{R_{AFTER}^2}}{\sqrt{\sigma^2(R_{BEFORE}^2) + \sigma^2(R_{AFTER}^2)}} \quad (17)$$

Section 6.4.1 will investigate the observed difference in the total value relevance of earnings and book value. Section 6.4.2 will investigate the observed difference in the explanatory power of earnings followed by section 6.4.3 which does the same for the explanatory power of book value<sup>24</sup>. After these sections, section 6.5 will provide the partial conclusions for this research.

#### 6.4.1 Total value relevance of Dutch GAAP versus IFRS

In section 6.2.1 and 6.3.1 the total value relevance of earnings and book value have been determined for the Dutch GAAP period and the IFRS period. Based on output 6.1 and output 6.4 the variances can be derived. Refer to table 6.1 for the Z-statistic and the corresponding p-value.

The corresponding p-value is 0,0714 which indicates that the observed positive (+0,079) difference between the total value relevance of the IFRS sample compared to the Dutch GAAP sample is significant<sup>25</sup> at the 0,95 confidence interval. This outcome rejects the null-

<sup>24</sup> A significant difference in the explanatory power of earnings/book value indicates a significant change in the incremental value relevance of book value/earnings.

<sup>25</sup> The p-value is derived manually. Therefore an inverted accepting and rejecting logic applies compared to the statistical software used.

hypothesis that the explanatory power of earnings and book value has remained unchanged after 2005.

This indicates that the financial statements prepared after the implementation of the IFRS accounting framework (2005) generate more value relevant information for investors in ENS compared to the Dutch GAAP framework.

5

	<i>R2, before</i>	<i>S, before</i>	<i>R2, after</i>	<i>S, after</i>	<i>Cramer Z</i>	<i>p-value</i>	<i>Significant difference at 95%</i>
T	0,338	8,06755	0,417	9,72524	0,18	0,0714	v
E	0,028	8,21985	0,076	10,33891	0,02	0,0557	v
BV	0,078	8,52439	0,052	10,17058	0,03	0,0596	v

**Table 6.1 Z-statistics and p-values**

#### 6.4.2 Incremental value relevance of book value Dutch GAAP versus IFRS

The same calculations can be applied to determine whether observed difference between the incremental value relevance of book value is significant. To establish this, the Dutch GAAP and IFRS incremental explanatory power of earnings are compared. Based on output 6.2 and output 6.5 the variances can be derived. Refer to table 6.1 for the Z-statistic and the corresponding p-value.

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The corresponding p-value is 0,0557 which indicates that the observed positive (+0,048) difference between the incremental value relevance of book value of the IFRS sample and the Dutch GAAP sample is significant<sup>26</sup> at the 0,95 confidence interval. This outcome rejects the null-hypothesis that the incremental explanatory power of book value has remained unchanged after 2005.

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This indicates that more information value is generated based on the income statement of financial reports prepared after the implementation of the IFRS accounting framework in 2005.

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#### 6.4.3 Incremental value relevance of earnings Dutch GAAP versus IFRS

The Dutch GAAP and IFRS incremental explanatory power of earnings are compared to determine whether the observed difference between the incremental value relevance of earnings is significant. Based on output 6.3 and output 6.6 the variances can be derived. Refer to table 6.1 for the Z-statistic and the corresponding p-value.

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<sup>26</sup> The p-value is derived manually. Therefore an inverted accepting and rejecting logic applies compared to the statistical software used.



The corresponding p-value is 0,0596 which indicates that the observed negative (-0,026) difference between the incremental value relevance of earnings of the IFRS sample and the Dutch GAAP sample is significant<sup>27</sup> at the 0,95 confidence interval. This outcome rejects the null-hypothesis that the incremental explanatory power of earnings has remained unchanged after 2005.

This indicates that less information value is generated based on balance sheets of financial reports prepared after the implementation of the IFRS accounting framework in 2005.

## 6.5 Conclusion

This chapter has examined whether the value relevance of financial statements have stayed the same after 2005. The results of this provide weak evidence of increasing aggregate value relevance, increasing incremental value relevance of earnings and decreasing incremental value relevance of book values. It is possible that this is attributable to the introduction of IFRS. However, increasing incremental value relevance of earnings and decreasing incremental value relevance of book value do not seem to correspond with the expectation that IFRS would provoke a higher focus on the composition of the balance sheet and hence increase the information value of that balance sheet. Of course, other factors, not recognised in this research could influence this development.

The independent variable “earnings sign” doesn’t seem to influence the relationship between earnings, book values and stock prices since it proved insignificant in the regression testing. Therefore it will not be part of the regression equation in section 7.

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<sup>27</sup> The p-value is derived manually. Therefore an inverted accepting and rejecting logic applies compared to the statistical software used.

**7 Value relevance effects of the IFRS goodwill treatment**

This section will focus on identifying the value relevance developments of financial statements of ENS that have goodwill recognized onto their balance sheet. While section 6 provided an indication of improved value relevance after the implementation of IFRS, this section will determine whether ENS with goodwill recognized experience a positive influence on the value relevance of their financial statements attributable to IFRS.

Since section 6.1 already determined that the independent variable price per share is normally distributed, section 7.1 will describe the value relevance of the financial statement of ENS with an amount of goodwill recognized onto their balance sheet before and after the introduction of IFRS and section 7.2 will provide evidence whether the identified value relevance developments are contributable to the introduction of IFRS.

**7.1 Value relevance of the balance sheet before and after 2005**

Based on the balance sheet model of 5.2.3 this section aims at identifying the individual value relevance attributions of the different elements in the value relevance balance sheet model equation before and after the introduction of IFRS. This is achieved by comparing the explanatory coefficients of the different independent variables based on a sample of Dutch GAAP observations in respect to a sample of IFRS observations. To identify the aggregate value relevance development for ENS with a significant amount of goodwill recognised, the explanatory power of the regressions before and after the introduction of IFRS is compared. As before the Cramer Z-statistic will be used to determine whether the identified difference among the  $\overline{R^2}$ 's are significant. The calculation is based on output 7.1 and 7.2.

	<i>R2, before</i>	<i>S, before</i>	<i>R2, after</i>	<i>S, after</i>	<i>Cramer Z</i>	<i>p-value</i>	<i>Significant difference at 95%</i>
T	0,582	8,4045	0,247	11,9402	0,18	0,0714	v

**Table 7.1 Z-statistics and p-values**

Table 7.2 provides the outcomes of the Z statistics calculations. The decrease in aggregate value relevance proves to be significant.

When we look at output 7.1 and 7.2 we see that for the Dutch GAAP sample that all independent variables have a significant explanatory coefficient, which mean that they all contribute to the explanatory power of the regression equation. This is not the case for the IFRS sample, where the variables GDWL and LIAB do not significantly influence the dependent variable stock price. From this we can conclude that after 2005 the accounting for goodwill and liabilities have not been contributing to the value

relevance of the financial statement for Dutch ENS. Even more, the variables abgwp and ppent show a decreased explanatory power. These findings form a strong contrast with the expectations formed in the earlier sections. Table 7.2 (based on output 7.1 and 7.2) provides an overview of the different explanatory coefficients of the different variables for each period and their significance.

Dutch GAAP			IFRS	
	<i>coefficient</i>	<i>significance at 95%</i>	<i>coefficient</i>	<i>significance at 95%</i>
gdwl	0,644	0,001	0,146	0,499
abgwp	0,736	0,001	0,304	0,003
liab	-0,79	0,001	-0,044	0,687
ppent	0,762	0,001	0,112	0,077

5

**Table 7.2 Explanatory power and their significance**

**Output 7.1 Dutch GAAP**

**Correlations**

		mv	gdwl	abgwp	liab	Ppent
Pearson Correlation	Mv	1,000	-,009	,541	,382	,582
	gdwl	-,009	1,000	,490	,648	,176
	abgwp	,541	,490	1,000	,923	,708
	Liab	,382	,648	,923	1,000	,755
	ppent	,582	,176	,708	,755	1,000
Sig. (1-tailed)	Mv		,446	,000	,000	,000
	gdwl	,446		,000	,000	,004
	abgwp	,000	,000		,000	,000
	Liab	,000	,000	,000		,000
	ppent	,000	,004	,000	,000	

**Model Summary**

	R	R Square	Adjusted R Square	Std. Error of the Estimate
	Dutch GAAP			
	,768	,590	,582	8,404529636

10

**ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Regression	22650,212	4	5662,553	80,165	,000
Residual	15751,854	223	70,636		
Total	38402,066	227			

**Coefficients**

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	5,182	,741		6,990	,000
gdwl	,644	,186	,279	3,470	,001
abgwp	,736	,065	1,416	11,395	,000
liab	-,790	,085	-1,746	-9,246	,000
ppent	,762	,078	,849	9,764	,000

**Output 7.2 IFRS**

**Correlations**

		mv	gdwl	abgwp	liab	ppent
Pearson Correlation	Mv	1,000	,187	,499	,466	,362
	gdwl	,187	1,000	,357	,483	,036
	abgwp	,499	,357	1,000	,929	,576
	Liab	,466	,483	,929	1,000	,567
	ppent	,362	,036	,576	,567	1,000
Sig. (1-tailed)	Mv		,002	,000	,000	,000
	gdwl	,002		,000	,000	,289
	abgwp	,000	,000		,000	,000
	Liab	,000	,000	,000		,000
	ppent	,000	,289	,000	,000	
N	Mv	246	246	246	246	246
	gdwl	246	246	246	246	246
	abgwp	246	246	246	246	246
	Liab	246	246	246	246	246
	ppent	246	246	246	246	246

**Model Summary**

	R	R Square	Adjusted R Square	Std. Error of the Estimate
	IFRS			
	,509	,259	,247	1,194022794E1

a. Predictors: (Constant), ppent, gdwl, abgwp, liab

5

**ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Regression	12022,171	4	3005,543	21,081	,000
Residual	34359,139	241	142,569		
Total	46381,310	245			

**Coefficients**

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	13,981	1,075		13,011	,000
gdwl	,146	,216	,047	,677	,499
abgwp	,304	,100	,474	3,025	,003
liab	-,044	,110	-,069	-,403	,687
ppent	,112	,063	,127	1,776	,077

Whether this shift in the value relevance of the independent variables is attributable to the shift in accounting regime stays unanswered. Based on the Generalized Dummy Variable Approach (Gujarati, 1970) it is possible to address whether the developments in explanatory power of the individual variables is significantly attributable to the different treatment (in this case the IFRS treatment of accounting numbers in respect to Dutch GAAP).

Based on output 7.3 we can conclude that the changes in the value relevance of the variables PPENT and LIAB are significant attributable to the change in the accounting regime at the start of 2005. The change in the explanatory power of ABGWP is not attributable to the change in the accounting regime, the differences between its two explanatory coefficients is coincidental or exists based on the influence of an external factor. For GDWL the situation is a bit more complicated. Based on the model and a 95% confidence interval we can't make any statements about the relation between its change in value relevance and the accounting treatment IFRS. However, weak evidence (based on a 90% confidence interval) exists that its change is not attributable to the IFRS treatment. This could implicate that the drop in value relevance is coincidental or is caused by an external factor. The strong results (difference) from the comparison between the explanatory powers under the Dutch GAAP regime and the IFRS regime suggest that the observed change is not coincidental but can be linked to an external factor unknown to this research model. Since write down costs are not included in the model directly, it could be possible that a measurement of value relevance of earnings will generate stronger results.

A possibility is that the depreciation of goodwill due to impairment is a theoretically sound way of making corrections to the reported stock of value. In practice, it turns the amortisation costs in exceptional items in contrast to the continuous depreciation of goodwill under Dutch GAAP, making the costs harder to predict and therefore of no use for valuation purposes. This argument is supported by the existing literature, for example: Elliot and Hanna, (1996) and Hirschey and Richardson, (2002). This would also explain the lost link between the value relevance effects and the IFRS accounting regime. However, this is not supported by the results (output 7.3) of the General Dummy Variable Approach, which states that the decline in value relevance is not caused by the IFRS treatment.

All the individual explanatory powers of the book values decline, or are no longer related to the share price for ENS in the Netherlands after the implementation of IFRS. This could indicate that after 2005 the balance sheet does not provide the basis for making inferences about the value developments of an ENS. This is in line with the empirical results found earlier this study regarding the decrease of the incremental value relevance of book value in contrary to the earnings statement.

**Output 7.3 Generalized Dummy Variable Approach (Gujarati, 1970)**

**Model Summary**

	R	R Square	Adjusted R Square	Std. Error of the Estimate
	,635	,403	,393	1,087424995E1

**ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Regression	37088,942	8	4636,118	39,206	,000
Residual	54985,930	465	118,249		
Total	92074,872	473			

5

**Coefficients**

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	9,494	,685		13,859	,000
gdwl	,396	,237	,143	1,671	,095
abgwp	,624	,082	1,038	7,635	,000
liab	-,683	,109	-1,235	-6,247	,000
ppent	,636	,099	,689	6,417	,000
dum_abgwp	-,216	,119	-,281	-1,810	,071
dum_gdwl	,020	,300	,005	,067	,947
dum_ppent	-,491	,113	-,427	-4,327	,000
dum_liab	,592	,147	,763	4,022	,000

10



## 7.2 Conclusion

After 2005 the aggregate value relevance has worsened for Dutch ENS with a significant amount of goodwill recognised on the balance sheet. The balance sheet model identified an absence of explanatory power for goodwill recognised on the balance sheet, after the introduction of IFRS. Also, all other items on the balance sheet showed a declining or absence of value relevance. The Generalized Dummy Variable Approach didn't provide the strong basis to identify the cause of this drop in value relevance after 2005. However, the exceptional nature of the depreciation could make the costs harder to predict and therefore of no use for valuation purposes. This argument is supported by the existing literature, for example: Elliot and Hanna, (1996) and Hirschey and Richardson, (2002).

- 5
- 10 Based on our evidence, after 2005 the balance sheet of the ENS with a significant amount of goodwill recognised does not provide the basis for making inferences about value relevance development. This is in line with the identified decline in incremental value relevance of the balance sheet, but totally contradicts the goals of the IASB to: i) add more value relevance to the balance sheet and ii) to make financial reporting more transparent.
- 15 Section 8 will provide overall conclusions, interpretations and recommendations for further research.

## 8 Conclusion

This section will summarize and analyse the conclusions of my research (section 8.1) and provide recommendations for future research (section 8.2).

5

### 8.1 Conclusion

I investigated the development of value relevance before and after 2005. With the results of this research I address the difference in value relevance between accounting numbers composed under Dutch GAAP in respect to accounting numbers composed under IFRS. This has been done by performing a so called “relative association study” based on the Ohlson and balance sheet model.

10

I report two main findings. First, the aggregate value relevance of financial statements of Dutch ENS has increased after 2005. This is in line with my expectations based on prior literature and strengthens the claim that IFRS makes financial statements more value relevant. I have also found that the incremental value relevance of the balance sheet has declined in contrary to the incremental value relevance of earnings. This is not in line with the claim that the IFRS puts more emphasis on the accurate composition of the balance sheet.

15

Secondly, to better understand and specify the development of value relevance after IFRS, I investigated the value relevance developments before and after 2005 for Dutch ENS with an amount of goodwill recognised on the balance sheet. Results indicate that the value relevance of the balance sheet of these ENS has declined after 2005.

20

Goodwill has become insignificant as an indicator for share value after 2005. There are no strong indications that this is caused by the implementation of IFRS. This could be due to limitations of the utilised balance sheet model, since it only captures the value relevance for the stocks of value on the balance sheet. However, my research of financial statements prepared in accordance to Dutch GAAP showed that they did provide significant information to investors. Next to this, the value relevance of PP&E and liabilities dropped after 2005. This development can be traced back to the treatment of IFRS.

25

**With this in mind I conclude that IFRS has a negative impact on the value relevance of ENS with an amount of goodwill recognised.**

The depreciation of goodwill due to impairment is a theoretically sound way of accounting. However in practice, it makes the depreciation costs harder to predict. Therefore it is possible that it is of no use for valuation purposes. This argument is supported by the existing literature, for example: Elliot and Hanna, (1996) and Hirschey and Richardson, (2002). The subjective basis of the impairment calculation and its incomprehensible coming about strengthen this argumentation. The contrast with

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the more rigid and clear methods of Dutch GAAP could make the reported amount of goodwill under IFRS less value relevant. Additional disclosure on the impairment calculations might be required to address this shortfall.

## 5 8.2 Recommendations

Based on my conclusions I want to recommend further investigation of the perception of IFRS goodwill accounting numbers by the investors in the ENS market. Their critique might shed more light on the identified drop in value relevance of goodwill balance sheets after 2005. It could provide influences that contribute to this development.

- 10 More quantitative research should be conducted to identify the exact effects of the more stringent, balance focused and future orientated accounting standard IFRS. Results from my research could provide a starting point in the effort to achieve stronger results. Future research in this area should focus on obtaining stronger evidence of value relevance developments due to IFRS and identifying more exogenous factors that influence this.
- 15 Finally, future research could amplify my results on the variables PP&E and liabilities to gain an insight in the reason why they experience a drop in value relevance and how this relates to IFRS.

## References

- Ammelrooij, P., 2006, Conservatism and value relevance of accounting data in France, Germany and the United Kingdom, *Master Thesis Erasmus University Rotterdam*, Rotterdam
- Backhuijs, J.B., 2008, De bedoeling van financiële verslaggeving, *Controllers Magazine* April 2008, pp. 34-37
- Ball, R and Brown, P. 1968, An empirical evaluation of accounting income numbers, *Journal of Accounting Research* 6, pp. 159-178
- Barth, M.E, Beaver, W.H. and Landsman, W.R, 2001, The relevance of the value relevance literature for financial accounting standard setting: another view, *Journal of Accounting and Economics* 31, pp. 77-104
- Barth, M.E., Landsman and W.R., Lang, M. H., 2008, International Accounting Standards and accounting quality, *Journal of Accounting Research* 3, pp. 467-498
- Bartov, E., Goldberg, S.R. and Kim, M., 2002, Comparative value relevance among German, U.S. and International Accounting Standards: A German stock market perspective, *Papers SSRN*
- Brimble, M. & Hodgson, A., 2007, On the intertemporal value relevance of conventional financial accounting in Australia, *Accounting and Finance* 47, pp. 599-622
- Collins, D.W., Maydew, E.L. and Weiss, I.S., 1997, Changes in the value relevance of earnings and book values over the past forty years, *Journal of Accounting and Economics* 24, pp. 39-67
- Cramer, J.S., 1987, Mean and variance of R2 in small and moderate samples, *Journal of Econometrics* 35, pp. 253-266
- Deegan, C. and Unerman, J., 2006, Financial accounting theory, *McGraw-Hill Education*, Berkshire
- Elliot, J.A. and Hanna, J.T., 1996, Repeated accounting write-offs and the information content of earnings, *Journal of Accounting Research* 34, pp. 135-155
- Ewert, R and Wagenhofer, A., 2005, Economic effects of tightening accounting standards to restrict earnings management, *The Accounting Review* 80, pp. 1101-1124
- Eynde, K, 2007, Goodwill en fusies in het kader van IFRS 3, *Eindverhandeling Universiteit Hasselt*
- Francis, J and Schipper, K, 1999, Have financial statements lost their value relevance, *Journal of Accounting Research* 37, pp. 319-352
- Foster, G.J., 1981, Intra-industry information transfers associated with earnings releases, *Journal of Accounting* 3, pp. 201-232

- Gowthorpe, C. and Amat, O., Creative accounting: some ethical issues of macro- and micro-manipulation, *Journal of Business and Ethics* 57, pp. 55-64
- Gujarati, D., 1970, Use of dummy variables in testing for equality between sets of coefficients in linear regressions: a generalization, *The American Statistician* 24, pp. 18-22
- 5 Harris, T.S., Lang, M. and Moller, H.P, 1994, The value relevance of German accounting measures: an empirical analysis, *Journal of Accounting Research* 32, pp. 187-209
- Hirschev, M. and Richardson, V.J., 2002, Information content of goodwill numbers, *Journal of Accounting and Public Policy* 21, pp.173-191
- Hoggett, J.R. and Edwards, L., 2000, *Financial accounting in Australia*, Wiley
- 10 Holthausen, R.W. and Watts, R.L., 2001, The relevance of the value relevance literature for financial accounting standard setting, *Journal of Accounting and Economics* 31, pp. 3-75
- Hoogendoorn, M.N, 2002, Goodwill afschrijven of niet afschrijven?, *MAB* Jan./Feb., pp. 18-23.
- Hoogendoorn, M.N, 2006, International accounting regulation and IFRS implementation in Europe and beyond – Experiences with first time adoption in the Europe, *Accounting in Europe* 3, pp.  
15 23-26
- Horton, J. and Macve, R., 2000, Fair value for financial instruments: how erasing theory is leading to unworkable global accounting standards for performance reporting, *Australian Accounting Review* 10, pp. 26-39
- International Accounting Standards Board, 2007, *International Financial Reporting Standards bounded*  
20 *volume 2007*, IASB
- Jennings, R., Robinson, J., Thompson II, R.B. and Duvall, L., 1996, The relation between accounting goodwill numbers and equity values, *Journal of Business Finance & Accounting* 23, pp.513-533
- Klaassen, J., Hoogendoorn M.N and Bak G.G.M., 2000, *Externe verslaggeving*, Wolters-Noordhoff, Groningen
- 25 Kothari, S.P, 2001, Capital market research in accounting, *Journal of Accounting and Economics* 31, pp. 105-231
- Lev, B. and Zarowin, P., 1999, The boundaries of financial reporting and how to extent them, *Journal of Accounting Research*,
- Nichols, D.C. and Wahlen, J.M., 2004, How do earning numbers relate to stock returns? A review of  
30 classical accounting research with updated evidence, *Accounting Horizons* 18, pp. 263-286.
- Ohlson, J.A., 1995, Earnings, book values and dividends in equity valuations, *Contemporary Accounting Research* 11, pp. 661-687

Raad voor de Jaarverslaggeving, 2008, Richtlijnen voor het jaarverslag, *Kluwer*, Deventer.

Schipper, K., 2003, Principles based accounting standards, *Accounting Horizons* 17, pp. 61-72

Tabachnick, B.G. and Fidell, L.S., 2001, Using multivariate statistics, *Pearson*, Northridge

5 Vincent, L., 1997, Equity valuation implications of purchase versus pooling accounting, *Journal of financial statement analysis* 28, pp. 15- 25

Wines, G., Dagwell, R. and Windsor, C., 2007, Implications of the IFRS goodwill accounting treatment, *Managerial Auditing Journal* 22, pp. 862-880

Zeff, S. A., 2002, "Political" lobbying on proposed standards: a challenge to the IASB, *Accounting Horizons* 16, pp. 43-54

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