

Accountability:

Papers from master theses 2008

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Contents

Accounting conservatism in Europe	1
Remco Brouwer	
Cooking the books around initial public offerings	26
Jasper Seger	
The effect of leverage increases on real earnings management	47
Irina Zagers-Mamedova	
Real economic activity and earnings management from a cross-country perspective	65
Romy Tylsch	
Voluntary disclosure: Evidence from UK	83
Nikolaos S. Zourarakis	
Disclosure of information concerning remedies against directors' liability	109
Andrew van der Schalk	
Materiality of misstatements from the perspective of the users of the financial statements - Narrowing the expectation gap between users and auditors	136
Doris de Rooij	
The endogenous character of executive compensation: Does corporate strategy affect the choice to adopt residual income-based incentives?	160
Frank Sonneveld	
Management control in joint ventures: an analysis based on transaction cost economics and game theory	180
Joke A. Talman	
Fast growth in control	203
Zulay Rico	
The Implications of Integrating Governance, Risk and Compliance in Business Intelligence Systems on Corporate Performance Management	222
Jos Madlener	

Preface

We are proud to be able to present this book, the first volume of what we intend to become an annual book series. This year's edition contains eleven papers. Each paper is based on a thesis in the field of Accounting, Auditing and Control, on which these students received a Master's degree in Economics & Business from the Erasmus School of Economics in 2008.

Each year at the section Accounting, Auditing and Control, approximately 150 master students experience that writing a master thesis is hard work. It is even harder to notice that despite all efforts that students put into the thesis, just a few people will read the final result. As thesis supervisors we have noticed over the years that many theses deserve a wider audience, and may help students from our master streams in writing their theses.

That is why we have planned this new annual book series. In this series, we intend to publish a collection of master theses each year that meet the following four criteria:

1. The thesis was defended in the specific calendar year;
2. The thesis was supervised by one of the staff members from the Accounting, Auditing and Control group;
3. The topic of the thesis is relevant for master students in the streams of Accounting & Finance or Accounting, Auditing, and Control;
4. The thesis is of high quality, based on the usual criteria that apply for master theses at the Erasmus School of Economics.

By publishing papers from these theses, we aim to achieve the two purposes described above: first, to provide a wider audience for theses that deserve that, and second, to offer some help to current and future master students in the streams of Accounting & Finance or Accounting, Auditing, and Control in writing their theses by presenting "good practices".

The title of the book, "Accountability", needs some explanation, which we are happy to provide here. Accountability in essence means that an individual or group of individuals (e.g., team, department, organisation) has "the duty to provide an account (by no means necessarily a financial account) or reckoning of those actions for which one is held responsible" (Gray et al, 1996, p. 38). Thus, accountability involves providing reasons and justifying actions for which one is responsible to another individual or group of individuals. As such, accountability also involves "the potential to be blamed for not doing the task properly" (Sillince & Mueller, 2007, p. 158). These definitions of accountability can easily be applied to different principal-agent settings that are important in financial or management accounting, such as shareholders-companies, stakeholders-companies, society-organisations, board of directors-CEO, manager-employee, etc. In the context of financial accounting and reporting, accountability is more than just providing (financial) accounts, but also involves transparency about future prospects of the organisation. These prospects involve financial prospects, but also environmental, economic and social

prospects. Furthermore, accountability is not just the provision of accounts in itself, but also refers to the value of providing this information to users (principals) of this information. Therefore, it is not surprising that accountability has been an important concept in different fields of financial accounting research in the last few decades: from corporate social responsibility reporting and corporate governance issues to the information value of voluntary/ mandatory disclosures and earnings management. Topics which are also reflected in the financial accounting papers included in this volume.

Although the relevance of accountability seems rather clear for financial accounting, the relevance for management accounting and control may not be that obvious. In a recent review of the literature on control and accountability, Merchant & Otley (2007) explicitly deal with accountability-oriented control systems. These are control systems that “are intended first and foremost to hold individuals (or sometimes groups of individuals) *accountable* either for their actions or for the results they or their organisations produce. Being held accountable means that the individuals are rewarded when good things happen and punished when bad things happen” (Merchant & Otley, 2007, p. 791). Examples of control systems that are accountability-oriented are performance measurement and budgeting systems that are used for performance measurement, evaluation and rewarding of managers. These are exactly the kind of control systems that we focus on in the master seminars Advanced Management Accounting and Control. Accountability from this perspective deals with issues as the choice of performance measures, the use of targets, and the design of incentive systems. Although these topics are not directly reflected in the management accounting papers in this volume, the more general description of accountability above makes clear that control and accountability in general are intertwined. In designing a good control system, whether within one organisation or for inter-firm relationships, management control involves the assignment of responsibilities to individuals or groups of individuals. And with the assignment of responsibilities organisations also need to consider how these individuals or groups of individuals will account for their actions, or lack thereof, based on these responsibilities.

By publishing this book, we realise that -to some degree- we also give account of the quality of the curriculum of the two master streams in general that involve accounting, and the quality of thesis supervision in particular. The master seminar and master thesis are the final courses of these streams. If anywhere, the quality of the streams should become visible in the quality of the seminars and master theses. But to apply “accountability” in this sense to the publication of this volume, it is important to take into account some limitations to this “accountability”. First, our aim in publishing the book was not “accountability”, but, as explained above, to provide a wider audience for the theses of “our” graduates, and to offer examples of good practices to our current and future master students. Second, to serve the two purposes, we selected theses that reflect the wide variety of topics with which we and our master students deal with at our department. For this reason, we selected theses from as many different thesis supervisors as possible. Third, we did not collect all theses that met the four criteria explained above, nor did we make a selection of the “best” theses. Rather, we asked each thesis supervisor to contribute one or two theses that, in his opinion, met the criteria. Fourth, the papers

published in this book have not been reviewed or edited by us in any way. As such, the book is meant as a collection of papers of former students for current and future students.

But notwithstanding these limitations, we are confident that this book will achieve its purposes. We want to thank the contributors to this book, as they made this book possible in the first place. We also want to thank the Erasmus School of Accounting & Assurance (ESAA) for providing the (financial) resources that were needed to get this book published.

February 2009

Chris Knoops
Jan Noeverman

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Accounting conservatism in Europe

Insights in the degree of balance sheet conservatism and earnings conservatism in financial statements of European companies during the period 1991-2005

Remco Brouwer¹

Executive summary

This study investigates how the degree of accounting conservatism in the financial statements of European companies evolves over time during period 1996-2005. This study concludes that the financial statement information of European companies shows a certain degree of balance sheet conservatism and earnings conservatism during period 1991-2005; this degree of balance sheet conservatism and earnings conservatism evolves over time. The research findings do not indicate that the introduction of IFRS has reduced the differences in the degree of balance sheet conservatism and earnings conservatism between European companies reporting according to IFRS. Finally, the research findings indicate that IAS/IFRS based accounting standards have their own characteristics; this cause that the degree of accounting conservatism in financial statements differ importantly per accounting regulation.

1. Introduction

This study aims to deliver a contribution to the discussion whether IFRS - as a uniform set of accounting standards - harmonizes the degree of accounting conservatism in the financial statement information of European companies. The study has the following research question:

‘How does the degree of accounting conservatism in financial statements of European companies evolve over time during period 1991-2005 and what is the impact of the introduction of IAS/IFRS based accounting standards on the differences in the degree of accounting conservatism between European companies?’

This article presents the result of the study. First, the prior literature is elaborated (section 2). Next, the hypotheses (section 3) and the study’s methodology (section 4) are presented. Third, the results (section 5) and the conclusions are discussed (section 6). Finally, the limitations of the study and three suggestions for further research are elaborated (section 7).

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2. Prior literature

For making investment decisions investors use various types of information. Investors' decision making is generally based on information about a firm's competitive environment and future outlook, and on a firm's financial statement information.

Analysis of the usefulness of the financial statement information is a broad subject in market-based accounting research. The usefulness of the financial statement information can be analyzed through studying the value relevance of financial statement information. Value relevance of financial statement information is in literature defined as the type of research that examines the empirical relationship between particular accounting numbers and stock market values (or changes in values) (Deegan and Unerman 2006, 377; Scott 2006, 170).

The value relevance of financial statement information is affected by conservatism in accounting, since this has a negative effect on the role of financial statement proper in assisting investors in predicting the firm's fundamental value.

Conservatism is an inherent property of accounting (Huijgen and Lubberink 2003). The conservatism principle is defined as the differential verifiability required for recognition of profits versus losses (Basu 1997). In financial reporting bad news tends to be incorporated faster in the financial statements than good news; this asymmetry is called the differential timeliness of earnings. This means that companies recognize bad news much faster in their earnings than good news (Basu 1997). The extreme form of the differential timeliness of earnings is the traditional adage: 'anticipate no profit, but anticipate all losses' (Watts 2003a).

Many empirical studies show evidence that the degree of accounting conservatism in financial statements varies over time (Basu 1997; Givoly and Hayn 2000) and differ per country (Ball et al. 2000; Giner and Rees 2001) and company type (Lubberink and Huijgen 2001). Despite criticism, empirical evidence suggests that conservatism has survived in accounting for many centuries, and appears to have increased in the last 30 years (Watts 2003a).

Watts (2003a) provides four explanations for accounting conservatism:

1. Contracting. According to Watts (2003a) contracting is one of the main explanations for conservatism. Conservatism in accounting is able to reduce the opportunistic behavior of the firm's management, which is a significant risk for the principals of the firm. Problems associated with opportunistic behavior by the firm's management are primarily due to asymmetric information, asymmetric payoffs, limited horizons and limited liability. Conservative accounting can be used as a means of addressing these moral hazard problems (Watts, 2003a).
2. Shareholder litigation. Litigation also produces asymmetric payoffs in that overstating the firm's net assets is more likely to generate litigation costs for the firm than understating net assets. By understating net assets conservatism reduces the firm's expected litigation costs (Watts, 2003a).
3. Taxations. Since taxation and reporting are linked, it can also generate conservatism in financial reporting. Asymmetric recognition of gains and losses enables managers of

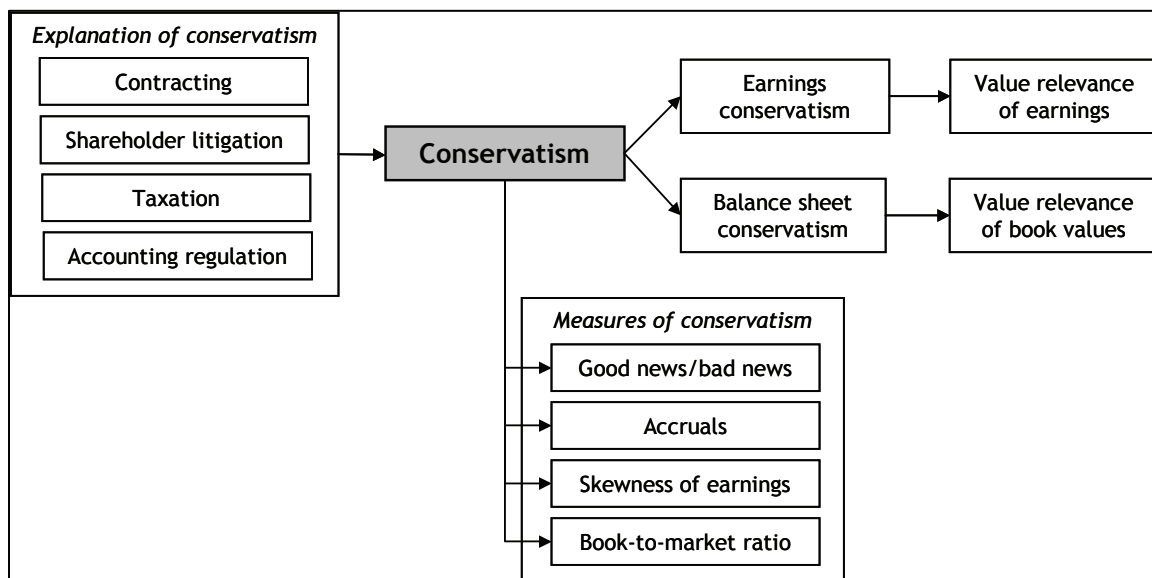
profitable firms to reduce the present value of taxes and increase the value of the firm. Delaying the recognition of revenues and accelerating the recognition of expense defers tax payments (Watts, 2003a).

4. Accounting regulation. Financial reporting standard-setters and regulators have their own incentives to favor conservative accounting and reporting. Just as there is an asymmetry in litigation costs, there is an asymmetry in regulators' costs. Standard-setters and regulators are likely to face more criticism if firms overstate net assets than if they understate net assets. In this way, conservatism in accounting reduces the political costs imposed on standard-setters and regulators (Watts, 2003a).

In literature two types of accounting conservatism are distinguished: balance sheet conservatism and earnings conservatism (García Lara and Mora 2004). Balance sheet conservatism is defined as a persistent understatement of book value of shareholders' equity (Feltham and Ohlson 1995). Balance sheet conservatism can be measured by the market-to-book ratio (Givoly and Hayn 2004). Earnings conservatism is defined as a timelier recognition of bad news in earnings relative to good news (Basu 1997). Earnings conservatism in financial statements can be measured by the accumulation of non-operating accruals, the timeliness of earnings with respect to bad and good news, and the skewness of earnings (Givoly and Hayn 2000; García Lara and Mora 2004).

The outline of factors that are related to accounting conservatism is presented in figure 1.

Figure 1: Outline of factors related to conservatism



Please note that in literature the term ‘accounting conservatism’ is not generally adopted; in numerous studies the briefer term ‘conservatism’ is used. In this study the term ‘conservatism’ will also be used more often in favor of the term ‘accounting conservatism’, nevertheless the same phenomenon is mentioned.

3. Hypotheses

This study aims to gain insight into the degree of accounting conservatism in the financial statements of European companies. Empirical evidence of other studies indicates that both balance sheet conservatism and earnings conservatism exists in Europe, and that the degree of accounting conservatism differs per country, per industry, and per company. Literature indicates that several factors affect the degree of accounting conservatism. Based on the results of a conducted literature study this section will present five hypotheses.

Hypothesis 1

The first hypothesis concerns the degree of balance sheet conservatism and earnings conservatism in financial statements. According to Watts (2003a) accounting conservatism is explained by contracting, shareholder litigation, taxation, and accounting regulation. Taking the entire set of factors that drive accounting conservatism into account, one can conclude that it is likely that the financial statements of European companies will have a particular degree of balance sheet conservatism. Furthermore, since empirical evidence of Givoly and Hayn (2000) indicates that the degree of balance sheet conservatism in the financial statements of a large sample of international companies has increased importantly during period 1951-1998, it is reasonable to expect that this also the case in an European setting. Therefore the following hypothesis is stated:

Hypothesis 1a: The degree of balance sheet conservatism in the financial statements of European companies increases during period 1991-2005.

Hypothesis 1b: The degree of earnings conservatism in the financial statements of European companies increases during period 1991-2005.

Hypothesis 2

The second hypothesis concerns the impact of country differences on the degree of balance sheet conservatism and earnings conservatism in financial statements of European companies.

Literature indicates that the degree of accounting conservatism in the financial statements of companies differs per country. Empirical evidence of Bushman and Piotroski (2006) indicates that bad news is faster reflected in the financial statement of firms located in countries with high quality judicial systems than firms located in countries with low quality judicial systems. Since the characteristics of the judicial systems differ for each Europe (Bushman and Piotroski 2006), one can expect that the degree of balance sheet conservatism and earnings conservatism the in financial statements of European companies is likely to differ per country in Europe. Therefore the following hypotheses are stated:

Hypothesis 2a: During period 1991-2005 the degree of balance sheet conservatism in the financial statements of European companies differ significantly per country.

Hypothesis 2b: During period 1991-2005 the degree of earnings conservatism in the financial statements of European companies differ significantly per country.

Hypothesis 3

The third hypothesis concerns the impact of industry differences on the degree of balance sheet conservatism and earnings conservatism in financial statements of European companies.

Since the findings of Pae and Easton (2004) indicate that the degree of both balance sheet conservatism and earnings conservatism in financial statements of European companies differ per industry, the following hypotheses are stated.

Hypothesis 3a: During period 1991-2005 the degree of balance sheet conservatism in the financial statements of European companies differ significantly per industry.

Hypothesis 3b: During period 1991-2005 the degree of earnings conservatism in the financial statements of European companies differ significantly per industry.

Hypothesis 4

The fourth hypothesis concerns the impact of company differences on the degree of balance sheet conservatism and earnings conservatism in financial statements of European companies.

Pae and Easton (2004) examined the differences in the degree of accounting conservatism across samples with different market to book ratios. Pae and Easton (2004) find that accounting tends to be less conservative for firms with negative returns than for firms with non-negative returns, but they find no difference in accounting conservatism between firms reporting profits and firms reporting losses (Pae and Easton 2004). Since these findings indicate that the degree of both balance sheet conservatism and earnings conservatism in financial statements of European companies differ for company's profitability, the following hypotheses are stated.

Hypothesis 4a: During period 1991-2005 the degree of balance sheet conservatism in the financial statements of European companies differ significantly for companies with negative returns on share price and companies with non-negative returns on share price.

Hypothesis 4b: During period 1991-2005 the degree of earnings conservatism in the financial statements of European companies differ significantly for companies with negative returns on share price and companies with non-negative returns on share price.

Empirical evidence of Pae and Easton (2004) indicates also that firm size does not have a significant impact on the degree of balance sheet conservatism and earnings conservatism. Therefore the following hypothesis is stated.

Hypothesis 4c: During period 1991-2005 the degree of balance sheet conservatism in the financial statements of European companies does not significantly for companies' firm size.

Hypothesis 4d: During period 1991-2005 the degree of earnings conservatism in the financial statements of European companies does not differ significantly for companies' firm size.

Hypothesis 5

Lastly, the fifth hypothesis concerns the impact of the introduction of IFRS on the degree of balance sheet conservatism and earnings conservatism in financial statements of European companies. Since the introduction of several IAS standards during period 1991 - 2004 and the introduction of IFRS as approved by the European Union in 2005 are expected to harmonize the differences in the degree of accounting conservatism in financial statements of European companies, the following hypotheses are stated.

Hypothesis 5a: In 2005 the degree of balance sheet conservatism in the financial statements of European companies, which report their financial statements according to IFRS, will reduce significantly.

Hypothesis 5b: In 2005 the degree of earnings conservatism in the financial statements of European companies, which report their financial statements according to IFRS, will reduce significantly.

4. Methodology

In this section the research design and the research sample are discussed. The research design is discussed in section 4.1 and the research sample is discussed 4.2.

4.1 Research design

To gain insight in how the degree of accounting conservatism in financial statements of European companies evolves over time during period 1991-2005 the research model of Givoly and Hayn (2000) is used.

This model consists of a regression model and four measures of conservatism. These measures are 'accumulation of non-operating accruals', 'differential timeliness of earnings with respect to bad and good news', and 'skewness of the earnings distribution', and 'market-to-book ratio'. With these four measures it is possible to quantify the level of conservatism.

The measures 'accumulation of non-operating accruals', 'differential timeliness of earnings with respect to bad and good news', 'skewness of the earnings distribution' function as

proxy for measuring the degree of earnings conservatism, while the measure ‘market-to-book ratio’ functions as proxy for balance sheet conservatism. The four measures are elucidated in the next four sections.

4.1.1 Accumulation of accruals

The proxy ‘accumulation of accruals’ measures the relationship between the earnings and cash flow from operations. Whereas earnings are affected by accrual accounting², cash flows from operations is unaffected. Therefore, one may ask whether the losses and deterioration in the reported earnings are a reflection of a real fall in the economic performance or whether accounting issues drive them.

Since accrual accounting affects the timeliness of reporting of earnings and cash flows, it is important to focus on the timeliness between earnings and cash flows. Earnings can be recognized more timely than cash flows. This is the case when contractual performance is recorded before cash has been exchanged due to accruals. Then, some discretion exists in estimating the appropriate amounts. (Basu 1997; Collins et al 1997; Givoly and Hayn 2000; Ball and Shivakumar 2005; García Lara and Mora 2004).

4.1.2 Differential timeliness of earnings with respect to bad and good news

The proxy ‘differential timeliness of earnings with respect to bad and good news’ measures the incremental response to bad news relative to good news. Conservatism leads to asymmetric timeliness of earnings with respect to good news and bad news (Basu 1997; Givoly and Hayn 2000). Since accountants anticipate future losses but not future profits, conservatism results in earnings being more timely and more sensitive concurrently to publicly available bad news than good news (Basu 1997). So, financial reporting is conservative since it defers recognition of good news and accelerates the recognition of bad news (Givoly and Hayn 2000).

The timeliness of earnings with respect to good news and bad news is measured by a cross-sectional regression analysis:

$$EPS_{it}/P_{i,t-1} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 DR_{it} * R_{it} + \varepsilon_{it}$$

Where

- EPS_{it} = earnings per share of firm *i* in fiscal year *t*;
- P_{i,t-1} = price per share at the beginning of the fiscal year;
- R_{it} = return of firm *i* over the twelve months beginning nine months prior to the end of fiscal year *t*;
- DR_{it} = dummy variable set equal to 1 if R_{it} is negative and 0 otherwise.

The beta’s (β) from this regression model can be used to measure the relative sensitivity of earnings to bad news compared with their sensitivity to good news. The ratio is measured by the following formula: (β₀+β₁)/β₀. This ratio is expected to be greater than 1 under conservatism (Givoly and Hayn, 2000).

² The net accruals and cash flows sum up to reported earnings.

4.1.3 Skewness of earnings distribution

The proxy 'skewness of earnings' measures the relative explanatory power of the regression in periods of bad news (negative returns) and good news (positive returns). As mentioned in the previous section, the declining profitability is not corresponding with the trend of cash flows (Collins et al 1997; Givoly and Hayn 2000). This results in negatively skewed earnings, compared to cash flows.

The proxy 'skewness of earnings' is defined as $E(x-\mu)^3/\sigma^3$, where x is the ROA, and μ and σ are estimated by the mean and standard deviation of the ROA distribution; the skewness measure of cash flows is defined as $E(x-\mu)^3/\sigma^3$, where x is the CFO/Assets, and μ and σ are estimated by the mean and standard deviation of the CFO/Assets distribution (Givoly and Hayn 2000).

The skewness of earnings distribution can be used to gain insight in the relative change of earnings compared to the relative change in cash flows.

4.1.4 Market-to-book ratio

The proxy 'market-to-book ratio' measures the average downward bias in the earning-to-price ratio due to conservatism. The ratio expresses the difference between the market value and the book value of a firm's equity. The gap between the market value and the book value of equity is a measure of the degree of reporting conservatism (Givoly and Hayn 2000; Watts 2003a; Watts, 2003b; Roychowdhury and Watts 2004; García Lara and Mora 2004). To the extent that equity valuation by investors is based on the present value of future cash flows, the market-to-book ratio as well as the earnings multiples would tend to be higher when accounting measurement is more conservative (Givoly and Hayn 2000).

The market-to-book ratio is calculated by dividing the market value of the firm (expressed by $P_{i,t-1}$ multiplied by the number of shares outstanding) divided by the book value of the firm (expressed by the value of shareholders' equity).

4.2 Research sample

The sample used for the empirical analysis consists of annual financial statement information of European companies, which are listed on a European stock exchange during period 1991-2005. The period 1991-2005 has been chosen, because the data from the Compustat database (2007) consists of data from 1991 till 2005.

The sample is constructed according to the constant sample technique. The sample consists of commercial and industrial firms with financial statement information about the fiscal year 2004. Financial institutions, like banks, insurance companies, and investment funds, are excluded from the sample, because these firms incorporate - on large scale - unrealized stock earnings as earnings in their profit and loss account. The exclusion of financial institutions from the sample is common for accounting conservatism studies.

Outliers, defined as unusual data values or extreme observations, are excluded from the sample, because they may bias the results of the analyses.

The sample corrected for outliers consists of 3.978 companies and contains in total 28.920 firm years.

The financial statement information in the sample is presented in the local currency. To allow for a cross-sectional aggregation all of the flow variables (like earnings and cash flows) are for each year deflated by the total assets at the beginning of that year.

5. Results

This section will present the empirical results of the conducted analyses. Section 3 has presented the hypotheses of this study. This section will discuss whether these stated hypotheses are valid. The section will close with a summary.

5.1 Overview of development in the degree of accounting conservatism in Europe

This section will discuss in general the development of the degree of accounting conservatism in the financial statements of European companies.

Development in the degree of balance sheet conservatism in European companies

Analysis of the development in the market-to-book ratios suggests that the market-to-book ratio has on average a value of 2.4. Next, the analysis shows that the market-to-book ratio is increasing during period 1996 till 1999, sharply decreasing during period 2000 till 2002, and increasing again in period 2002-2005 to its position of 1999. The developments in the market-to-book ratio are displayed in table 5.1 and figure 5.1. The development in the return on share price is displayed in figure 5.2.

Table 5.1. Mean and standard deviation of the market-to-book ratio, by subperiod and year

	Constant Sample		Total Sample	
	Market-to-book-ratio		Market-to-book-ratio	
	Mean	Standard deviation	Mean	Standard deviation
<u>Subperiod</u>				
1991-1995	2,40	4,03	2,48	5,17
1996-2000	3,19	6,80	3,02	6,96
2001-2005	2,43	5,17	2,38	5,22
<u>Year</u>				
1991	2,11	3,13	2,35	4,88
1992	2,17	2,99	2,01	2,74
1993	2,79	4,35	2,74	5,03
1994	2,36	4,00	2,75	6,74
1995	2,47	4,75	2,41	4,95
1996	2,94	6,41	2,65	6,58
1997	3,17	7,00	3,05	7,49
1998	3,47	7,06	3,37	7,58
1999	3,55	8,09	3,35	7,56
2000	2,84	5,41	2,67	5,57
2001	2,30	4,77	2,31	5,05
2002	1,61	3,30	1,58	3,76
2003	2,40	5,71	2,37	5,60
2004	2,73	5,46	2,73	5,46
2005	3,71	6,66	3,71	6,66

Figure 5.1. Development of the average market-to-book ratio (mean market-to-book: 2.67)

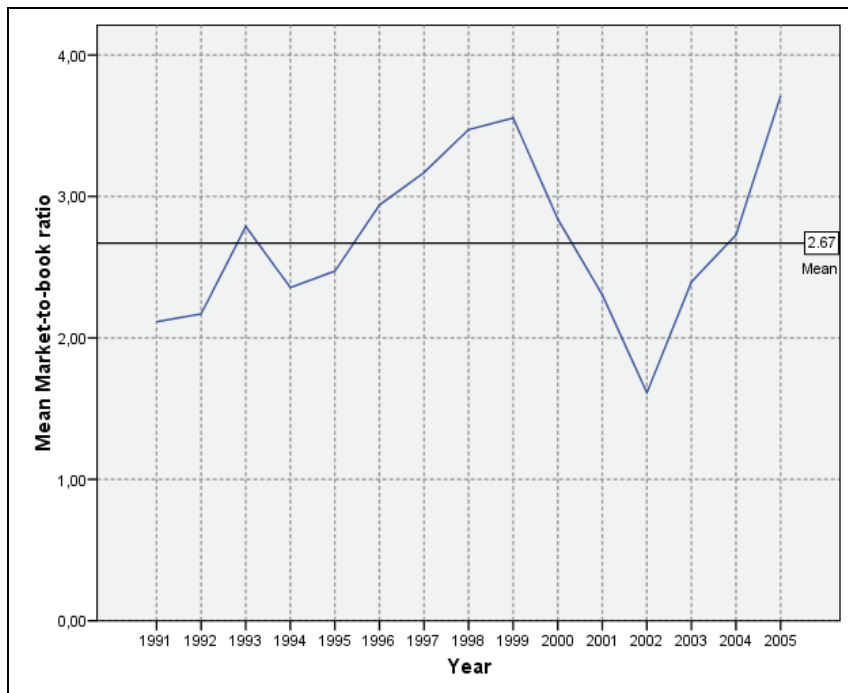
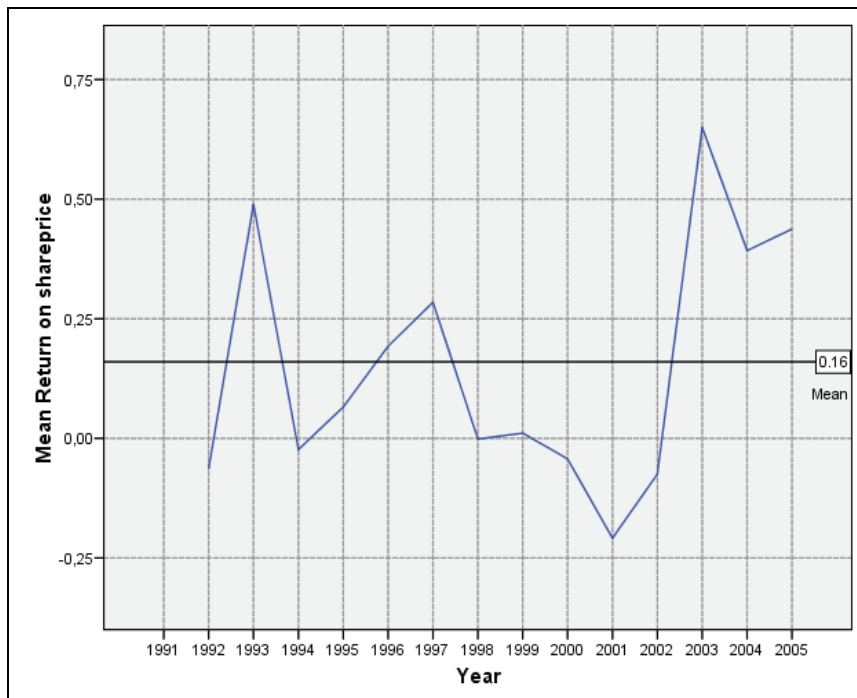


Figure 5.2. Development of the average return on share price (mean return on share price: 0.16)



The empirical results of the conducted tests indicate that all companies show on average balance sheet conservatism during period 1991-2005; all the companies have on average a market-to-book ratio greater than 1. However the findings do not indicate a trend that the balance sheet conservatism increases over time during period 1991-2005. Therefore, the

empirical findings do not support the hypothesis 1a, which state that the degree of balance sheet conservatism in the financial statements of European companies increases during period 1991-2005.

Development in the degree of earnings conservatism in European companies

This section discusses the development in the degree of earnings conservatism in the financial statements of European companies during 1991-2005. The scores on the measures ‘accumulation of accruals’, ‘differential timeliness of earnings with regard to good news and bad news’, and ‘skewness of earnings’ indicate that the financial reporting of European companies show during period 1991-2005 a certain degree of accounting conservatism. Next, the empirical results indicate that during period 1995-2001 the degree of accounting conservatism is on average at the same level. During period 1995-1997 and period 1999-2003 the scores on the three measures are volatile; this indicates that the degree of earnings conservatism changes over time. Despite of these strong mutations, the scores on the three measures at year 1991 are (on average) equal to the scores at year 2005 (see table 5.2, figure 5.3, figure 5.4, and figure 5.5).

Consequently, the empirical findings do not support hypotheses 1b, which state that the degree of earnings conservatism in the financial statements of European companies increases during period 1991-2005.

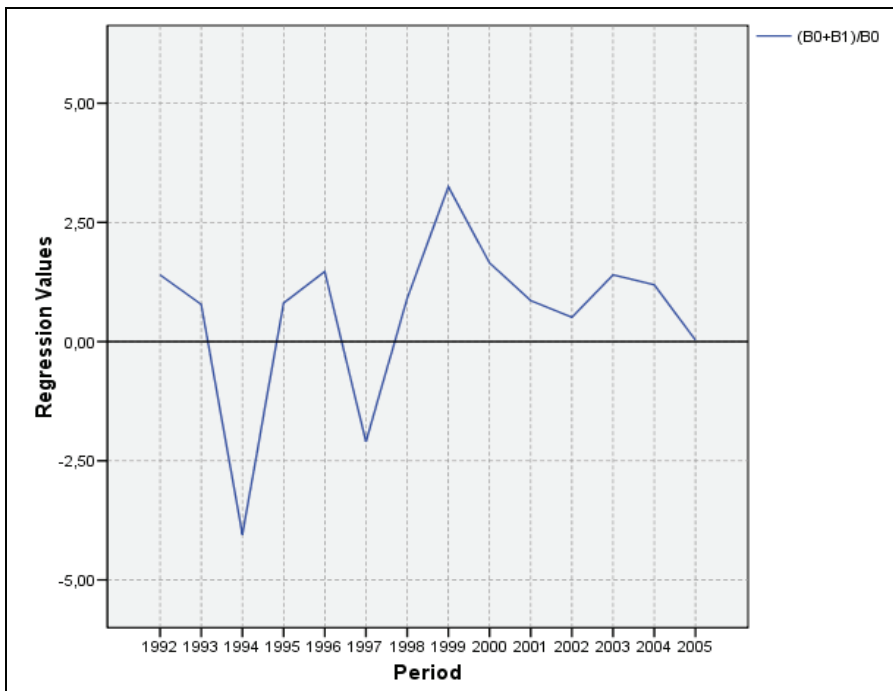
Table 5.2 Accumulation of accruals per year

Year	Cash Flow of Operations-to- Total Assets		Total Accruals-to-Total Assets		Net Income-to-Total Assets	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
1991	0.092	0.067	0.011	0.126	0.038	0.060
1992	0.084	0.073	0.013	0.063	0.030	0.066
1993	0.084	0.079	0.019	0.073	0.031	0.075
1994	0.096	0.067	0.019	0.066	0.043	0.063
1995	0.096	0.077	0.016	0.065	0.042	0.073
1996	0.091	0.142	0.016	0.140	0.040	0.138
1997	0.088	0.187	0.013	0.178	0.035	0.202
1998	0.083	0.142	0.014	0.145	0.032	0.138
1999	0.075	0.147	0.023	0.138	0.023	0.144
2000	0.049	0.225	0.021	0.143	-0.004	0.243
2001	-0.008	0.542	0.014	0.225	-0.073	0.556
2002	-0.030	1.033	0.004	0.901	-0.113	1.094
2003	0.019	0.809	0.025	0.683	-0.034	0.541
2004	0.034	0.917	0.013	0.711	-0.024	0.917
2005	0.079	0.118	0.014	0.073	0.038	0.119
Total	0.045	0.582	0.016	0.467	-0.012	0.562

Figure 5.3. Mean of Cash Flow of Operations, Net Income, and Total Accruals (all variables are divided by total assets)

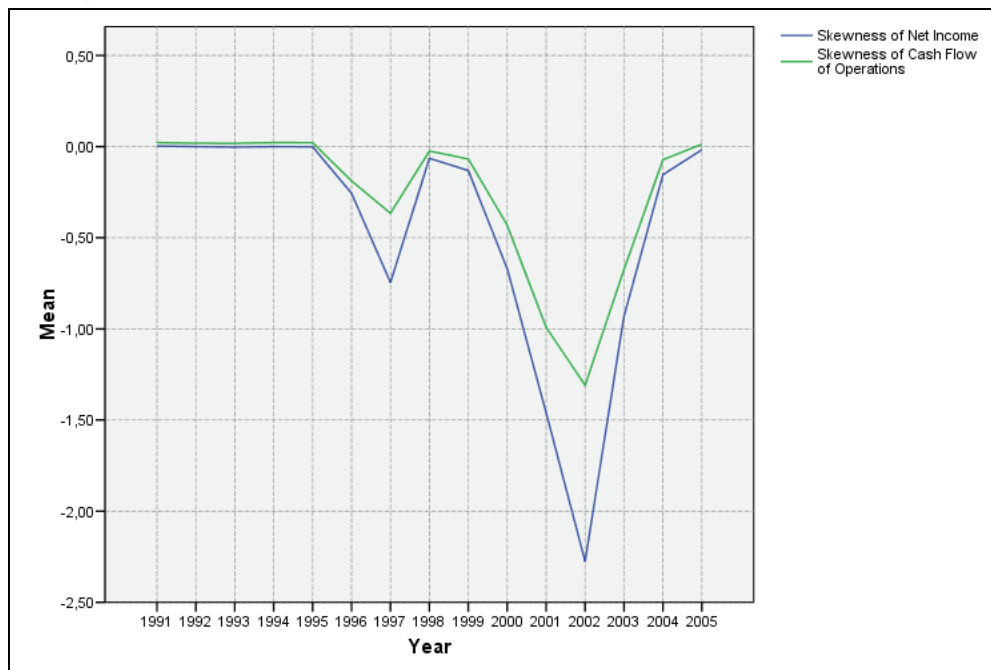


Figure 5.4. Scores on the measure 'differential timeliness of earnings' with regard to good news and bad news



* The $(\beta_0 + \beta_1)/\beta_0$ values from regression analysis $EPS_{it}/P_{i,t-1} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 DR_{it} * R_{it} + \epsilon_{it}$ are used to measure the relative sensitivity of earnings to bad news compared with their sensitivity to good news.

Figure 5.5. Skewness of Net Income and Cash Flow from Operations (variables are ratios)



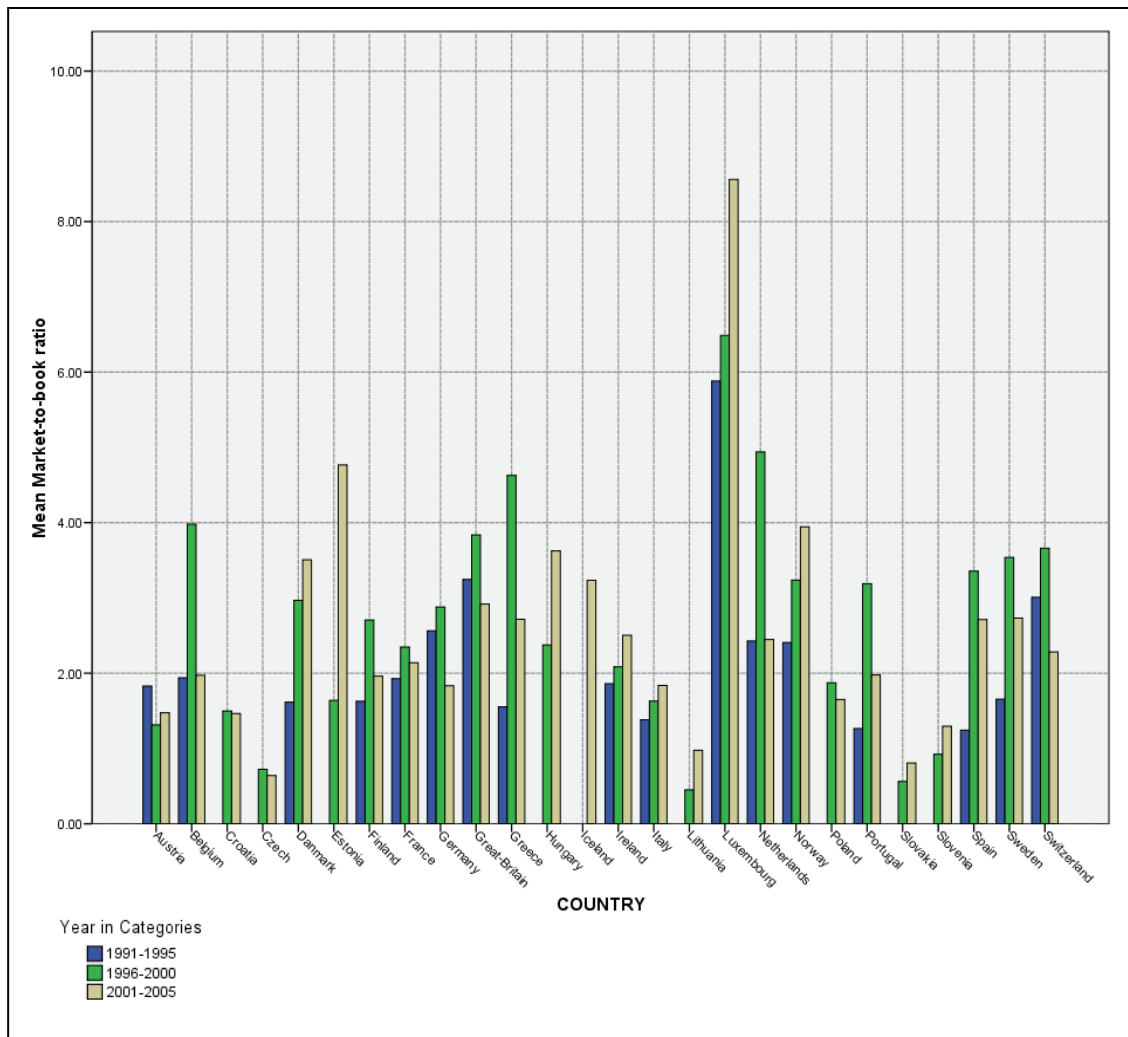
5.2 The impact of country differences on the degree of accounting conservatism

This section will discuss to what extent the development in the degree of accounting conservatism in the financial statements of European companies differs per country.

Impact of country differences on the degree of balance sheet conservatism

The market-to-book ratio scores indicate that the degree of balance sheet conservatism in the financial statements of European companies differs more than 10% from each other. Companies in more developed countries, like West-European countries, have a higher market-to-book ratio than companies in less developed countries, like the East-European countries (see figure 5.6).

Figure 5.6 Average market-to-book ratio per sub period per country



These findings do support hypothesis 2a, which states that during period 1991-2005 the degree of balance sheet conservatism in the financial statements of European companies differ significantly per country.

Impact of country differences on the degree of earnings conservatism

The research results regarding the measure ‘differential timeliness of earnings with respect to the recognition of good news and bad news’ does not indicate that country differences do have an influence on the differential timeliness of earning with respect to the recognition of good news and bad news. However the two other measures ‘accumulation of accruals’ and ‘the skewness of earnings’ indicate an important impact of country differences on the degree of earnings conservatism (see table 5.4, and table 5.5).

Table 5.4 Accumulation of accruals per industry

Industry	Cash Flow of Operations-to-					
	Total Assets		Total Accruals-to-Total Assets		Net Income-to-Total Assets	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Agriculture	0.033	0.133	0.000	0.126	0.013	0.136
Mining and Construction	0.035	0.740	0.018	0.464	-0.006	0.785
Food	0.096	0.071	0.018	0.051	0.040	0.066
Textiles and Printing	0.081	0.105	0.021	0.071	0.025	0.108
Chemicals	0.100	0.132	0.031	0.120	0.034	0.073
Pharmaceuticals	-0.009	0.289	0.022	0.089	-0.054	0.291
Extractive Industries	0.069	0.211	0.009	0.189	0.015	0.210
Durable Manufactures	0.066	0.631	0.009	0.564	0.011	0.632
Computers	-0.052	0.737	0.024	0.668	-0.127	0.543
Transportation	0.077	0.142	0.032	0.129	0.010	0.142
Retail	0.065	0.177	0.008	0.078	0.020	0.183
Insurance and Real Estate	-0.061	0.557	0.000	0.361	-0.089	0.619
Services	0.048	0.271	0.031	0.164	-0.024	0.287
Others	-0.006	1.472	-0.024	1.069	-0.056	1.469
Total	0.045	0.582	0.016	0.467	-0.012	0.562

Table 5.5. Difference in skewness of earnings by industry

Country	Skewness of Net Income (NI)		Skewness of Cash Flow of Operations (CFO)		Difference in Skewness between NI and CFO	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
	Agriculture	-0.06	0.61	-0.03	0.46	-0.02
Mining and Construction	-0.09	1.60	-0.12	2.63	0.03	-1.03
Food	0.00	0.03	0.02	0.04	-0.02	0.00
Textiles and Printing	-0.03	0.67	0.00	0.44	-0.03	0.22
Chemicals	0.00	0.06	0.22	5.48	-0.22	-5.42
Pharmaceuticals	-0.60	6.14	-0.44	5.21	-0.17	0.93
Extractive Industries	-0.35	4.72	-0.27	3.96	-0.09	0.76
Durable Manufactures	-0.12	3.26	-0.06	2.35	-0.06	0.91
Computers	-3.47	38.00	-2.53	33.29	-0.94	4.70
Transportation	-0.10	2.22	-0.04	1.89	-0.06	0.33
Retail	-0.47	13.41	-0.35	11.59	-0.12	1.81
Insurance and Real Estate	-5.21	51.44	-5.94	53.06	0.73	-1.62
Services	-0.56	11.19	-0.32	7.82	-0.24	3.37
Others	-0.47	11.23	-0.38	9.84	-0.09	1.39
Total	-0.69	16.04	-0.52	14.42	-0.17	1.61

These findings support hypothesis 2b, which states that during period 1991-2005 the degree of balance sheet conservatism in the financial statements of European companies differ significantly from each other.

5.3 The impact of industry differences on the degree of accounting conservatism

This section discusses to which extent the degree of accounting conservatism in financial statements of European countries differ per industry.

Impact of industry differences on the degree of balance sheet conservatism

Analysis of the average market-to-book ratio for period 1991-2005 indicates that the market-to-book ratio differs importantly per industry. The difference in market-to-ratios between industries is in many cases more than 10%. Companies operating in the pharmaceutical industry, computer industry, and service industry have the highest scores on balance sheet conservatism (see table 5.6).

Table 5.6 Market-to-book ratio by industry

Industry	Market-to-book ratio	
	Mean	Standard Deviation
Agriculture	2.32	6.58
Mining and Construction	1.76	2.26
Food	2.08	3.56
Textiles and Printing	2.22	5.44
Chemicals	2.67	6.72
Pharmaceuticals	4.59	9.37
Extractive Industries	2.69	4.58
Durable Manufactures	2.38	4.39
Computers	3.55	7.49
Transportation	2.82	4.60
Retail	2.48	4.84
Insurance and Real Estate	2.31	3.88
Services	3.38	7.95
Others	2.78	5.62
Total	2.69	5.68

These findings support hypothesis 3a, which states that during period 1991-2005 the degree of balance sheet conservatism in the financial statements of European companies differ significantly per industry.

Impact of industry differences on the degree of earnings conservatism

The scores with regard to the measure ‘accumulation of accruals’ and ‘the skewness of earnings’ indicate an important impact of country differences on the degree of earnings conservatism. However, the measure ‘differential timeliness of earnings with respect to the recognition of good news and bad news’ does not indicate that country differences have influence on the differential timeliness of earning with respect to the recognition of good news and bad news.

The findings indicate that the differences between industries with respect to the degree of earnings conservatism in financial statements of European companies differ more than 10%. An interesting finding is that the financial statements of European companies operating in the computer industry and the pharmaceutical industry have, in comparison with other industries, a relative high degree of earnings conservatism. The findings support hypothesis 3b, which states that during period 1991-2005 the degree of earnings conservatism in the financial statements of European companies differ significantly per industry.

5.4 The impact of company differences on the degree of accounting conservatism

This section discusses the impact of company differences on the degree of accounting conservatism in the financial statement of European companies. First, the impact of a firm’s profitability level on the degree of balance sheet conservatism and earnings conservatism is discussed (section 5.4.1). Next, the impact of a firm’s size on the degree of earnings conservatism is discussed (section 5.4.2).

5.4.1 Impact of company’s profitability level on the degree of accounting conservatism

This section discusses the impact of a company’s profitability level on the degree of accounting conservatism in financial statement information.

Impact of company's profitability level on the degree of balance sheet conservatism

The market-to-book ratios indicate that the financial statement information of companies with a positive return on share price has a lower degree of balance sheet conservatism than companies with a negative return on share price (see table 5.7).

Table 5.7. Market-to-book ratio per profitability level

Profitability	Market-to-book ratio	
	Mean	Standard Deviation
Profit	3.03	5.94
Loss	2.20	5.20
Total	2.63	5.60

This finding supports hypothesis 4a, which states that during period 1991-2005 the degree of balance sheet conservatism in the financial statements of European companies differ significantly for companies with negative returns on share price and companies with non-negative returns on share price.

Impact of company's profitability level on the degree of earnings conservatism

The measure 'accumulation of accruals' and 'the skewness of earnings' indicate that the degree of earnings conservatism differ importantly for profitable companies and non-profitable companies. The findings indicate that companies with an average positive return on share price have a higher degree of earnings conservatism in their financial statements than companies with on average a negative return on share price. The difference between profitable companies and non-profitable companies in the accumulation of accruals ratio and the skewness of earnings ratio is larger than 10%.

The measure 'differential timeliness of earnings with respect to the recognition of good news and bad news' does not provide insight in the impact of the positive or negative returns, since the regression model has not the required number of cases for performing a valid regression analysis.

The empirical findings regarding the relationship between the return on share price and the degree of earnings conservatism supports hypothesis 4b, which states that during period 1991-2005 the degree of earnings conservatism in the financial statements of European companies differs significantly for companies with negative returns on share price and companies with non-negative returns on share price.

5.4.2 Impact of firm size on the degree of accounting conservatism

This section discusses the impact of a company's size on the degree of accounting conservatism in financial statement information.

Impact of firm size on the degree of balance sheet conservatism

The scores on the measure 'market-to-book ratio' indicate that the market-to-book ratios differ importantly for firm size (see table 5.8).

Table 5.8. Market-to-book ratio per firm size category

Scale	Market-to-book ratio	
	Mean	Standard Deviation
1	2,65	5,55
2	6,43	12,64
Total	2,69	5,68

Explanation of used abbreviations:

1	Category of companies with a total assets value between 0 and 1 million.
2	Category of companies with a total assets value between 1 million and 1 billion.

The differences in market-to-book ratio between small companies and large companies indicate that the differences in the degree of balance sheet conservatism between large companies and small companies are larger than 10%. This finding does not support hypothesis 4c, which states that during period 1991-2005 the degree of balance sheet conservatism in the financial statements of European companies does not differ significantly for companies' firm size.

Impact of firm size on the degree of earnings conservatism

The scores on the measures 'accumulation of accruals' and 'skewness of earnings' indicate an important impact of firm size on the degree of earnings conservatism (see table 5.9 and table 5.10). However, the scores on the measure 'differential timeliness of earnings with respect to the recognition of good news and bad news' does not indicate that firm size influence the differential timeliness of earning with respect to the recognition of good news and bad news.

Table 5.9. Accumulation of accruals per firm size category

Code	Cash Flow of Operations-to-Total Assets					
	Assets		Total Accruals-to-Total Assets		Net Income-to-Total Assets	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
1	0,044	0,592	0,015	0,475	-0,014	0,572
2	0,073	0,080	0,024	0,068	0,022	0,073
Total	0,045	0,582	0,016	0,467	-0,012	0,562

Explanation of used abbreviations:

1	Category of companies with a total assets value between 0 and 1 million.
2	Category of companies with a total assets value between 1 million and 1 billion.

Table 5.10. Difference in skewness of earnings per firm size category

Scale	Skewness of Net Income (NI)		Skewness of Cash Flow of Operations (CFO)		Difference in Skewness between NI and CFO	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
	1	0,72-	16,31	0,54-	14,67	0,18-
2	0,01-	0,11	0,01	0,08	0,02-	0,03
Total	0,69-	16,04	0,52-	14,42	0,17-	1,61

Explanation of used abbreviations:

1	Category of companies with a total assets value between 0 and 1 million.
2	Category of companies with a total assets value between 1 million and 1 billion.

Based on the findings of the proxies ‘accumulation of accruals’ and ‘the skewness of earnings’, one can conclude that firm size influence the degree of earnings conservatism. This finding does not support hypothesis 4d, which state that during period 1991-2005 the degree of earnings conservatism in the financial statements of European companies does not differ significantly for companies’ firm size.

5.5 The impact of the introduction of IFRS on the degree of accounting conservatism

This section discusses to which extend the degree of balance sheet conservatism and earnings conservatism in financial statements of European countries is affected by the introduction of IFRS.

Impact of the introduction of IFRS on the degree of balance sheet conservatism

The market-to-book ratios indicate that the accounting standards which are in accordance with IAS/IFRS, have on average a lower market-to-book ratio than accounting standards based on US GAAP (see table 5.11). However, the market-to-book ratios indicate also that the domestic standards which are not based on IAS/IFRS or US GAAP show on average a lower market-to-book ratio than accounting standards, which are in accordance with IAS/IFRS.

Table 5.11. Difference in market-to-book ratio between different accounting standards

Code	Description	Market-to-book ratio	
		Mean	Standard Deviation
DA	Domestic standards generally in accordance with International Accounting Standards Committee (IASC) and Organization for Economic Cooperation and Development (OECD) guidelines	2.97	4.27
DI	Domestic standards generally in accordance with IASC guidelines	3.11	6.76
DO	Domestic standards generally in accordance with OECD guidelines	2.12	0.94
DS	Domestic standards	2.56	5.35
DT	Domestic standards in accordance with principles generally accepted in the in the United States	2.86	3.92
DU	Domestic Standards generally in accordance with United States GAAP	3.67	7.73
US	United States’ standards	3.38	6.68
Total		2.69	5.68

Source: Compustat Database (2007)

Based on these findings, one can conclude that that introduction of IFRS - as an accounting standard introduced by IAS/IFRS - has not significantly reduced the differences in the degree of balance sheet conservatism in financial statement information of European companies. Next, the analysis does not indicate that the difference in the degree of balance sheet conservatism between European companies reporting under IFRS is reduced in 2005 with more than 10%. Consequently, the findings do not support hypothesis 5a, which states that in 2005 the degree of balance sheet conservatism in the financial statements of European companies, which report their financial statements according to IFRS, will reduce significantly.

Impact of the introduction of IFRS on the degree of earnings conservatism

The scores on the measures ‘accumulation of accruals’ and ‘skewness of earnings’ indicates an important impact of accounting methods and accounting standards on the degree of earnings conservatism (see table 5.12, and table 5.13)

Table 5.12. Accumulation of accruals per accounting standard

Code	Cash Flow of Operations-to-Total Assets		Total Accruals-to-Total Assets		Net Income-to-Total Assets	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
	DA	0,0624	0,0622	0,0278	0,0438	0,0193
DI	0,0587	0,1924	0,0278	0,1093	-0,0003	0,2150
DO	0,0908	0,0421	0,0406	0,1101	0,0168	0,0713
DS	0,0444	0,6456	0,0121	0,5213	-0,0117	0,6189
DT	0,1071	0,0544	0,0476	0,0723	0,0366	0,0782
DU	0,0690	0,1058	0,0245	0,0836	0,0104	0,1121
US	-0,0467	0,3895	0,0387	0,2395	-0,1311	0,4685
Total	0,0449	0,5823	0,0157	0,4667	-0,0124	0,5621

Explanation of used abbreviations:

DA	Domestic standards generally in accordance with International Accounting Standards Committee (IASC) and Organization for Economic Cooperation and Development (OECD) guidelines.
DI	Domestic standards generally in accordance with IASC guidelines.
DO	Domestic standards generally in accordance with OECD guidelines
DS	Domestic standards.
DT	Domestic standards in accordance with principles generally accepted in the in the United States.
DU	Domestic Standards generally in accordance with United States GAAP.
US	United States’ standards.

Source: Compustat Database (2007)

Table 5.13. The difference in skewness of earnings between accounting standards

Code	Description	Skewness of Net Income (NI)		Skewness of Cash Flow of Operations (CFO)	
		Mean	Standard Deviation	Mean	Standard Deviation
DA	Domestic standards generally in accordance with International Accounting Standards Committee (IASC) and Organization for Economic Cooperation and Development (OECD) guidelines	0.00	0.00	0.01	0.01
DI	Domestic standards generally in accordance with IASC guidelines	-0.42	8.52	-0.21	5.35
DO	Domestic standards generally in accordance with OECD guidelines	0.00	0.01	0.02	0.02
DS	Domestic standards	-0.66	15.64	-0.55	15.44
DT	Domestic standards in accordance with principles generally accepted in the in the United States	0.00	0.02	0.02	0.03
DU	Domestic Standards generally in accordance with United States GAAP	-0.01	0.09	0.02	0.08
US	United States’ standards	-3.95	44.35	-1.83	24.06
Total		-0.69	16.04	-0.52	14.42

Source: Compustat Database (2007)

The measure ‘differential timeliness of earnings with respect to the recognition of good news and bad news’ was not able to provide insight in the relationship between the independent variable return on share price and the dependent variables accounting methods and accounting standards.

Based on the findings of the proxies ‘accumulation of accruals’ and ‘the skewness of earnings’, one can conclude that both accounting method and accounting standards influence the degree of earnings conservatism. However, the findings do not provide insight in whether the introduction of IFRS harmonizes the differences in the degree of earnings conservatism between European companies reporting under IFRS. As a consequence, the findings do not support hypothesis 5b, which states that due to the introduction of IFRS the difference in the degree of earnings conservatism between European companies reporting under IFRS will reduce importantly in 2005.

6. Analysis and conclusions

The previous section discussed the research findings about how the degree of accounting conservatism in Europe differs for country characteristics, industry characteristics, company characteristics, and accounting regulation characteristics. This section presents an analysis of the research findings. The section closes with an overview of the main conclusions of the study.

6.1 General developments in the degree of accounting conservatism in Europe

With regard to the development in the degree of accounting conservatism in the financial statements of European companies, the analysis indicate that the financial statements of all companies in the sample show on average a certain degree of accounting conservatism during period 1991-2005. Next, the empirical results indicate that during period 1995-2001 the degree of accounting conservatism is on average at the same level. This is in contrast with the findings of Givoly and Hayn (2000), which indicates an increase in conservatism. Givoly and Hayn (2000) noted an increase of the market-to-book ratio since the mid 1980’s, heading to a ratio of 3.5 in the late 1990’s.

The empirical results indicate an increase of the market-to-book ratio during period 1990-1999; in 1999 the average market-to-book ratio is 3.5. However during period 1999-2003 the market-to-book ratio declined sharply, followed by strong increase of the market-to-book ratio during period 2002-2005.

6.2 The impact of country differences on the degree of accounting conservatism

The research findings indicate that the degree of balance sheet conservatism and earnings conservatism differ per country. The differences in the degree of balance sheet conservatism and earnings conservatism between countries are explained by accounting regulation differences that exists between countries, and external economical factors. Country differences like the quality of the national judicial systems, the degree of development of national capital markets, the quality and the quantity of information are likely to affect the market value of listed firms. These factors do influence the market-to-book ratio scores, and therefore influence the results of the analysis of the difference between countries in the degree of balance sheet conservatism in financial statement information of European companies.

Next, the research findings indicate that differences in disclosure policies per country might affect the usefulness of financial statement information.

6.3 The impact of industry differences on the degree of earnings conservatism

The research findings indicate that the degree of balance sheet conservatism and earnings conservatism differ not only per country but also per industry. With regard to the differences in the degree of balance sheet conservatism, the empirical findings indicate that companies operating in the pharmaceutical industry, computer industry, and service industry have the highest scores on balance sheet conservatism. These findings are in accordance with the findings of Pae and Easton (2004). This high degree of balance sheet conservatism is likely to be caused by the factor 'non-recognition of intangible assets'. Companies operating in the pharmaceutical industry, the computer industry, and the service industry are characterized by major investments in R&D in order to develop new products and services. Accounting regulation has strict regulation for recognizing intangible assets; this can cause the non-recognition of intangible assets, which can widen the gap between a firm's market value and the book value of equity.

The differences in the degree of balance sheet conservatism and earnings conservatism between industries are likely to be primarily influenced by accounting regulation, which impacts the degree in accounting conservatism differently per industry - since each specific industry has its own characteristics. An example of the impact of accounting regulation on the differences in the degree of balance sheet conservatism in financial statements are the differences in reporting accounting regulation, which result in an asset understatement. Givoly, Hayn and Natarajan (2007) state that balance sheet conservatism through assets understatement can easily be caused by choosing to expense investments in certain assets (e.g. R&D) or accelerate the recognition of certain costs (e.g. through use of accelerated depreciation or LIFO).

6.4 The impact of company differences on the degree of accounting conservatism

With regard to the impact of company's profitability level on the degree of accounting conservatism, the research findings indicate that financial statement information of companies with a positive return on share price has a lower degree of balance sheet conservatism than companies with a negative return on share price. Next, the research findings indicate that companies with an average positive return on share price have a higher degree of earnings conservatism in their financial statements than companies with on average a negative return on share price.

Regarding the impact of firm size on the degree of accounting conservatism, the results of conducted analysis indicate that the degree of balance sheet conservatism is greater for large companies than for small companies. Next, the research findings indicate that firm size impacts also the degree of earnings conservatism in financial statements.

These findings are in contrast with the findings of Pae and Easton (2004), who find in their study that company size has not a strong influence on the degree of balance sheet conservatism and earnings conservatism in financial statement information.

6.5 Impact of the introduction of IFRS on the degree of accounting conservatism

The research findings do not indicate that the introduction of IFRS reduces importantly the difference in the degree of balance sheet conservatism and earnings conservatism between European companies reporting under IFRS. These findings are not in accordance with the expectations of Van der Tas (2006) and Vergoossen (2006), who expected IFRS to harmonize the differences in financial reporting in Europe.

Regarding the investigation of the impact of the introduction of IFRS on the degree of accounting conservatism in the financial statements, one has to consider that the impact of the introduction of IFRS on the degree of accounting conservatism might not be properly measurable by the applied four measures of Givoly and Hayn (2000). The explanation for the failure of the measure to detect accounting conservatism is caused by the interference of other external economical factors, like technological breakthroughs, or national or international political developments.

6.6 Conclusion

The main conclusion of this study is that the research findings indicate that the financial statement information of European companies have during period 1991-2005 a certain degree of balance sheet conservatism and earnings conservatism. The research findings indicate that the degree of both balance sheet conservatism and earnings conservatism evolves over time. However, the research findings do not indicate that the degree of balance sheet conservatism or earnings conservatism increase over time.

Next, the research findings reveal that country characteristics, industry characteristics, company characteristics and accounting regulation characteristics have a significant impact on the degree of accounting conservatism.

Finally, the research findings do not indicate that the introduction of IFRS or other IAS/IFRS based accounting standards have reduced the difference in the degree of balance sheet conservatism and earnings conservatism between European companies reporting under IFRS.

7. Discussion

This section discusses the limitations of this study and presents three suggestions for further research.

7.1 Limitations

This study has two important limitations. The first limitation of this study is that the time period is limited to 1991-2005. This restricts the potential insight into the impact of the introduction of IFRS on the degree of balance sheet conservatism and earnings conservatism. Next, the study is also limited by the accuracy of the four measures of Givoly and Hayn (2000) in measuring accounting conservatism. Since the four measures are influenced by external economical factors, they only give indications for the degree of both earnings conservatism and balance sheet conservatism in financial statements.

7.2 Suggestions for further research

Analysis of the study results identified three new suggestions for further research. First, it is interesting to study in more detail which particular country characteristics, industry characteristics, company characteristics and accounting regulation characteristics have the strongest influence on the degree of accounting conservatism in financial statement information.

Next, it is also interesting to investigate how the introduction of IFRS will impact the degree of accounting conservatism in financial reporting over time. From a standards setting perspective it is relevant to gain insight in whether IFRS will harmonize the differences in the degree of accounting conservatism.

Finally, from a scientific point of view it is also relevant to study how accounting conservatism can be measured more accurately. Since a large set of factors influence the relation between return on share price and financial statement information, one can question to which extent we are measuring the developments in the degree of accounting conservatism in a proper way. More empirical insight regarding measuring the degree of accounting conservatism in financial statement information is welcome.

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Cooking the books around initial public offerings

A study about the pervasiveness of earnings management and investor protection regulations

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Executive summary

Most prior studies suggest that firms opportunistically increase their earnings around an initial public offering (IPO). With a sample of 512 IPOs in 24 countries worldwide I find that IPO firms that are under suspicion of such behaviour, represent only a small proportion (+/-10%) of the total sample. My findings challenge the opportunistic perspective on earnings management and suggest that the information perspective is more pronounced. Furthermore, I find no evidence for a positive relationship between low investor protection regulations and opportunistic earnings management. It seems that stronger enforcement of investor protection laws do not counter self-interested behaviour.

1. Introduction

Earnings management received more and more attention in the accounting literature. In the context of initial public offerings (IPOs) most researchers found pervasive evidence for earnings management (Friedlan 1994; Teoh et al. 1998, 1998a; Roosenboom et al. 2003; Pastor and Poveda 2006). They explain that IPO firms (also shortened as IPOs) use their managerial discretion to increase earnings. Researchers interpreted the evidence by suggesting that these income increasing activities are driven by opportunistic behaviour. IPOs are particularly liable to such behaviour because both incentives and possibilities are offered around the IPO process. An important incentive for IPOs is to achieve high offer prices when offering their shares to the public. Possibilities for opportunistic earnings management exist, because there is an unusually high level of information asymmetry around that time. Managers have the possibility to choose accounting methods that benefit their own interest. For investors it is difficult to access if those accounting methods reflect the true economic performance. (Ahmad-Zaluki et al. 2007, 1)

Recently Ball and Shivakumar (2006, 30-32) doubted the evidence in IPO earnings management research. First, they did not find pervasive evidence of earnings

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management in their study on the U.K. market. Ahmad-Zaluki et al. (2007, 31) stated that differences in pervasive earnings management evidence, can be the result of different environmental and company specific factors. For example, they found that earnings management is only pervasive in a period of an economic stress (East Asia crisis of 1997 and 1998). Ball and Shivakumar (2006, 32) secondly stipulated that the appearance of discretionary accruals (which are frequently used as indicators of earnings management) is not caused by managerial self-interest, but by working capital changes that are endogenous to IPOs. Therefore they supported the “information perspective” on earnings. This perspective explains that managers have the opportunity to use their discretion (judgements and estimates), to manage earnings to a level that reflect the firms’ true economic performance⁴. In this scenario investors face fewer costs, because they do not have to search for additional information from other sources.

Based on a sample of 512 companies that went public from 2001 to 2004 on worldwide stock markets, this positive accounting research presents new evidence regarding these debates. This paper first re-examines the extent of IPOs that engage in income increasing earnings management⁵. This paper re-examines the subjects with a more recent sample and with better accrual estimating models, compared with most prior research. Second, with reference to Ball and Shivakumar (2006), this paper re-examines on the basis of three conditions the extent of IPOs that are under suspicion of opportunistic earnings management. The three conditions are:

- 1) Significantly positive discretionary accruals and exceptionally high earnings in excess of operating cash flow, in the year that earnings management is applied.
- 2) Negative discretionary accruals and exceptionally low earnings in post-earnings management periods.
- 3) Exceptionally inferior operating performance in post-earnings management periods.

Re-examining both these subjects is necessary, because criticism like Ball and Shivakumar (2006) showed that present evidence is far from unequivocal. New evidence will shed more light on the pervasiveness of earnings management in general and of opportunistic behaviour specifically.

Third, in continuation of Ahmad-Zaluki et al. (2007, 31) who advised for further investigations about environmental and company factors, this paper examines the relationship between investor protection regulations and earnings management. This paper also examines if these regulations constrain opportunistic behaviour. To the author’s best knowledge, are these investigations unique in the IPO context.

⁴ See Deegan (2000) and Beneish (2001) for more information about the opportunistic and information perspectives.

⁵ This paper does not examine other forms of earnings management, for example conservative accounting. This paper uses for the sake of simplicity the term “earnings management” as a synonym for the term “income increasing earnings management”.

Insight in the above mentioned subjects accesses in which extent earnings management may be detrimental to investors and other stakeholders, and in which extent investor protection regulations constrain managerial self-interested behaviour. Information about these subjects helps standards to determine how much discretion should be given to managers and whether new disclosures or standards are required, or whether existing standards can be maintained. It helps issuing firms about how discretionary accruals affect the post-issue performance, and might affect the cost of equity. And it helps investors and other stakeholders to distinguish IPOs that engage in earnings management, by analysing their accruals and financial position. (Teoh et al. 1998, 202-203; Healy and Wahlen 1999, 3)

The above mentioned research subjects lead to the following research question:

“Do firms engage in income increasing earnings management based on accruals around IPOs? If yes, what is the extent of firms that are under suspicion of opportunistic behaviour? What is the relationship between investor protection regulations and earnings management around IPOs? And are there indications that these regulations constrain opportunistic behaviour?”

To answer the research question this paper first describes in section 2, how earnings management is defined and what accruals are. It then describes which motivations IPOs may have to engage in earnings management. Section 2 provides also a briefly literature study and shows how this paper contributes to prior literature. The section ends with explaining the relation between earnings management and investor protection regulations. Section 3 describes the hypotheses that are formed and the sample selection and data. It also describes how earnings management is measured in this paper. The results and analyses of the empirical research are provided in section 4. This section explains these results with expectations, and with conclusions from prior research. It also gives suggestions for further research. Section 5 stipulates the conclusions of this paper.

2. Prior literature

2.1 Earnings management around IPOs

Schipper (1989, 92) defined earnings management as *“A purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain”*. Accrual accounting is one of the methods that managers have to engage in earnings management⁶. This paper focuses on this method. Accruals are the differences between a periods' earnings and cash flows. Accruals can be split up into non-discretionary accruals and discretionary accruals. Discretionary accruals are determined by managers. Non-discretionary accruals are imposed by the situation and the sector in which a firm is acting, by the scale of the firm, by the total net revenue and by the value of the assets. Most

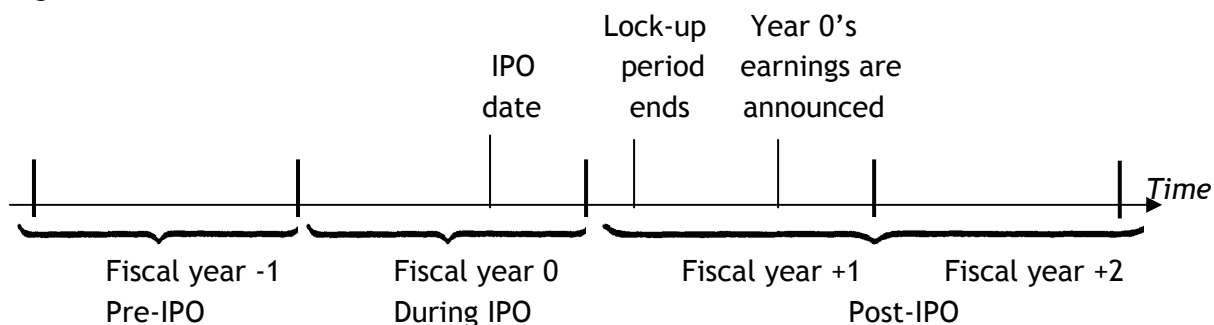
⁶ See Stolowy and Breton (2000) and Mohanram (2003) for an overview of earnings management methods.

researchers use significantly positive discretionary accruals as an indicator for earnings management. (Teoh et al. 1998, 203; Mohanram 2003, 5)

Ritter (1998, 5) defined an IPO as: “An IPO occurs when a security is sold to the general public for the first time, with the expectation that a liquid market will develop”. There are some explanations why IPOs engage in earnings management. Most of the following explanations are related with opportunistic earnings management, not with informative. Firstly, there is pressure from key players in the IPO process to report favorable earnings, for example from the underwriter and underwriting investment bankers. Secondly, the ‘lock-up’ period offers an incentive. When managers want to sell their shares with a maximum profit after the lock-up period, they have the incentive to maintain high earnings after the issuing. Thirdly, the reliability of the investors offers an incentive. Investment bankers make predictions for the future. The firm wants to obtain these predictions to avoid a decline in the confidentiality of the investors. Investment bankers also desire that shares are fully subscribed and that the price has a sufficient level. These aspects are important when firms want to do a secondary equity offering. Finally, when earnings decline rapidly immediately after the firm goes public, this usually leads to a rapid decline in share prices. This decline may result in lawsuits between the firm and discontented shareholders. An explicit incentive for informative earnings management is to provide high financial reporting quality. The role of external financial reporting is to “portray differences in firms’ economic positions and performance in a timely and credible manner” (Healy and Wahlen 1999, 1). Informative earnings management may therefore be sufficient for parties that use financial reporting for contracting purposes and for investment decision making. (Teoh et al. 1998, 179; Roosenboom et al. 2003, 3; Li et al. 2006, 4)

When firms want to influence the firms’ earnings they have three timing possibilities. Figure 1 shows these timing possibilities: the pre-IPO period (years -1, -2, etc), the IPO year (year 0) and the subsequent years (year 1, 2, etc).

Figure 1 - The timeline of IPOs



Friedlan (1994) and Neill et al. (1995) found evidence for earnings management in the pre-IPO period. On the other hand, Aharony et al. (1993), Roosenboom et al. (2003, 21) and Ball and Shivakumar (2006, 30) also examined the years before the IPO but found no evidence. Teoh et al. (1998, 203) examined if IPOs use accruals to increase earnings during

the IPO year. They investigated a sample of 1,649 U.S. IPOs and found that the median net income of the most aggressive quintile (highest discretionary accruals) are positive in the year of the IPO and decreases, to become zero in the fourth year after IPO. The operating cash flow is negative in the year of the IPO and increases in the subsequent periods. The net income of the more conservative quintiles decreases, but stabilise more and move upwardly. Teoh et al. (1998, 203) interpreted these patterns that managers use discretionary accruals driven by self-interest behaviour, to increase reported earnings in the period during the IPO. Other researchers strengthened this conclusion (Roosenboom et al. 2003, 23; Pastor and Poveda 2006, 25). Bajor (2002) focussed on the post-IPO period. He selected 190 U.S. firms that issued an IPO in 1995 and found significantly positive discretionary accruals in year +1. He stated that managers increase income driven by self-interest. Similar results were found by Teoh et al. (1998, 1998a).

To summarise, most researchers found evidence for pervasive earnings management during and after the IPO. However, recently Ball and Shivakumar (2006, 30-32) had several concerns about these studies, especially about the Teoh et al. (1998, 1998a) studies (Ahmad-Zaluki 2007, 7). Firstly, they found bias in the study of Teoh et al. (1998a) and therefore concluded that parts of the evidence of the study of Teoh et al. (1998a) were unreliable. Secondly, Ball and Shivakumar (2006, 30) did not find evidence for income increasing earnings management. They only found conservative figures⁷. Ball and Shivakumar (2006, 32) also argued that in cases that discretionary accruals appear, this is not the result of earnings management but a result of working capital changes, which is endogenous to an IPO. They stipulated that in events like IPOs, firms usually adjust their working capital automatically. One reason that firms are going public is to unburden a resources constrain. This means that IPOs seems to have under-invest in inventory and receivables in pre-IPO periods, and use the IPO to relieve these constrains. In addition, IPOs seems to have over-use trade credit and other operating liabilities. Both those assets and liabilities are identified as “income increasing discretionary accruals” by Teoh et al. (1998, 1998a), but Ball and Shivakumar (2006, 32) identified those assets and liabilities as working capital changes which are endogenous to IPO proceeds. Finally Ball and Shivakumar (2006, 32) stated that IPOs do not opportunistically manage their earnings but provide higher quality financial information, demanded by public investors (the information perspective). This conclusion was strengthened by Fan (2007, 1), who stressed that earnings management could result in considerable costs for IPOs. He stated that most IPO’s have no incentives to use earnings management once it exceeds the point of being informative. They would only manage earnings to a level that expresses the real future performance of the firm.

2.2 The contribution of this paper

Criticism of Ball and Shivakumar (2006) showed that evidence on the pervasiveness of earnings management, opportunistic behaviour specifically, is far from unequivocal. In order to shed more light on this issue, this paper will first re-examine the extent of IPOs

⁷ Both conservative and aggressive accounting can be defined as earnings management. This paper mainly focuses on aggressive accounting, this means that earnings are managed upwards instead of downwards.

that engage in earnings management. It performs the investigations with a more recent sample (21st century) and with better accrual estimating models⁸. This paper uses significantly positive discretionary accruals as indicator for earnings management, which is consistent with prior research (Teoh et al. 1998, 203; Roosenboom et al. 2003). Secondly, based on three conditions, this paper re-examines the extent of IPOs that are under suspicion of opportunistic earnings management behaviour. These IPOs should meet all the following three conditions to be under suspicion:

1. Discretionary accruals in the year of earnings management are significantly positive and earnings are, compared with other IPOs, exceptionally high in excess of operating cash flow.

This paper assumes that in these situations discretionary accruals are used to manage earnings by a considerable increment.

2. Discretionary accruals in post-earnings management periods are negative and earnings are, compared with other IPOs, exceptionally low.

This paper assumes that in these situations the decline in earnings is a result of accruals that undergo reversal. This paper assumes that earnings are exceptionally low because the IPOs were not aware of the level of equilibrium of earnings management costs and revenues.

3. Inferior return of sales (ROS) and return of assets (ROA) in post-earnings management periods.

This paper assumes that when earnings are managed to a level that exceeds the level of equilibrium of costs and revenues, the accruals that undergo reversal, affect operating performance (ROS and ROA) in the periods after earnings management was used. Using ROS is consistent with Teoh et al. (1998) and Ahmad-Zaluki et al. (2007). Using ROA is consistent with Teoh et al. (1998).

When earnings are highly in excess of operating cash flows (condition 1) this may indicate earnings management. However, to express a judgement about the *degree* of earnings management (e.g. strong, normal and weak income increasing), this paper uses the word “exceptionally”. It assumes that when earnings are *exceptionally* high in excess of operating cash flows strong income increasing earnings management is applied. This paper assumes that this strong level of earnings management is only applied when a firm is driven by self-interest, because when operating cash flows are exceptionally lower than earnings this can lead to liquidity problems. Liquidity problems may lead to misallocated capital and loss of financial prosperity (Schipper and Vincent 2003). The chance that a firm wants to express the real economic performance of the firm by strong upwardly managed earnings is small.

Fan (2007) explained that IPOs only engage in earnings management when this expresses the real future performance of the firm. Because IPOs that meet condition 2 and 3 have inferior post-issue performance (measured by earnings in condition 2 and operational effectiveness ratios ROS and ROA in condition 3), earnings management did not reflect the

⁸ Performance adjusted models are used in this paper. These models are not so much used in prior studies yet.

future performance. Hence, this paper assumes that these IPOs did not engage in earnings management to increase the informativeness of earnings.

The three conditions are selected because they are all associated with costs and risks for IPOs and expose IPOs to several problems. For example, inferior post-issue performance caused by earnings management is associated with involuntary de-listing risks (Li et al. 2006). To use these three conditions as proxies for opportunistic behaviour is consistent with some prior research, for example Teoh et al. (1998, 176) stated that: “A finding that accruals are unusually high in the IPO year, that post-IPO earnings are low, and that high IPO-year accruals predict low subsequent earnings would be consistent with the hypothesis of opportunism”.

Several studies (Teoh et al. 1998; Fan 2007) pointed out that IPOs suffer a decline in the operating performance in post-IPO periods. Researchers try to explain this decline by examining the relationship with discretionary accruals. They stipulate that inferior post-IPO operating performance occurs because discretionary accruals undergo reversal. Ahmad-Zaluki et al. (2007) weakened this statement with their study on the Malaysian market. They only found weak evidence that earnings management by IPOs is associated with lower post-issue operating performance. The results of this paper regarding condition 3 are, besides to examine opportunistic behaviour, also used to give more insight in this debate.

Ahmad-Zaluki et al. (2007, 30) found evidence that IPOs in Malaysia only engage in earnings management in times of economic stress (East Asia crisis). And Chen et al. (2005) found that firms with big four auditors engage less in earnings management compared to firms with non-big four auditors. Studies as these pointed out that the pervasiveness of earnings management depends on environmental and company-specific factors. A growing body of present papers strengthened this statement (Lewis 2007; Fan 2007). This paper will investigate if investor protection rules are an environmental factor that effect the extent of earnings management. And if the extent of opportunistic earnings management differ in countries with different investor protection regulations. To the authors best knowledge, are these investigations unique in the IPO context.

2.3 Earnings management and investor protection

Investor protection can be defined as “*the protection of outside investors by the enforcement of regulations and laws*”. (Shleifer and Wolfenzon 2002, stated in Boonlert-U-Thai 2004, 7). Insiders have incentives to conceal the true performance of the firm by managing earnings to retain private control benefits. A private control benefit is, for example, consumption of the firms’ assets by other firms owned by managers. In general, the common aspect of private control benefits is that value is maintained by insiders and not shared with outside investors. Investors are protected by law and regulation to avoid this unfair distribution of value. They have opportunities to take disciplinary actions against the insiders, when they detect this unfair distribution. However, managers have the possibility to manage the degree and variability of earnings to mask the private control benefits. (Leuz et al. 2003, 2)

Leuz et al. (2003) investigated the level of earnings management in 31 countries in the world. They found that firms in countries with strong investor protection regulations engage in less earnings management, compared with firms in countries with weak investor protection regulations. Leuz et al. (2003, 21) stated that the reason for the lower level of earnings management is, that managers have less opportunities to retain private control benefits and therefore have fewer incentives to conceal the performance of the firm. This indicates that a strong level of protection limits insiders' ability to expropriate values of the firm. Leuz et al. (2003, 21) concluded that their evidence highlight an important relationship between the quality of earnings and investor protection. The findings of Leuz et al. (2003, 21) are strengthened by evidence of other papers, for example Boonlert-U-Tai (2004).

Firms can use their discretion to increase the informativeness of earnings. Leuz et al. (2003, 9) stipulated that this may be the result of effective investor protection regulations and therefore may not apply to firms in countries with weak investor protection regulations. They stated that firms in poor investor protection countries have more possibilities to manage earnings more aggressive, compared with strong investor protection countries. However, they have not examined this. This paper contributes to such further research and examines if there is a positive relationship between weak investor protection regulations and opportunistic behavior.

In the literature are several indexes for the level of investor protection regulations available. Leuz et al. (2003) used the index of La Porta et al. (1998), which is based on the rules in the nineties. Several researchers have criticised this index (Djankov et al. 2008) and this paper chooses therefore a new and more recent index: the investor protection index of Djankov et al. (2008). They presented an index that measures the extent in which shareholders are protected against expropriation by firms insiders. Their index is composed with the help of Lex Mundi law firms and is based on the rules prevailed in 2003.

3. Hypothesis development and research design

3.1 Hypothesis development

This paper first examines if significantly positive discretionary accruals are present in year -1, 0 or +1, and if they undergo reversal in year +2 and become negative. To examine the robustness of the results of the discretionary accruals, this paper performs a re-weighting procedure with outliers (e.g. if discretionary accruals are still present when outliers are eliminated), which is also used by Roosenboom et al. (2003, 20). And it uses a control group to compare discretionary accruals of this group with those of the sample group. This procedure is consistent with Bajor (2002, 41).

After these two robustness checks this paper examines the three conditions for opportunistic behaviour. First if there is a *positive* relationship between significantly positive discretionary accruals, and exceptionally high earnings in excess of operating cash flow in the same year. Second if there is a *positive* relationship between earnings of IPOs

with significantly positive discretionary accruals, and negative discretionary accruals and exceptionally low earnings in post-earnings management periods. And third if there is a *positive* relationship between significantly positive discretionary accruals that undergo reversal and become negative, and inferior operating performance in later periods. Finally, this paper examines if there is a *positive* relationship between earnings management, opportunistic behaviour specifically, and low investor protection regulations.

3.2 Sample selection and data

The original sample consists 4,563 IPO observations from 31 countries in the period 2001 till 2004 (4 years). The IPO observations are obtained from the Thomson One Banker database. The countries are selected for two reasons: 1) all countries have an sufficient number of IPOs in the selected period (more than 10) and 2) neither of these countries suffer hyperinflation in the sample period, which strongly affect earnings management measures (Leuz et al. 2003, 10). The sample period is chosen because: 1) it is not overlapping with prior research, 2) the investor protection index is based on the legal rules prevailing in the year 2003 and therefore usable to the sample period, and 3) the sample period avoids the dot-com bubble (1995 till the spring of 2001). The following firms are excluded: 1,048 firms with no Sedol number available, 1,035 secondary equity offerings, 639 financial and insurance companies, 304 issuers of non-ordinary and non-common shares, 55 regulated utility firms, 2 privatization's of state-owned enterprises and 968 firms with incomplete financial data. To exclude these groups is consistent with prior IPO research (Teoh et al. 1998; Roosenboom et al. 2003), which makes comparisons with other papers' results more reliable, and the sample group reaches more homogeneity. The final sample consist 512 IPOs from 24 different countries⁹, spread across all industries.

Accruals are measured through accrual estimating models. This paper uses two models which enhances the robustness of the results (Xiong 2006, 219). Different models are evaluated for this research and the performance adjusted models advised by Kothari et al. (2005, 195) are chosen¹⁰. Kothari et al. (2005, 195) found that the best measures of discretionary accruals (with the lowest type I and type II errors), can be achieved using the Jones (1991) model or the Modified Jones (1995) model adjusted for a performance adjusted firm's discretionary accrual. For the performance adjustment process this paper uses the sort of industry and the ROA, which is advised by Kothari (2005, 165). This paper uses the cross-sectional regression analysis and it includes a constant term in the functions of the models. There are in total 2,048 IPO year observations (512 IPOs times 4 years). The matching process to obtain control firms for the performance adjusted models starts, consistent with Kothari et al. (2005, 173), at the Two digit SIC code level. This means that

⁹ The countries are Australia, Austria, Canada, Denmark, France, Germany, Greece, Hong Kong, India, Indonesia, Italy, Japan, Malaysia, Netherlands, Norway, Philippines, Singapore, South Korea, Sweden, Switzerland, Taiwan, Thailand, the United Kingdom and the United States.

¹⁰ In this study the Modified Jones (1995) model with ROA as an additional regressor, is also selected and used to determine discretionary accruals. But there were striking results when comparing the models' results with the other two models, and between the results of the sample and the control group of this model. This paper gives no outline of these results and interprets the results as an indication that the model is fairly ineffective.

each IPO year observation is matched with a control firm in the same country, with the same Two digit SIC code level and with the closest ROA in the same year. If the percentage difference of the ROA between the IPO and the control firm is more than 20%, the matching process is moved to the One digit SIC classification, which is consistent with Singer (2006, 12) and Fan (2007, 15). This matching procedure is able to obtain close matches for most of the IPO year observations: for 1,054 IPO year observations of the Performance adjusted Jones (1991) model discretionary accruals and for 1,055 of the Modified Jones (1995) version. The majority of the IPO year observations have a ROA of not more than 5% difference with the control firms in the same year.

3.3 Accrual estimating models

The estimating procedure for accruals is as follows. The first step is to measure total accruals using the Jones (1991) definition, which defines total accruals as the difference between earnings and operating cash flows. These are calculated by the following formula:

$$TA_{\tau} = (NI_{\tau} - CFC_{\tau}) / A_{\tau-1} \quad (\text{equation 1})$$

Where:

- TA = total accruals in year τ
- NI $_{\tau}$ = net income in year τ
- CFC $_{\tau}$ = cash flows from operations in year τ
- A $_{\tau-1}$ = total assets at $\tau-1$

The second step is to measure non-discretionary accruals. The formula for the Performance adjusted Jones (1991) model is as follows:

$$NDA_{\tau} = \alpha_0 + \alpha_1 (1/A_{\tau-1}) + \alpha_2 (\Delta REV_{\tau}) + \alpha_3 (PPE_{\tau}) \quad (2)$$

Where:

- NDA $_{\tau}$ = non-discretionary accruals in year τ
- ΔREV_{τ} = revenues in year τ less revenues in year $\tau-1$ scaled by total assets at $\tau-1$
- PPE $_{\tau}$ = gross property plant and equipment in year τ scaled by total assets at $\tau-1$
- $\alpha_0, \alpha_1, \alpha_2, \alpha_3$ = firm-specific parameters

The firm-specific parameters, $\alpha_0, \alpha_1, \alpha_2, \alpha_3$ are obtained from a linear cross-sectional regression of financial information from the control group. The model of this regression analyses is:

$$TA_{\tau} = a_0 + a_1 (1/A_{\tau-1}) + a_2 (\Delta REV_{\tau}) + a_3 (PPE_{\tau}) \quad (3)$$

Where a_0, a_1, a_2 and a_3 are the ordinary least squares (OLS) of $\alpha_0, \alpha_1, \alpha_2$ and α_3 .

For the Performance adjusted Modified Jones (1995) model the formula for non-discretionary accruals accruals is:

$$NDA_{\tau} = \alpha_0 + \alpha_1 (1/A_{\tau-1}) + \alpha_2 (\Delta REV_{\tau} - \Delta REC_{\tau}) + \alpha_3 (PPE_{\tau}) \quad (4)$$

ΔREC_{τ} stands for the net receivables in year τ minus the net receivables in year $\tau-1$ scaled by total assets at $\tau-1$. The other variables represent the same variables as in the Performance adjusted Jones (1991) model.

The next step is to determine discretionary accruals (DA) by the following formula:

$$DA_{\tau} = TA_{\tau} - NDA_{\tau} \quad (5)$$

The final step is to subtract discretionary accruals of the control firm from those of the sample firm. Hence, the formula is for the Performance adjusted Jones (1991) and Modified Jones (1995) model discretionary accruals (DA) is:

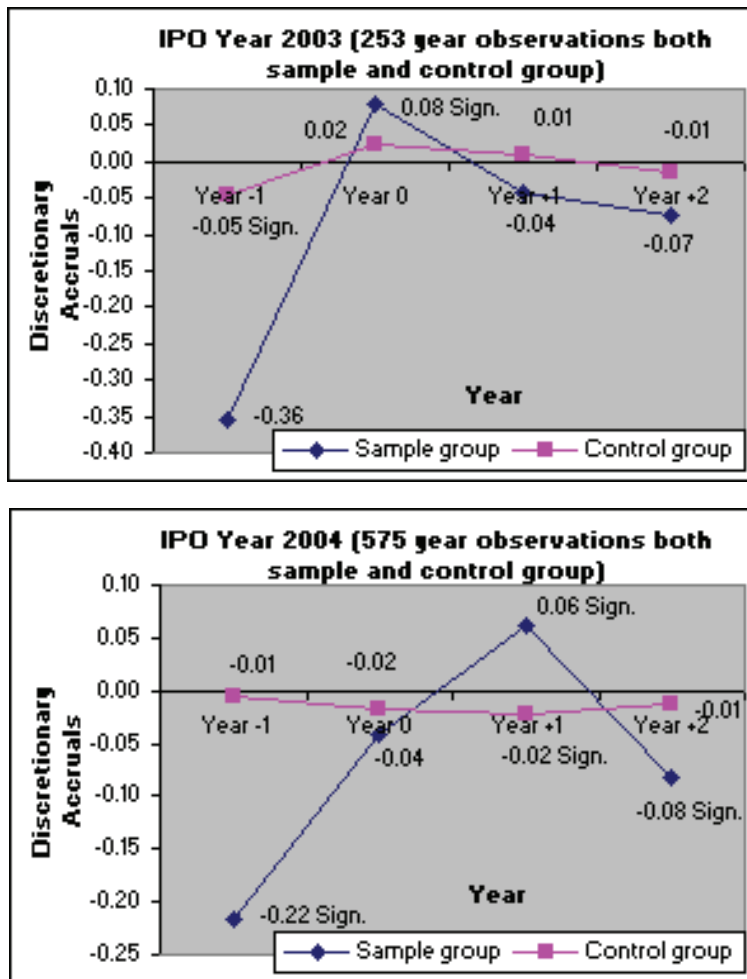
$$DA_{\tau} = SampleDA_{\tau} - ControlDA_{\tau} \quad (6)$$

5 Results and analysis

5.1 Indications of earnings management

A Paired-Sample T Test is used to determine if discretionary accruals (from equation 6) are significantly positive. The level of statistical significance is 0.05% or lower and the level of statistical reliability is 95%. The tests give no significantly positive discretionary accruals among the firms that issued an IPO in the years 2001 and 2002. For the other two years the tests show consistent evidence that significantly positive discretionary accruals are present in year 0 of firms that issued an IPO in 2003, and in year +1 of firms that issued an IPO in 2004. The results are robust to additional tests, of which figure 2 gives an example. This figure shows that discretionary accruals of the control group (not performance adjusted) in year 0, are 0.06 lower than that of the sample group (performance adjusted). For issuing year 2004 the accruals of the control group in year +1 are significantly negative (-0.02), while those of the sample group are significantly positive (0.06). The results of the Performance adjustment Jones (1991) model give consistent results. In addition, for both models count that in 2003 and 2004 significantly positive discretionary accruals undergo reversal in year +2 and become negative.

Figure 2 - Comparison of discretionary accruals between the sample and the control group



5.2 Exceptionally high earnings in excess of operating cash flow

Accruals of year 0 of issuing year 2003 and year +1 of issuing year 2004 are separated into different quintiles. The quintile with the lowest discretionary accruals is called quintile 5 the “conservative quintile”. The quintile with the highest is called quintile 1 the “aggressive quintile”. This procedure is consistent with Teoh et al. (1998). Figure 3 shows that quintile 1 and 2 have high significantly positive discretionary accruals in year 0. Average earnings of IPOs in quintile 1 are \$ 5,483 million positive in year 0, operating cash flows are \$ 2,376 million negative. Earnings in quintile 2 are \$ 3,816 million positive in year 0; a grown of 73% compared with the prior year. Operating cash flows decreases with 28% to a level of \$ 3,965 million. The figure shows that in both quintiles 1 and 2 are exceptionally high earnings in excess of operating cash flow and thus are the IPOs in these quintiles, under suspicion of opportunistic earnings management. Earnings in the other quintiles do not grow in excess of operating cash flow and are not under suspicion of opportunistic behaviour.

The results for the year 2004 indicate that the median earnings of quintile 1 is \$ 2,094 million positive in year +1 (a reduction of 10% compared to year 0) while operating cash

flows in this year is \$ 920 million negative (a reduction of 277%). The statistics of quintile 1 show indications that firms increase earnings in excess of operating cash flows, to prevent earnings from a great reduction. This is consistent with the opportunistic perspective. The other quintiles have no exceptionally high earnings in excess of operating cash flow.

Figure 3 - Discretionary accruals, earnings and operating cash flows of IPOs from 2003

Earnings management in year 0 of firms that issued IPO in 2003	Mean discretionary accruals				Mean earnings per million dollar				Mean op. cashflow per million dollar			
	-1	0	+1	+2	-1	0	+1	+2	-1	0	+1	+2
Quintile 1 most aggressive	-0.22*	0.37*	-0.03*	-0.20*	5,604	5,483 -2%	7,589 38%	-81 -101%	7,351	-2,376 -132%	9,187 487%	5,136 -44%
Quintile 2	-0.06	0.12*	-0.02	-0.01*	2,208	3,816 73%	5,750 51%	2,806 -51%	5,505	3,965 -28%	9,453 138%	6,902 -27%
Quintile 3	-0.24*	0.02	0.00	-0.05	4,553	4,658 2%	2,892 -38%	2,892 0,0%	4,367	5,815 33%	5,563 -4%	5,841 5%
Quintile 4	-0.06	-0.06*	-0.08*	-0.01*	7,272	6,768 -7%	5,477 -19%	3,568 -35%	4,475	14,840 232%	7,953 -46%	15,267 92%
Quintile 5 most conservative	-0.32*	-0.20*	-0.07*	-0.04	5,386	6,674 24%	5,578 -16%	3,814 -32%	5,328	13,543 154%	4,834 -64%	10,615 120%

Key to symbols:

- The difference between year +1 and +2
- The difference between year +0 and +2
- *: discretionary accruals are significant
- **Bold**: important figure

Note : there are more or less 25 IPOs in each year in each quintile (containing IPO year observations from both performance adjusted models).

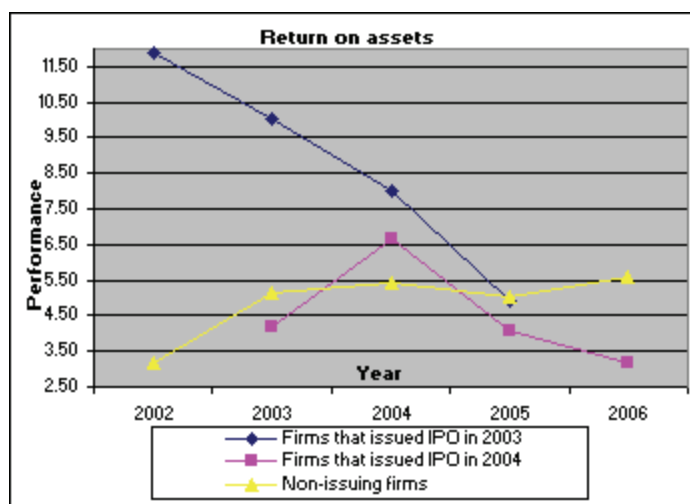
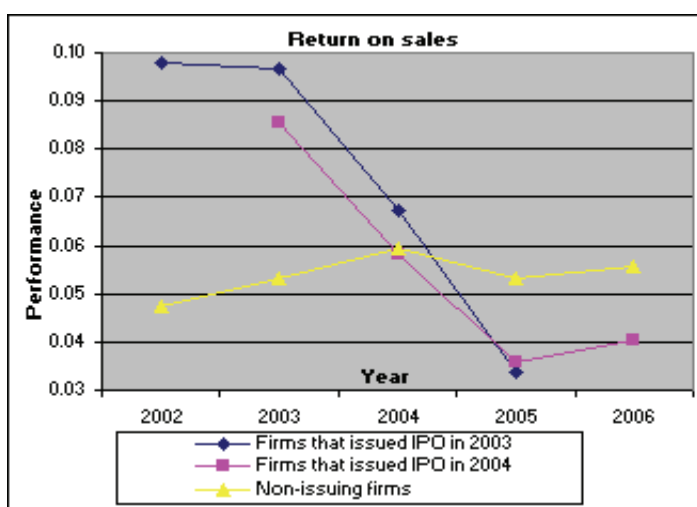
5.3 Exceptionally low future earnings

Figure 3 shows that in quintile 1 a positive relationship between earnings of IPOs with positive discretionary accruals, and negative discretionary accruals and exceptionally low earnings in post-IPO periods is present. Earnings become \$ 81 million negative and accruals undergo reversal in year +2. Firms within this quintile seem to have crossed the level of equilibrium, since earnings did not express the real future performance. For the year 2004 earnings management is pronounced in year +1 but in year +2 there are no exceptionally low future earnings. Because there is no information available for later periods than year +2 it is difficult to interpret the results, since it is possible that earnings will decline in year +3.

5.4 Inferior post-earnings management operating performance

To rule out the possibility that poor performance is a general problem and not explicit related with IPOs, this paper tests if the post-issue operating performances of IPOs is inferior compared to non-issuers. Figure 4 presents the ROS and ROA of the sample group of issuing year 2003 and 2004. Consistent with some prior studies (Teoh et al. 1998; Roosenboom et al. 2003) there is evidence of inferior post-issue operating performance by issuing firms. While the operating performance of non-issuing firms remains at a constant level, for IPOs it declines in post-issuing years 2004, 2005 and 2006 and stays behind.

Figure 4 - The operating performance of issuers and non-issuers



Note: The number of IPO year observations of firms that issued IPO in 2003 is 506, and for 2004 1,150 (containing IPO year observations from both performance adjusted models).

Figure 5 presents the ROS and ROA for firms that issued IPO in 2003 and 2004 sorted per quintile. The results show that both ROS and ROA of quintile 1 of IPOs from 2003 undergo an exceptional decline. This quintile presents a decline in ROS from year 0 to year +2 of -128%. ROS becomes 0.03 negative in year +2, while ROS of the other quintiles remains

positive. ROA declines by -69% from year 0 to year +2 to a level of 3.39. The other quintiles have a maximum decline in ROA of -57% from year 0 to +2 (quintile 5) and a minimum ROA of 5.13 (quintile 4). Quintile 2 seems to decline “normal” compared to the other quintiles; a decline from year 0 to year +2 of -25% in ROS and -32% in ROA. It seems that quintile 1 has both accruals that undergo reversal and, compared with the other quintiles, exceptionally inferior post-earnings management operating performance.

ROS of quintile 1 of IPOs from 2004 decline to a level of 0.02 in year +2, which is considerable low compared to the other quintiles. Quintile 2 has the highest ROS of 0.06 and quintile 4 and 5 have a ROS of 0.03. ROA of quintile 1 declines to 2.05 which is again low compared with the other quintiles. ROA of quintile 2 is also low with 2.41, however, ROS is the highest of all quintiles with 0.06. The results are consistent with those of firms that issued IPO in 2003, namely that quintile 1 has both accruals that undergo reversal and, compared with the other quintiles, exceptionally inferior post-earnings management operating performance. There is thus a positive relationship between significantly positive discretionary accruals that undergo reversal and become negative, and inferior operating performance in later periods, in quintile 1 of both 2003 and 2004 IPOs. IPOs in other quintiles have also inferior post-earnings management operating performance, but not so exceptionally high than quintile 1. A possible reason that the other quintiles, without the presence of opportunistic behaviour, also have poorer performances on the long run, could be that these IPOs have time their offering in a period of peak performance, which could not stand in the long run (Fan 2007, 21).

Figure 5 - Discretionary accruals, earnings and operating cash flows sorted per quintile

Firms that issued IPO in 2003	Mean return of sales in %				Mean return of assets in %			
	-1	0	1	2	-1	0	1	2
Quintile 1 most aggressive	0.12	0.10 -19%	0.06 -33%	-0.03 -142% -128%	16.08	10.84 -33%	8.81 -19%	3.39 -62% -69%
Quintile 2	0.04	0.06 46%	0.06 11%	0.04 -32% -25%	6.43	7.99 24%	7.39 -7%	5.40 -27% -32%
Quintile 3	0.07	0.08 18%	0.04 -47%	0.05 11% -41%	10.34	9.08 -12%	7.47 -18%	5.40 -28% -41%
Quintile 4	0.14	0.12 -18%	0.08 -35%	0.04 -45% -64%	12.19	9.94 -18%	8.31 -16%	5.13 -38% -48%
Quintile 5 most conservative	0.12	0.13 8%	0.09 -33%	0.06 -31% -54%	14.26	12.22 -14%	8.11 -34%	5.26 -35% -57%

Firms that issued IPO in 2004	Median return of sales in %				Median return of assets in %			
	-1	0	1	2	-1	0	1	2
Quintile 1 most aggressive	0.10	0.05 -53%	0.03 -25%	0.02 -30% -47%	10.78	12.15 13%	8.70 -28%	2.05 -76% -83%
Quintile 2	0.10	0.08 -20%	0.05 -45%	0.06 35% -25%	-0.02	5.68	4.92 -13%	2.41 -51% -58%
Quintile 3	0.08	0.08 -1%	0.03 -65%	0.05 82% -36%	2.19	7.69 251%	6.89 -10%	6.19 -10% -20%
Quintile 4	0.09	0.05 -43%	0.05 -5%	0.03 -37% -40%	5.19	8.25 59%	4.12 -50%	3.64 -12% -56%
Quintile 5 most conservative	0.05	0.03 -41%	0.02 -35%	0.03 67% 9%	2.74	5.30 93%	0.66 -87%	4.02 506% -24%

Note: the key to symbols and the number of IPOs per quintile are the same as in figure 3.

5.5 Opportunistic earnings management

This paper finds a positive relationship between significantly positive discretionary accruals and exceptionally high earnings in excess of operating cash flow, in quintile 1 and 2 of firms that issued an IPO in the year 2003, and in quintile 1 of firms that issued IPO in 2004. The results also indicate that only firms in quintile 1 of IPO year 2003 have underperforming future earnings, and herewith could properly not have managed their earnings to the level of equilibrium. And third, despite inferior post-issue operating performance is pronounced for the complete sample of IPOs, there is only evidence of a positive relationship between exceptionally inferior post-earnings management operating performance and discretionary accruals that undergo reversal, in the most aggressive quintiles. This paper interprets the results of these three tests, that only the IPOs in the most aggressive quintiles of both issuing year 2003 and year 2004, meet the conditions outlined in section 2 and are thus under suspicion of opportunistic behaviour.

The IPOs that are under suspicion of opportunistic behaviour represents more or less 20% of the firms that issued IPO in 2003 and 2004. And more or less 10% of the total sample (4 years). Among others, Teoh et al. (1998) and Roosenboom et al. (2003) found higher percentages and concluded that opportunistic behaviour is strongly pronounced among IPOs. The results of this paper challenge this traditional view and add evidence to support the more recent view (Ball and Shivakumar 2006; Fan 2007) that the appearance of discretionary accruals is not a result of managerial opportunism, but appear because they are endogenous to IPOs. The results suggest that the information perspective on earnings management is more pronounced.

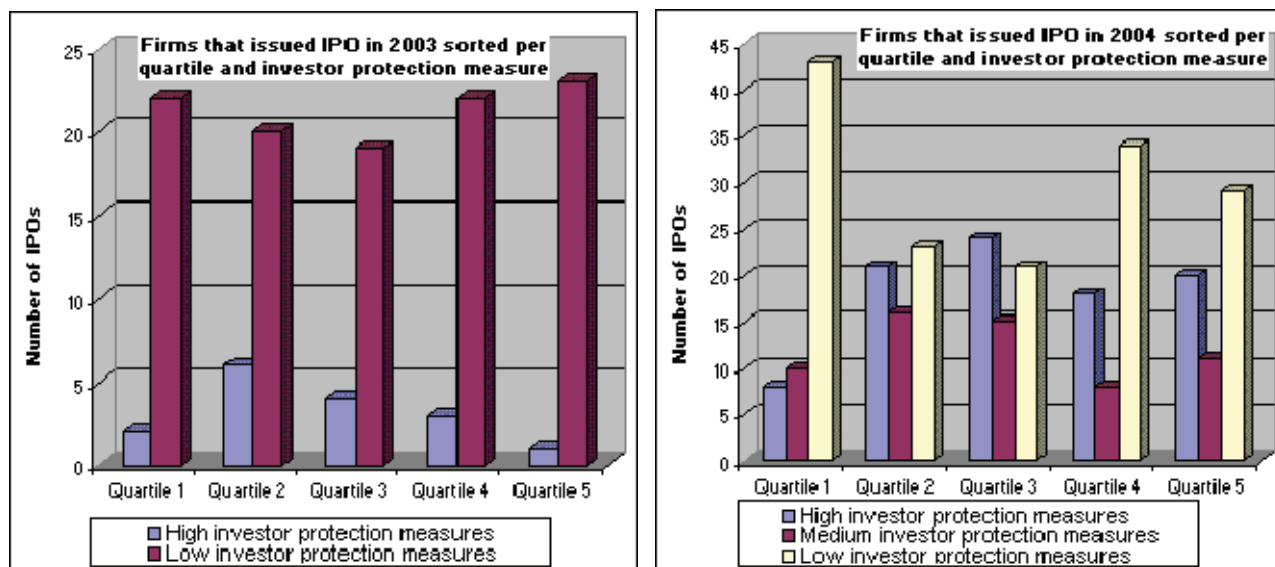
A recommendation for further research is to examine the negative effects of opportunistic behaviour for investors. For example if investors are aware that it is used to

manipulate them. And when they are aware, if they make adjustments in the stock value or alternatively, that the costs of opportunistic behaviour are too small that a change of behaviour is necessary. Also the implications of informative earnings management for both the firm and investors, is a subject that demands more research. For example if investors upwardly adjust the firms' value, when they realise that discretionary accruals are used to inform them instead of manipulating them. An other recommendation for future research is the effect of conservative accounting on future earnings and operating performance. This paper, and most other prior earnings management research, mainly focus on the relationship with aggressively accounting.

5.6 Discretionary accruals and investor protection regulations

The total sample consists of 512 firms in 24 countries worldwide (on 25 stock markets). The country with the highest investor protection measure is Singapore with a rate of 9.3, the lowest is Greece with a rate of 3.0. The tests show, consistent with Leuz et al. (2003), that discretionary accruals are higher in low investor protection countries. Those of the medium investor protection regulations are positive but less so than those of low investor protection regulations. Discretionary accruals of the high investor protection regulations are almost equal to zero or negative. The next step is to analyse the relationship between different discretionary accruals quintiles and investor protection regulations. The results are outlined in figure 6. IPOs from issuing year 2003 are sorted in two investor protection groups and IPOs from issuing year 2004 in three groups. When strong investor protection regulations would counter opportunistic behaviour, the expectation is that there are exceptionally more IPOs in low investor protection countries in quintile 1 compared to quintile 5. An other expectation is that there is a gradually descending line, from many IPOs in low investor protection regulations in quintile 1 to less in quintile 5. Figure 6 shows that in quintile 1 of issuing year 2003 there is more or less an equal number of IPOs in weak investor protection countries, as there is in quintile 5. And there are more IPOs in strong countries than there are in quintile 5. Issuing year 2004 shows no gradually descending line. For example, the number of weak investor protection countries declines in quintile 2 compared with quintile 1, but rises again in quintile 4. And the number of medium investor protection countries rises in quintile 2 compared with quintile 1, but declines again in quintile 4. This paper interprets these statistics that evidence for a positive relationship between weak investor protection regulations and opportunistic earnings management is far from unequivocal. This seems to be consistent with most IPO research that found evidence of opportunistic earnings management in high investor protection countries (for example in the U.S.). It seems that investor protection rules have their limits which prevent opportunistic earnings management in the context of IPOs. Because this conclusion is only based on one observation, more research is necessary to see whether it is generalisable.

Figure 6 - The distribution of investor protection regulations per discretionary accruals quintile



6 Summary and conclusions

Based on a sample of 512 companies in 24 countries worldwide, and using better accrual estimating models and a more recent sample than most prior research, this paper first argues that IPOs do engage in earnings management. However, it seems that earnings management is less pronounced than prior research has suggested (Teoh et al. 1998; Roosenboom et al. 2003), because earnings management is only found in two of the four issuing years. These results show that both investors and standard setters should interpret results of prior research with care.

Second, based on three selected conditions there are indications that the use of earnings management is driven by self-interest. But because IPOs that are under suspicion of such behaviour only represent a small proportion of the total sample (+-10%), this paper adds more evidence to the recent view (Ball and Shivakumar 2006), that the appearance of discretionary accruals is not a result of managerial opportunism, but occurs because discretionary accruals are endogenous to IPOs. The results challenges the opportunistic perspective on earnings management and suggest that the information perspective on earnings management is more pronounced.

Third, the results show that strong aggressively managed earnings by IPOs, “predict” excessively lower future earnings and inferior post-issue operating performance. On the other hand, there is little evidence for this relationship in situations of less aggressively managed earnings.

At last, in continuation of Ahmad-Zaluki et al. (2007) who advised for further investigations about company and environmental factors, the results of this paper add to the growing body of evidence that the pervasiveness of earnings management depends on these factors. The results indicate that there is a positive relationship between low investor

protection regulations and earnings management: discretionary accruals are, on average, higher for countries with low investor protection regulations. However, no positive relationship is signalled between opportunistic behaviour and low investor protection regulations. It seems that stronger enforcement of investor protection laws do not counter opportunistic behaviour. Therefore should investors not rely on investor protection rules excessively, when investing in an IPO. This conclusion complements the findings of Leuz et al. (2003, 9).

The relevance of these results can be summarised as follows. First, the results show that earnings management, opportunistic behaviour specifically, can be very costly and can be predicted by discretionary accruals around the IPO process. This helps issuing firms about how discretionary accruals affect the post-issue performance and affect the cost of equity. Second, accounting standard setters and regulators who are interested in earnings management behaviour, see that care must be exercised in interpreting the effectiveness of investor protection rules with respect to opportunistic behaviour. They may re-consider their laws and regulations to make them more effective. And finally, investors and other stakeholders notice that earnings management is not all-pervasive. And in situations that it is present, it is far from unequivocal that it is used to manipulate accounting figures.

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The effect of leverage increases on real earnings management

Irina Zagers-Mamedova¹¹

Executive summary

Main subject of this paper is to understand whether there could be an incentive for managers to manipulate cash flow from operating activities (CFO) through the use of real earnings management (REM), in situations with increasing leverage. Based upon a study of Jelinek (2007) who researched the correlation between increasing levels of leverage and accrual earnings management, I developed my main hypothesis with respect to the effect of leverage increases on REM to influence CFO. Results indicate that in leverage increasing firms, the leverage results in REM, in order to affect CFO, when using the absolute value of long term debt in calculating leverage.

1. Introduction

1.1 Historical perspective and actuality

The focus of external users on reported earnings as a central variable for making decisions and recent corporate scandals have caused earnings management (EM) to find itself in the center of public attention. Much quoted in this respect is Arthur Levitt, former Chairman of the Securities and Exchange Commission (“SEC”). In his speech of 1998, Levitt (1998) talked about the “the numbers game” with which he attacked practices where management abuses “big bath” restructuring charges, premature revenue recognition, “cookie jar” reserves, and write-offs of purchased in-process research and development (R&D) (Healy and Wahlen 1999). These practices are threatening the credibility of financial reporting, according to Levitt. Others followed Levitt when they expressed their views about EM. Frits Bolkestein, the former Dutch European Commissioner in charge of Internal Market and Taxation for example, raised his concerns regarding EM in his speech of July 2002. Bolkestein (2002) said: “We must have factual, not fictional, accounting.” He also emphasized the importance of company accounts that are true and fair and stated that companies: “... must not distort, hide, fabricate and present, in whole or in part, a misleading web of lies and deceit.”

Managers who want to influence accounting income can choose from a large set of methods. Some of the methods require real transactions and some are pure accounting decisions. In general, EM is classified into the two categories: EM achieved by fraudulent activities and EM achieved by non-fraudulent activities. EM while staying within the

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boundaries of generally accepted accounting principles (GAAP), may be accomplished through accruals, manipulations with no cash flow effects and through real earnings management (REM), manipulations which do have cash flow effects. In this paper EM achieved by fraudulent activities and EM achieved by non-fraudulent activities are seen as two different categories. So with EM I will only refer to non-fraudulent activities that stay within the boundaries of GAAP.

A significant portion of studies on EM have focused on EM through manipulation of accruals. However, Graham et al. (2005) find evidence that managers take real economic actions to maintain accounting appearances, and sometimes are more likely to use real actions than to use accruals to apply EM. It appears that managers are willing to burn “real” cash flows for the sake of reporting desired accounting numbers. There appears to be a constant tension between the short-term and long-term objectives of the firm. In the current global economy, it seems that a company can only survive by joining forces through mergers and acquisitions. Acquisition prices are often structured through capital increases and external debt financing which often results in increasing interest charges. Next to the focus on reported income statement earnings, analysts and investors focusing more on cash flows rather than the income statement of a company as a result of corporate scandals analysts have lost faith in earnings-based metrics. This is also caused by high interest charges more and more companies seem to face, as a result increasing financial loans and increasing interest rates. Sufficient cash flows from operating activities are essential for these companies to remain profitable and viable in the future. Lack of cash flows could result in bankruptcy or a Company to turn into a takeover prey. Knowing that investors use the cash flow statement to make investment decisions, highly motivated and intelligent management teams could be involved in REM to create ways to influence the true picture of a company’s cash flow from operations (CFO) and receive or maintain external debt financing.

Highly leveraged companies could favor cash flow from operations in favor of other financial support sources primarily because many analysts believe that cash flow from operations is a more transparent indicator of a company’s performance. The results of the research performed by Nwaeze et al. (2005), suggest that leverage has positive and significant effect on the role of cash flow from operations.

The importance of reliable information on CFO for investors and the (adverse) economic consequences that manipulations of real activities might have, makes REM an interesting subject. In this paper for leverage increasing firms, the relationship between REM and leverage increases is researched to understand whether there could be an incentive for managers to manipulate CFO through the use of real REM.

The remainder of this paper is organized as follows. Section 2 gives the definition of REM and provides evidence from prior studies on the existence of REM. The third section consists of three parts. In the first part, I develop the main hypothesis, based on this extensive literature overview. The second part presents the design of a conceptual model to identify REM that affects CFO, the model to analyze solvability. The sample period and sample selection presented in the third part. The interpretations of results are presented in section 4. Section 5, provides the analysis of results and gives the suggestions for further research. Finally, the summary and conclusion are presented in section 6.

2. Real earnings management and prior literature

Introduction

Based on recent literature a definition for REM is given. Next, an overview of relevant literature in the field of REM is presented. Recent studies are categorized in groups and provide strong evidence on the existing of REM and show methods on how REM can be measured.

2.1 Real earnings management

For the purpose of the paper I define REM as a purposeful action by management of a company to alter reported earnings in a particular direction, which is achieved by changing the timing and/or structuring of an operation, investment and/or financial transaction with cash flow effects and has sub-optimal business consequences.

This definition is based on definitions given by Healy and Wahlen (1999) and Zang (2007). From the definition we learn that there should be managerial intent in order to influence earnings by structuring transactions. This is the key to the definition of REM. The way a firm accounts for a transaction depends on the form of the transaction. Consequently, if a firm can design a transaction to give it a specific form, it will be able to record this transaction in a desired way; this is what Healy and Wahlen (1999) call “structuring transaction” (Stolowy and Breton 2004). Also there is a difficulty in parsing out which effect is due to normal business activities and which is due to real management activities. In this paper the focus will be on manipulation through real activities. The reason for this is twofold. First the negative value implications of manipulating real activities are thought to be the one of the most serious forms of earnings management (Ewert and Wagenhofer 2005; Chen et al. 2008). The second reason, is that by definition, accruals management does not directly affect cash flows, but merely changes the timing of revenue and expense recognition. However, REM can adversely affect cash flows both in the short in the long term by, for example by cutting discretionary expenditures.

2.2 Prior studies

The possibility that managers manipulate real activities is discussed in the academic literature. In general, most of the existing work focuses on R&D expenditures (Baber et al. 1991; Dechow and Sloan 1991; Bushee 1998; Cheng 2004).

Baber et al. (1991) found that relative R&D spending is significantly less when spending jeopardizes the ability to report positive or increasing income in the current period. In most instances, choices among accounting practices have no direct cash flow consequences, but changes in R&D spending to satisfy current-period income objectives do alter cash flow.

Dechow and Sloan (1991) investigate the hypothesis that chief executive officers (CEOs) in their final years of office manage discretionary investment expenditures to improve short-term earnings performance. The authors examine the behaviour of R&D expenditures for a sample of firms in industries that have significant ongoing R&D activities. The results suggest that CEOs spend less on R&D during their final years in office.

Next to Dechow and Sloan, Bushee (1998) examines firms trying to meet previous year's earnings and finds that they reduce R&D more if they have lower institutional ownership.

He found evidence that R&D reductions by firms trying to meet earnings thresholds are potentially value-destroying and are prevented by the presence of sophisticated investors. Also evidence exists on firms engaging in a whole range of activities in addition to just R&D expense reduction.

Cheng (2004) provides evidence that compensation committees establish a greater positive association between changes in R&D spending and changes in CEOs options in order to prevent opportunistic reductions in R&D spending. He defines the horizon problem as the CEOs that are 63 or older, and myopia as a firm facing a small earnings decline or a small loss.

There are few studies about how managers use specific transactions, other than cutting R&D expenditures, to influence earnings. Some of the studies focus on stock repurchases (Hribar et al. 2006; Bens et al. 2003), examine the sales of fixed assets (Herrmann et al. 2003; Bartov 1993), sale price reductions (Jackson and Wilcox 2000), overproduction, managing of sales, advertising, SG&A expenses and effect of REM (Roychowdhury 2006; Gunny 2005) and trade off between accrual and REM (Zang 2007).

I briefly review the remaining studies.

Stock repurchases

Hribar et al. (2006) extend Bens et al. (2003) in several ways. They identify the conditions under which a stock repurchase increase earnings per share (EPS) and document the frequency of accretive (i.e., EPS increasing) repurchases. Second, they examine whether accretive stock repurchases are disproportionately more frequent among firms whose reported quarterly EPS would have otherwise fallen short of analysts' forecasts. The study provides evidence on whether stock repurchases are used to manage reported EPS. Third, they investigate how investors price the repurchase-induced accretive component of reported EPS when the extent of repurchase is first disclosed.

Bens, Nagar and Wong (2003) investigate the use of stock repurchases to offset earnings per share (EPS) dilution caused by employee stock options. They report that managers of firms increase the level of their firms' stock repurchases in years when options-related EPS dilution increases and when annual earnings are below the level required to sustain past EPS growth rates. Managers partially finance these repurchasing by reducing R&D.

Sales of fixed assets

Herrmann et al. (2003) examine the usage of income from the sale of fixed assets and marketable securities to manage earnings. They found a negative relation between income from asset sales and management forecast error. When current reported operating income is below (above) management's forecast of operating income, firms increase (decrease) earnings through the sale of fixed assets and marketable securities.

Bartov (1993) examines sales of fixed assets and shows that the profit from sales of assets is negatively correlated with earnings changes. He uses this to argue that firms facing earnings declines boost profits through increased asset sales.

Sale price reductions

Jackson and Wilcox (2000) in their study, made an investigation whether managers grant sales price reductions in the fourth quarter to accelerate customer purchases and, as a result, avoid losses and declines in earnings and sales. Consistent with expectations, the results of univariate and multivariate tests indicate that firm managers grant sales price reductions in the fourth quarter to meet annual financial reporting targets.

Overproduction, managing of sales, advertising, SG&A expenses and effect of real manipulation

Management of sales, reduction of discretionary expenses, overproduction are examined by Roychowdhury (2006). In his study he develops the empirical methods to detect real activities manipulation other than reduction of R&D expenses. The results suggest that drawing inferences on earnings management by analyzing only accruals may be inappropriate, because suspect firm-years manipulate real activities to avoid reporting losses. Additionally, firms appear to be managing real activities to a greater extent if they have a higher proportion of current liabilities.

Next to Roychowdhury, Gunny (2005) examines the extent to which REM affects subsequent operating performance (as measured by both earnings and cash flow) and whether investors anticipate the performance consequences of real management. The results provide evidence that REM has an economically significant impact on future performance.

Trade off between accrual and real earnings management

Zang (2007) studies whether managers use real manipulation and accrual manipulation as substitutes in managing earnings and studies the order in which managers make these decisions. The author follows the prior literature on REM (Roychowdhury 2006; Gunny 2005). She found that managers determine real manipulation before accrual manipulation. Based on this result, she used an empirical model that captures the sequentiality of real and accrual manipulations to test the tradeoffs between the two.

Cohen et al. (2007) document that following the passage of SOX accrual-based earnings management declined significantly, while REM increased significantly. Consistent with the results of a recent survey by Graham et al. (2005), this suggests that firms switched to managing earnings using real methods, possibly because these techniques, while more costly, are likely to be harder to detect.

Ewert and Wagenhofer (2004) found factors that determine the intensity of the substitution of accounting by REM and the welfare effects, such as substitution rates between accounting and REM by manager, the real cost of earnings management, and the precision of the market knowledge about the manager's incentives.

The most important evidence on REM is provided by Graham et al. (2005). The authors found strong evidence that managers take real economic actions to maintain accounting appearances. In particular, 80% of survey participants report that they would decrease discretionary spending on R&D, advertising, and maintenance to meet an earnings target. More than the half (55.3%) state that they would delay starting a new project to meet an earnings target, even if such a delay entailed a small sacrifice in value.

3. Hypothesis development, research design and sample

Introduction

In this section, I present my hypotheses with respect to the effect of leverage increases on REM and more specific on REM to influence CFO. I also discuss REM in relation to CFO. Next the focus is on external financing and more specific on solvability or leverage. Then the definition of solvability and relevance for REM is given. Based upon these discussions, the hypotheses for this study are presented.

3.1 Hypothesis development

CFO

The majority of investors are now keenly aware of the concept of quality of earnings. As a result, certain investors ignore reported earnings and use the operating activities section of cash flow statement as a “reality check” on reliability of the revenues and expenses reported in the income statement. The cash flow statement (CFS) is one of three statements required for financial statements to be in accordance with US GAAP.

The definition of CFO is specified in Statement of Financial Accounting Standards (SFAS) No. 95, Cash Flows and is defined as follows: “Operating cash flows are those that are related to the corporation’s operating activities (i.e., those activities reflected in the corporation’s income statement).

From the definition we learn that the CFO section reports the corporation’s ongoing cash-generating activities that provide cash for dividend and other payments.

Prior studies provide evidence the existence of REM (Section 2). The effects on CFO had significantly less focus of researchers. Because REM is thought to be the one of the most serious forms of EM and is an issue that concerns the investment community, it is important to better understand the factors that could be behind this phenomenon.

There are some studies that assume that cash flows are free from manipulation (Givoly and Hayn 2000; Barth, Cram and Nielson 2001). However, recent academic studies indicate that managers may engage in and benefit from managing cash flow (Melendrez et al. 2005; Graham et al.2005).

There are indications that managers take real actions to report positive or to improve CFO (Zhang 2006). Taking into account the importance of reliable information about CFO for investors and the (adverse) economic consequences that manipulations of real activities might have (Gunny 2006) the question arises whether companies are, in a certain situation, for example, companies with relatively high or increasing debt, more likely to take real actions with positive cash flow consequences.

Leverage

In the current global economy, as already noted in section 1, it seems that a company can only survive by joining forces through mergers and acquisitions. Companies that have high leverage may be at risk of bankruptcy if they are unable to make payments on their external debt financing; they could also be unable to find new lenders in the future. So, if a company wishes to take out a new loan, lenders will scrutinize several measures of

whether the company is borrowing too much and will demand that it keeps its debt within reasonable boundaries.

Previous literature suggests that leveraged firms engage in EM to avoid debt covenant default (Beatty and Weber 2003; Dichev and Skinner 2002; DeFond and Jiambalvo 1994). However, these studies measure EM using accrual based measures.

Jelinek (2007) studies the effect of leverage increase on accrual EM. Jelinek suggests that leverage changes and leverage levels have a different impact on EM and concludes that increased leverage is associated with reduced accrual EM. Moreover results suggest that there is a beneficial consequence of debt because the increased debt reduces manager's discretionary spending, and in turn, reduces accrual EM.

The conclusion has been drawn by Jelinek could be incorrect. As there could be another explanation of why increased leverage is associated with reduced accrual EM. For example companies with increasing debt could be involved in the REM. However, increased leverage could give an incentive for managers to switch from accrual earnings management to REM. Moreover, reducing of discretionary expenses is one of the REM activities that could provide evidence that the company engage in REM.

One relevant research on management of CFO is performed by Zhang (2006) and comes close to consider the effect of the level of leverage on REM; he investigates the possibility that debt covenants, amongst others, could be a one of the incentives for management to manipulate cash flow through real activities. The result of his research suggests that coefficients on debt covenants are positive but not significant, because the proxy to capture incentives is too crude. Unlike this paper, Zhang considers the incentives to avoid default of debt covenants, amongst which debt-to-equity-ratio, rather than researching whether changes in the level of leverage are positively correlated to REM.

The purpose of this thesis is to develop a model to investigate whether increases of leverage of a company are an incentive for management to manipulate earnings through real activities in order to affect CFO. Based on the study of Jelinek (2007) that distinguishes between leverage increasing firms and highly leveraged firms the main hypothesis is as follows:

H1: Leverage results in real earnings manipulation by management.

Based on study Jelinek (2007) and based on the primary purpose of this paper, I distinguish between high leverage and leverage-increasing firms. To investigate whether *leverage changes* and *leverage levels* have different impact on REM, I present the following hypothesis:

H2: Real earnings management in order to positively affect cash flow from operating activities, in leverage-increasing firms, is positively correlated with the level of leverage.

Based upon my study of recent literature, I was unable to identify other previous research that focuses on researching these hypotheses. This is most likely caused by the focus of earnings management on accruals management, and less on REM. Researchers that focus on REM most commonly research the effects on earnings rather than effects on CFO. As such, and to my best knowledge, this is the first time a hypotheses is developed to identify

the positive correlation of the level of leverage and the changes in leverage with REM used to positively effect operating cash flows. In the next section I develop a model to test these hypotheses and identify data samples.

3.2 Research design

Models to measure real activities manipulation

In general, in literature two models are indentified to measure real activities manipulation.

- Investigating firm's *total level* of REM. As a proxy for REM researchers (Chen et al. 2007) use *abnormal* level of cash flows from operations. To determine *normal* level of CFO they use the model developed by Dechow et al. (1998) which was implemented in research by Roychowdhury (2006).
- Examine abnormal level of cash flows from operations and also abnormal discretionary expenses and abnormal production costs, and the sum of standardized three REM proxies, to capture the effects of real actions presumably better (Roychowdhury 2006).¹²

Roychowdhury focuses on the following three manipulation methods: manipulation of sales, overproduction, decrease of discretionary expenses . In general, some of three activities would increase operating cash flows, but some would decrease them.

The primary purpose of this thesis is to develop a model, that will more precisely measure whether *the increasing level of solvability (leverage)* of a company is an incentive for management to manipulate earnings *through real activities* and not the existence of a higher or lower level of REM. Therefore, I use abnormal CFO based on Roychowdhury [2006], as a proxy for REM. The reason is twofold. First, I am primarily interested in investigating a firm's *total level* of REM in order to identify increasing effects of REM on cash flow from operating activities rather than a mixture of positive and negative effects of REM on cash flow from operating activities, and abnormal cash flow from operation is one such aggregate measure. Second, not one model is deemed to have prevalence above the other model. The explanation could be that studies concerning REM are only in development.

Normal level of CFO

To determine normal level of cash flow from operating activities for every firm and year, I use the model developed by Dechow et al. (1998) and implemented in research by Roychowdhury (2006).

Roychowdhury (2006) explains normal CFO as linear function of sales (S_{it}) and change in sales in the current period (ΔS_{it}). All variables in the model are scaled by lagged total assets ($A_{i,t-1}$).

$$(CFO_{it} / TA_{i, t-1} = \alpha_{0t} + \alpha_{1t} [1/TA_{it-1}] + \alpha_{2t} [S_{it}/TA_{i, t-1}] + \alpha_{3t} [\Delta S_{it}/TA_{i, t-1}] + \epsilon_{it} \quad (1)$$

¹² This proxy for REM has been used and verified to be valid in subsequent studies by Gunny (2006), Cohen (2007), Zhang (2006), Zang (2007).

Abnormal CFO

Next, for every firm and year, I calculate abnormal level of cash flow from operation (RE). Abnormal CFO is equal to actual cash flow from operation minus the “normal” cash flow from operation computed using estimated coefficients from the above equation (1).

Model to measure level of leverage

In general, two widely used methods exist to measure the level of leverage. Measurement based on the use of book value debt and equity (i.e., accounting) or market value of debt and equity. There is no law or regulation stating how the level of leverage should be measured. For example, in case of leased assets accountants try to estimate the present value of the lease commitments. In the case of long term debt they simply show the face value. This can sometimes be very different from present value. To be consistent with previously studies (i.e., Nwaeze et al. 2005; Jelinek 2007), first I measure leverage (LEVERAGE) as the ratio of long term debt to the total of book value of equity and long term debt. Although more commonly a ratio of long term debt to book value of equity is used, I use this method as it is preferable in situations where a sample includes companies with a negative book value of equity. A negative book value of equity would otherwise result in a low leverage level (negative) despite the absolute value of long term debt. Therefore the first formula to calculate LEVERAGE can be shown as follows:

$$(\text{LEVERAGE}) = \text{long-term debt} / \text{book value of equity} + \text{long term debt.} \quad (2)$$

Furthermore, I also measure the level of leverage using market values as valuation models in the finance literature that use leverage ratios as inputs are generally based on the market value of debt and equity (White et al. 2003). Market values of both debt and equity are available or can readily be estimated, and their use can make the ratio a more useful analytical tool. The use of market values, however, may produce contradictory results. The debt of a firm whose credit rating declines may have a market value well below face amount. A debt ratio based on market values may show an “acceptable” level of leverage. A ratio that would control for this phenomenon and can be used in conjunction with book- or market-based debt ratios is one that compares debt measured at book value to equity measured at market:

The formula for calculation this leverage ratio is as follows:

$$(\text{LEVERAGE}) = \text{long-term debt at book value} / \text{market value of equity.} \quad (3)$$

In addition, I also use the actual book value of long term debt as a measure for solvability. The main reason for this is the assumption that a company with a high absolute amount of long term debt could be closely monitored by the issuers of debt irrespective of the relative value of long term debt in comparison to equity. Therefore, I want to measure whether the total amount of long-term debt is correlated to the level of REM. To determine the LEVERAGE based upon this measure, leverage is calculated as shown below:

$$(\text{LEVERAGE}) = \text{long-term debt.} \quad (4)$$

Model to measure hypotheses

Since I have chosen to calculate leverage in three separate ways in order to determine whether one or more of these models individually affect the level of REM, the hypothesis H2 is subdivided into three sub-hypotheses. I estimate three distinct models by using ordinary least squares regression to separately test the three hypotheses.

In order to reflect the first book value approach to calculating the leverage ratio, I have developed the following hypothesis:

H2.A: Real earning management in order to positively affect cash flow from operating activities, in leverage-increasing firms, is positively correlated with based on the equation (2) measured level of leverage.

To test hypothesis I estimate the following regression:

$$(RE) = \alpha_0 + \alpha_1 (LEV_INC) + \alpha_2 (SIZE) + \alpha_3 (CAPIN) + \varepsilon_{it} \quad (5)$$

In order to reflect the market value approach to calculating the leverage ratio, I have developed the following hypothesis:

H2.B: Real earning management in order to positively affect cash flow from operating activities, in leverage-increasing firms, is positively correlated with based on the equation (3) measured level of leverage.

To test hypothesis I estimate the following regression:

$$(RE) = \alpha_0 + \alpha_1 (LEV_INC) + \alpha_2 (SIZE) + \alpha_3 (CAPIN) + \varepsilon_{it} \quad (6)$$

In order to reflect the absolute value of long term debt as the leverage ratio, I have developed the following hypothesis:

H2.C : Real earning management in order to positively affect cash flow from operating activities, in leverage-increasing firms, is positively correlated with based on the equation (4) measured level of long term debt .

The hypothesis H2.C represents that REM is positively correlated to leverage for leverage-increasing firms, when using the absolute value of long term debt in calculating leverage. To test hypothesis I estimate the following regression:

$$(RE) = \alpha_0 + \alpha_1 (LTD_INC) + \alpha_2 (SIZE) + \alpha_3 (CAPIN) + \varepsilon_{it} \quad (7)$$

Control variables

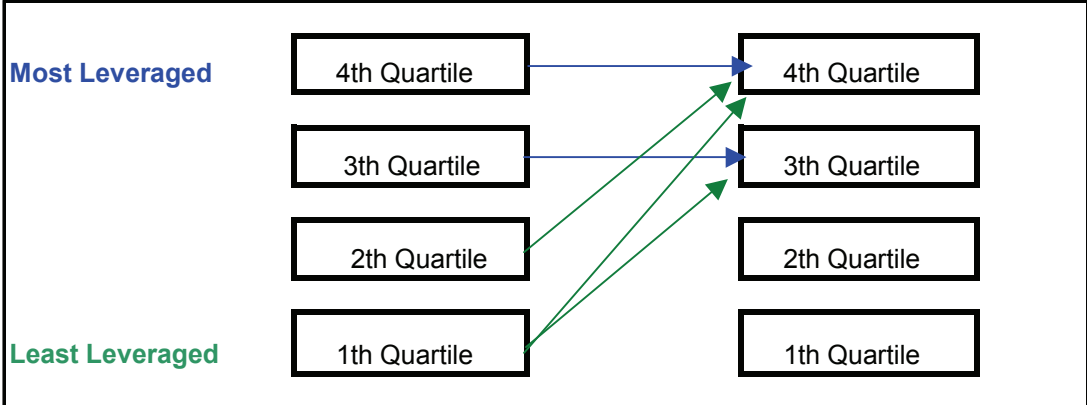
This study controls for size. Large firms are more widely followed by the analyst's community and have a different information environment than smaller firms. To control for this I include variable (SIZE) in the regression. Also, I include variable (CAPIN) to

control for capital intensity. Zhang (2006) suggests that cash flow information is relatively more important for capital intensive firms than for non-capital intensive firms.

3.3 Sample period and sample selection

Similar to Roychowdhury (2006), I require that cash flow from operating activities is available on Compustat from the Statement of Cash Flows. This restricts my sample to the post-1986 period. As stated previously, I strive to examine changes in REM across leverage increasing firms and highly leveraged firms. For identifying the sample period I use results of previous studies. The studies by Graham et al. (2005); Cohen et al. (2007) documented that the level of REM activities declines prior to The Sarbanes Oxley Act (SOX) in 2002 and increased significantly after the passage of SOX. As a result my sample is further restricted to the post-2002 period. The effects of SOX are expected to be presented earlier in financial information of US based companies compared to foreign private issuers (foreign companies listed on the US stock exchanges) who were not required to comply with SOX until 2005. As such, my study will collect data for U.S. firms in Compustat rather than non-U.S. companies. To determine the sample and firm classification, I carry out a similar sample selection method as previously presented by Jelinek (2007) in her study. As a result the total number of companies in my data set equals to 1.287 firms (7.722 observations). Next, I divided my total sample of 1.287 firms into the following three potential samples: Samples 1 year 2002-2004, Sample 2 year 2003-2005 and Sample 3 year 2004-2006. Then, based on Jelinek (2007), I classified each firm in each of three samples as Leverage-Increase firm or Constantly Highly-Leveraged.

Figure 1. Determination of leverage-increasing firms and control firms



A firm is classified as a Leverage-Increasing firms if: the firm is initially in the first (bottom) or second quartile of the sample leverage distribution at the beginning of a sample period and moves up at last 2 quartiles by end of the sample period. A firm is classified as a Constantly Highly-Leveraged if it is in the third quartile of the leverage distribution at both the beginning and the end of a sample period, or in the fourth quartile of the leverage distribution at both the beginning and the end of a sample period. I excluded all firms without classification from each of the three samples.

4. Results

Introduction

This section presents the test of hypotheses, the results and interpretation of results.

4.1 Test and Results

Test 1 Hypothesis H2.A

Consistent with hypothesis H2.A, leverage-increasing firms, where leverage is measured based on book value of equity, should have increased abnormal CFO at the end of a sample period.

I run regressions (5) for each Box separately. Then, I also re-estimate the regression (5) for all three samples together. The results of this test are presented in Table 2.

Table 2:

Leverage calculated based on book value of equity:

Sample	Period	Sample N	After elimination			Test results		
			Leverage increasing N	Control N	Total Sample	Hypo-thesis	Coefficient	Significance
Box 1	2002-2004	1287	75	348	423	H.2A	positive	not significant
Box 2	2003-2005	1287	86	413	499	H.2A	positive	not significant
Box 3	2004-2006	1287	84	453	537	H.2A	negative	significant
Total			245	1214	1459	H.2A	negative	not significant

The output shows that the coefficient of LEV_INC is positive, but not significant in two first regressions for sample-box 1 and box 2 (p-value equals .194 and .437). In the regression of sample-box 3 the coefficient is reported as a negative (-.114) and significant (p-value is 0.006). This result indicates that increased leverage, relative to constantly high levels of leverage, is associated with negative REM, suggesting reduced operating cash flow manipulation. However, average prediction accuracy (Adjusted R-square) equals to 8%. Therefore the results of sample-box 3 require further investigation in future research using a larger sample and a longer post-SOX sample period.

Test 2 Hypothesis H2.B

Consistent with hypothesis H2.B, leverage-increasing firms, where leverage measured based on market value of equity, should have increased abnormal CFO at the end of a sample period. I run regressions (6) for each Box separately. Then, I also re-estimate the regression (6) for all three samples-boxes together. The results of this test are presented in Table 3.

Table 3:

Leverage calculated based on market value of equity:

Sample	Period	Sample N	After elimination			Test results		
			Leverage increasing N	Control N	Total Sample	Hypo-thesis	Coefficient	Significance
Box 1	2002-2004	1287	70	252	322	H.2B	negative	not significant
Box 2	2003-2005	1287	76	304	380	H.2B	positive	Significant not
Box 3	2004-2006	1287	86	348	434	H.2B	positive	significant not
Total			232	904	1136	H.2B	positive	significant

The output produced by SPSS reports that only in Box 2 coefficient of LEV_INC positive (.194) and significant at 5% level (p-value 0.040), suggesting that leveraged-increasing companies in sample box 2 are more likely to manipulate cash flows. The coefficient on leverage in two other boxes is not significant. Average prediction accuracy (Adjusted R-square) is equal to 7%. The re-estimating of the regression (6) for all three samples together does not present significant result on increased leverage.

Test 3 Hypothesis H2.C

Similar to the hypotheses H2.A and H2.B I test the hypothesis H2.C. The results of this test are presented in Table 4.

Table 4:

The actual book value of Long Term Debt is used:

Sample	Period	Sample N	After elimination			Test results		
			Leverage increasing N	Control N	Total Sample	Hypo-thesis	Coefficient	Significance
Box 1	2002-2004	1287	8	107	115	H.2C	positive	significant
Box 2	2003-2005	1287	10	120	130	H.2C	positive	significant
Box 3	2004-2006	1287	9	124	133	H.2C	positive	significant
Total			27	351	378	H.2C	positive	significant

The results show that the coefficient on long term debt (LTD_INC) is positive and significant at 1% level in all three boxes (Box 1: 0.117, Box 2: 0.142, Box 3: 0.095) which is consistent with H2.C. In other words the results of this test suggests, that firms with increased long term debt are more likely to manipulate CFO, which support H2.C hypothesis; management appears to be managing cash flows more in these firms than in other firms. Also by re-estimating of the regression (7) for all three samples together the

coefficient on long term debt is positive and significant at 1% level. The average adjusted R square is 30%.

5. Analysis of results and suggestions for further research

5.1 Analysis

In summary, I examine the impact of increased leverage on REM, paying particular attention to distinguish between highly leveraged and leveraged increasing firms. The main hypothesis states that increased leverage results in real earnings manipulation by management in order to affect cash flow from operating activities.

I estimate three distinct models by using ordinary least squares regression to separately test three sub-hypotheses. The sub-hypotheses are based on three different methods to measure level of leverage.

The overall test results indicate that from three above mentioned hypotheses: H2.A, H2.B and H2.C only the last hypothesis supports the main hypothesis H1. This hypothesis states that the leverage results in real earnings manipulation by management in order to affect CFO firms, when using the absolute value of long term debt in calculating leverage. The results of testing of the hypotheses H2.A and H2.B are ambiguous and as such no evidence has been found to support these hypotheses by my research. H2.C however does provide an unambiguous support to the main hypotheses.

Furthermore, it is worth noting the relation between real earnings measure proxy and two control variables SIZE and CAPIN. The coefficient on capital intensity (CAPIN) is significant at 1% level and positive across all regressions, consistent with Zhang (2006), finding that CFO is relatively more important for capital intensity firms. In contrast to Zhang (2006), the coefficient on SIZE is positive and significant across all regressions. The explanatory power of last model is quite high compared to other models.

5.2 Suggestions for further research

This study consists of some data limitations and different assumptions in the models.

First, Jelinek (2007) distinguishes between firms with leverage increases and the firms with leverage that is consistently high at the both the beginning and the end of a six consecutive five-year sample periods (from 1992 to 2002). The main reason for this is to avoid capturing temporary changes in debt, which may not meaningfully impact managerial behaviour. As indicated in previously chapters, the level of REM activities declines prior to The Sarbanes Oxley Act (SOX) in 2002 and increased significantly after the passage of SOX. As a result my sample is restricted to the post-2002 period and consists of only a five-year period (from 2002 to 2006) - I use three consecutive three-year sample periods with the assumption that the expected results are not affected. Therefore the recommendation for further investigation in the future research is to use a larger sample and a longer post-SOX sample period.

Second, this study collects the data for U.S. firms in Compustat rather than non-U.S. companies. In future years I recommend that this study is also carried out for non-U.S. companies listed on U.S. stock exchanges or more widely on listed stock exchanges in various countries.

Third, I measure the level of leverage using market values as valuation models in the finance literature that use leverage ratios as inputs are generally based on the market value of debt and equity. A debt ratio based on market values may show an “acceptable” level of leverage. I use the ratio that would control for this phenomenon and that compares debt measured at book value to equity measured at market.

Also, other causes may play a role that have not yet been addressed. One of these causes is the method of measurement of abnormal cash flows from operating activities. Abnormal CFO is measured on the basis of the figures from the previous period (assets etc). For example, if business activities are suddenly increased in the current year through acquisitions, increased CFO that would be justified by this increase, would be incorrectly marked as abnormal. Use of the pro forma financial information could control for this phenomena.

6. Summary and conclusion

6.1 Summary

As my main subject of this paper is to understand whether there could be an incentive for managers to manipulate cash flow from operating activities through the use of real earnings management, in situations with increasing leverage, external financing in relation to earnings management was discussed. I found several studies that linked the level of external financing to the use of real earnings management. However, no studies were found that specifically linked increasing levels of external financing or leverage to the use of real earnings management. Based upon a study of Jelinek (2007) who researched the correlation between increasing levels of leverage and accrual earnings management, I developed my main hypothesis with respect to the effect of leverage increases on real earnings management and more specific on real earnings management to influence cash flows from operating activities. My results indicate that by the distinguishing between highly leveraged and leveraged increasing firms, the leverage results in real earnings manipulation by management, in order to affect CFO, when using the absolute value of long term debt in calculating leverage.

6.2 Conclusion

This study is motivated by business press and recent researches that firms engage in manipulation of operating cash flows. The results make the following main contribution to existing literature. First, this study is the first that measures the impact of leverage levels and leverage changes based on Jelinek (2007) on abnormal CFO. My results indicate that by the distinguishing between highly leveraged and leveraged increasing firms, the leverage results in real earnings manipulation by management, in order to affect CFO, when using the absolute value of long term debt in calculating leverage. In other words the results suggest that firms with increased long term debt are more likely to manipulate cash flow from operation. Second, my result is significant in light of previous recent literature on leverage/REM where the researches do not find evidence of a significant association between leverage and real activities manipulation as incentive for managers to manage the operating cash flows. (Roychowdhury 2006, 35; Zhang 2006, 26). This is primarily because

previous research focused on constant leverage (high, low or scaled) and not on leverage increases. It is however important to keep in mind certain limitations in my research which are discussed in section 5.

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Real economic activity and earnings management from a cross-country perspective

Romy Tylsch¹³

Executive Summary

This paper provides empirical evidence on differences in the extent of earnings management across countries. I use an earnings management detection model developed by Leuz et al. (2003) to determine this extent in Germany, Japan, and the USA. Based on previous research, I hypothesize due to differences in prevailing institutional factors in those countries that earnings management is most pervasive in Germany and least pervasive in the USA with Japan exhibiting values in between. The results mostly confirm the hypothesis. Moreover, I investigate a possible link between real economic performance of a country and the extent of earnings management. I expect a negative correlation between them, whereas the intensity of this relation decreases with increasing pervasiveness of accounts manipulation in a country. Empirical results confirm these hypotheses partly.

1. Introduction

Earnings management, or accounts manipulation as it is also called, is a distinct area of concern in financial reporting. Recently, the credibility of performance measures has increased in importance especially with the occurrence of recent accounting scandals such as in the cases of WorldCom and Enron. As stated by Lev (2003), earnings are a standard measure for investor's valuation models, as well as an indicator for business and management performance which makes it vulnerable to manipulation.

For the purpose of this paper, I adapt a definition by Healy and Wahlen (1999, 368):

“Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.”

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Managers achieve the above mentioned incentives by creating a smooth increase of the earnings figure over time or by using discretionary actions to meet or beat benchmarks. Graham et al. (2005) note that smooth earnings are preferred by management because predictions about future performance can be made more easily. Glaum et al. (2004) state that losses, declining income, and earnings figures that do not meet analysts' forecasts lead to doubt among investors about the company's future growth prospects, which may lead to major problems at the company.

Extensive research has been made in this field by academics since the 1970s. International accounting research is concerned with the question which and to what extent market forces and institutional factors influence earnings management practices. Based on previous research on specific institutional factors in a country, e.g. by Guenther and Young (2000), and Leuz et al. (2003), I summarize findings of previous research regarding a de- or increasing impact on earnings management pervasiveness by different institutional factors, such as the political influence on the national accounting system, corporate culture and ownership in firms, the prevailing financial system in a country, and conformity of tax and accounting laws. Since those institutional factors differ across countries, I also expect earnings management to vary.

In particular, my research focuses on Germany, Japan and the USA because those countries stand for contrary institutional factors. Thereby, I expect Germany to exhibit the greatest extent of earnings management and the USA the smallest extent. An empirical analysis using a detection model developed by Leuz et al. (2003) is conducted in order to obtain evidence for my expectations.

The economic performance of a country is an institutional factor that has not obtained much attention in the past. Jin (2005) analysed that earnings management in aggregate varies across countries and is dependent on economic conditions. The variation within one country is predictable from real economic activity. My research investigates whether this statement can be confirmed by empirical research. I hypothesize a negative relation between the economic performance of a country and the extent of accounts manipulation.

In addition, I claim that the association is closer in some countries than in others. Thereby, I expect that the higher the general pervasiveness of earnings management, the lower the association between accounts manipulation and economic activity. Basis for this conclusion is a study conducted by Guenther and Young (2000) who investigated an association between real economic activity and company performance measures and find that company performance measures reflect real economic performance of the firm in different degrees across countries.

Specific outcomes of Guenther and Young's (2000) study are a low relation for Germany and a high association for the USA, with Japan exhibiting a value in between. I expect the same result for my research. This conclusion is based on the fact that earnings are also a measure for company performance that reflects economic activity in varying intensity across countries due to prevailing institutional factors.

As introduced above, research in international accounting attempts to find ways to predict the pervasiveness of earnings management under the influence of certain institutional factors or economic conditions. In addition, the presence of earnings management is not desirable from an investor's point of view. Therefore, investors should be more cautious when earnings management practices are expected to increase. My approach contributes to the research in international accounting, because it helps regulators and financial analysts predict the extent of earnings management under certain economic conditions.

The paper is organized as follows. The next chapter provides a comprehensive literature review. Chapter 3 develops hypotheses and describes the research design. Chapter 4 presents the results of the research and analyses those. Chapter 5 provides a summary and conclusions of the findings.

2. Literature review

2.1 Institutional factors

It should be noted that certain institutional factors coincide with each other. However, it is still crucial to analyse them separately on how they individually influence management behaviour. Certainly, incentives on firm-level still hold across countries, but their importance in financial reporting differs by the existing institutional factors.

Political influence in standard setting

Ball et al. (2000) distinguish two legal systems based on their political influence in accounting standard setting, namely common-law and code-law systems. In general, those systems are the basis of existence of the stakeholder and shareholder governance model respectively. High political influence is noted for code-law systems, whereas in common-law countries, the market and private sector develops and decides about accounting practices.

As mentioned above, the common-law system coincides with the shareholder governance model and refers to common-law countries, also called outsider economies, such as the USA and UK. In this legal system a board of professionals which is elected by shareholders, develop new accounting standards.

In code-law countries, also called insider economies, such as Germany, France or Japan, Government is heavily involved in the development of new standards. The reason for that lies in the fact that code-law originates from collective planning in the public sector. For that reason, political pressure on accounting occurs on national and firm level. Governments cooperate with business units, banks and political parties when legislating and implementing national accounting standards

On firm level, political influence comes from major 'stakeholders', such as banks, Government, managers, or creditors, who interact with firms. In the stakeholder governance model, accounting income can be described as a "pie" that must be separated

between those groups of interest. Consequently, major stakeholders influence the way and extent earnings are managed, which leads to a higher extent of management in code-law countries than in common-law countries

Classifying countries is a necessary step in a research analysis. However, this approach may not reflect reality. For instance, Ball et al. (2000) and Guenther and Young (2000) raise the question of homogeneity of those models within countries. They conclude that code and common law interact with each other. Financial reporting is always balanced in the middle, i.e. no pure planning or market system exists. For the purpose of my paper, I classify countries according to the general tendency of the respective institutional factor.

Corporate governance and ownership

Corporate Governance is a broad term describing the way how investors assure that they receive a return from their investment into a corporation (Shleifer and Vishny 1997). Studies by Leuz et al. (2003), Shleifer and Vishny (1997), and La Porta et al. (2000) describe that the pervasiveness of earnings management is lower in countries where strong investor protection, a dispersed ownership structure, and developed equity markets are prevalent. I analyse the logical background for those findings below.

Shleifer and Vishny (1997) analyse that insiders, i.e. managers attempt to conceal private benefits they gain from outsiders, i.e. investors to the public because otherwise they would be held reliable for them. More specifically, insiders want to prevent outsiders from interfering because private control benefits of managers would be unmasked. That is why losses are attempted to be hidden and or earnings figures managed. This lack in transparency of firm performance and earnings management actions is called information asymmetry. Studies by Trueman and Titman (1988) and Dye (1988) found that its existence is a necessary condition for earnings management.

Evidence for those findings has been delivered by an empirical research by Leuz et al. (2003). The authors clustered 31 countries with similar legal and institutional features into three identified groups and found by measuring the general pervasiveness of earnings management for each country that earnings management is exercised least in the first group, with an increasing extent in the second group, and most in group three.

In particular, cluster one are mostly outsider economies with common-law structures that exhibit a strong legal enforcement and a large equity market. Examples are the United Kingdom and The USA. Cluster 3 includes countries, such as Italy and India that follow mainly code-law structures, i.e. with centralized ownership, less developed stock markets and weak legal enforcement. The second cluster is composed of countries that are wealthy, i.e. can afford a strong legal enforcement of laws. However, otherwise they exhibit rather code-law structures.

In outsider economies with a usually dispersed ownership structure, firm performance must be communicated to all shareholders in a cost-effective way, i.e. by financial statements. This creates a demand for financial information that reflects true firm performance, as it

is also stated by Guenther and Young (2003), which should have a decreasing effect on the extent of earnings management.

Orientation of financial systems

As explained by Berglof (1990), financial systems can be divided into two categories: bank-oriented and market-oriented. The major characteristic of bank-oriented systems is the close relationship between banks and companies. In fact, they cover the predominant part of the capital needs of the businesses. Furthermore, in bank-oriented systems, the demand for published financial statements is decreased because banks have access to the respective company's internal information.

Market-oriented systems are based on the operation of numerous, diversified investors with bounded or limited access to company information. Referring to the previous analysis of shareholder protection, financial accounting disclosure is essential for each capital provider to ensure effective communication. This argumentation implies that earnings management should be less pervasive in market-oriented systems.

With respect to Ail and Hwang (2000), the extent of bank- or market-orientation can be measured by the debt-to-asset ratio. According to Berglof (1990), bank-oriented systems have a higher debt-to-asset ratio. The reason lies in the following relation: If in a bank-oriented system are no restrictions imposed on commercial banks, then banks can easily control firms and extend credit beyond levels acceptable in market-oriented systems. Guenther and Young (2000) identified in a comparison of five countries (France, Germany, Japan, The USA, and UK) the highest debt-asset ratios for France and Germany and the lowest debt -asset ratios for the UK and the US.

Conformity of tax with financial accounting rules

Another aspect to be covered is the conformity of tax accounting rules with a country's financial accounting rules. High conformity means that financial statements are prepared both for financial reporting and tax purposes. According to Guenther and Young (2000), conformity is high in countries, such as Germany, France, and Japan, and low in the UK and USA. Economic earnings are reflected in a better way by non-conform systems because managers tend to manage taxable income in order to minimize taxes. I conclude that earnings management tends to be more pervasive in countries with high conformity of the two sets of rules.

The quality of accounting standards

Ball et al. (2003) have analysed that not the accounting standards, but rather the preparers' incentives, and other institutional structures are important when classifying countries to determine the quality of financial reporting on firm level. The authors have analysed earnings timeliness and conservatism for four East Asian Countries. The sample countries have similar accounting standards categorized as common-law. Ball et al. (2003) find that despite the similarity of accounting standards with the ones in the UK or the US, those countries do not resemble the same earnings properties because they differ in institutional factors to the US or UK. The authors conclude that accounting standards of

high quality may be necessary for the quality of accounting information, but not absolutely sufficient.

2.2. The link between real economic activity and earnings management

In the literature, macroeconomic activity is widely measured by its output, i.e. the gross domestic product (GDP) of a country, because it de- and increases with the economy. Relating to Clayton and Giesbrecht (1997), the proxy can be interpreted as the market value of all final goods, services and structures which were produced over one year period by production forces in specific country.

Turning to the earnings management side, according to Jin (2005), the magnitude of earnings management fluctuates quarterly and its variation is predictable from real economic activity. In particular, he analyses that the aggregate extent of earnings management is bigger during recession than during expansion. Thereby, the relation between earnings management and real GDP growth is not linear. In particular, it exhibits a U-shape. Earnings management decreases with real GDP growth up to a certain point, after which it increases with real GDP growth, and vice versa. The author explains this situation with the fact that, in very weak economic periods, managers tend to engage in “take a bath” form of earnings manipulation at which all liabilities are recognised in one period. The reason for that behaviour is that an extreme growth in earnings can be reported in the following period. On the contrary, in very strong economic periods, managers reserve some earnings for future purposes using “cookie jar” strategy (Jin 2005).

I imply from the study above that as long as GDP does not grow at an extreme rate, there exists a negative association between the pervasiveness of earnings management and GDP growth, i.e. the higher GDP growth, the lower earnings management and vice versa.

3. Hypothesis development and research design

As a result of the literature review in the previous section, Germany's institutional framework entails predominantly factors that are categorized as earnings management encouraging. The opposite holds for The USA with predominantly earnings management discouraging factors.

Japan's situation is somewhat extraordinary in the attempt to classify countries because although it is classified as a code-law country, it is currently moving away from this code-law approach to the more economic common-law approach (Choi et al. 1999). Dietl (1998) explains that accounting rules in Japan are both based on Commercial Code and the Securities and Exchange law which are stakeholder and shareholder oriented respectively. In situations, where the commercial code does not give guidance, the Securities and Exchange law steps in and provides accounting rules through business practices. As in Germany, financial statements must conform both to financial and tax accounting. However, this assumption holds only in areas regulated by the commercial code. Therefore, there exist cases where code rules do not apply.

Hypothesis 1

Considering the legal and economic situations in those three countries, I expect the pervasiveness of earnings management to be distributed as follows:

H1a: Earnings management is significantly more pervasive in Germany than in the USA.

H1b: Earnings management is significantly more pervasive in Germany than in Japan.

H1c: Earnings management is significantly more pervasive in Japan than in the USA.

In order to provide evidence for my assumptions, I conduct an empirical research using a method developed by Leuz et al. (2003). The authors have shaped four earnings management proxies in order to capture different earnings management activities on country-level. Generally, those concern the detection of income smoothing, discretion practices and accrual manipulation in reported earnings. The four independent measures of earnings management for each country are combined to an aggregate measure for each country.

In accordance with Burgstahler et al. (2006), I note that those four proxies are not perfect, especially because they cannot determine the absolute extent of earnings management. However, they present a clear tendency and can be used for comparison across countries, especially with a large sample size and over a long period of time.

I analyse the four proxies used to determine the extent of earnings management on country-level below.

(i) *Income smoothing decisions*

According to Burgstahler et al. (2006), operating earnings can be used as a measure for company's economic performance. In order to detect any abnormality, its variability can be deflated by the variability of operating cash flow over the same time period. For that reason, I determine the ratio of the standard deviation of the two measures for each firm in the sample and select the median ratio, whereas both operating income and cash flow from operations are scaled by lagged total assets (Leuz et al. (2003). The median is used in order to dampen the effect of outliers. If this measure is low, ceteris paribus, I can conclude that managers use accounting discretion to alter the earnings figure in order to smooth earnings. Since data about cash flow from operations is not easily available for many companies, I compute it indirectly by subtracting the accrual component from earnings, according to Dechow et al. (1995).

$$EM1 = \frac{\sigma(\text{OpInc})}{\sigma(\text{CFO})}$$

(ii) *Smoothing and the relation between changes in accounting accruals and operating cash flows*

As described before, according to Leuz et al. (2003), actions, such as accelerating the reporting of future earnings or to delay reported expenses in order to hide bad current performance, or reserving as a means to underreport current income in order to conceal strong performance, may be undertaken.

However, both ways lead to an increase in accruals when cash flow from operations decrease, and vice versa (Leuz et al. 2003). According to Skinner and Myers (1999), a larger magnitude of it serves as an indicator for income smoothing activity. Consequently, the second measure I apply is the Spearman correlation between changes in total accruals and changes in total cash flow from operations. In order to obtain a measure on country-level, the correlation is determined over the entire set of firms in each country, as proposed by Leuz et al. (2003). Again, the measures are scaled by lagged total assets.

$$EM2 = \rho(\Delta ACC, \Delta CFO)$$

(iii) *Discretion in reported earnings: The magnitude of accruals*

The third earnings management measure uses the magnitude of accruals as an indicator for the degree to which insiders exercise discretion in reporting earnings. The more a company's earnings reflect its cash in- and outflows, the lower is the magnitude of accruals with respect to cash flows from operations, i.e. a high absolute value of accruals relative to cash flow from operations serves as an indicator for earnings management. As before, both measures are deflated by lagged total assets and the median is selected in order to avoid the influence of any extreme values on the result (Leuz et al. 2003).

$$EM3 = \frac{|ACC|}{|CFO|}$$

(iv) *Discretion in reported earnings: Small loss avoidance*

According to Hayn (1995), previous empirical research confirms that small reported losses are usually rare in relation to small reported profits, e.g. Burgstahler and Dichev (1997), DeGeorge et al. (1999). The authors agree that a high ratio of small reported profits and small reported losses is an indicator for earnings management, since companies manage reported earnings to avoid earnings decreases and losses.

The index itself is computed using after-tax earnings scaled by lagged total assets (Burgstahler and Dichev 1997). If net earnings are in the range $[-0.01, 0)$, then I can classify the firm-year observations as a small loss. On the other hand, if net earnings are in the range $[0, 0.01]$, the firm-year observation is classified as a small profit (Leuz et al. (2003).

$$EM4 = \frac{\# \text{ of Sm Profit}}{\# \text{ of Sm Loss}}$$

(v) Aggregate Measure

Leuz et al. (2003) obtained his overall scores by averaging the country ranks for each measure. Since I merely consider three sample countries, this method would not lead to a valuable result. That is why I chose to transform the individual earnings management measures into percentage values either by scaling or ranking of EM1 to EM4 (from 0 to 100) and compute the aggregate earnings management measure by averaging the four individual scores for each country.

Hypothesis 2 and 3

My second hypothesis concerns the association between real economic performance and earnings management.

As a result of the literature research in chapter 2, I expect that the extent of earnings management decreases with increasing real economic performance in every country, and vice versa. For that reason, my second hypothesis can be formulated in the following way:

H2: Real economic activity and earnings management are negatively correlated.

Guenther and Young (2000) have provided evidence that the association between real economic activity and firm performance measures differs across countries. Among the author's sample countries were Germany, Japan, and The USA, with the USA showing the closest association, followed by Japan and Germany in the end. Since company performance is also reflected in corporate earnings, the level of reported earnings is influenced by the economic performance of a country to some extent. For that reason, I expect the same effect for the association between earnings management and real economic performance of a country.

H3a: The association between real economic activity and earnings management is closer in the USA than in Germany.

H3b: The association between real economic activity and earnings management is closer in the USA than in Japan.

H3c: The association between real economic activity and earnings management is closer in Japan than in Germany

In order to provide evidence for my second and third hypotheses, which concern the association between real economic performance and earnings management, I determine the Pearson correlation coefficient of the two measures. In general, the aggregate earnings management measure for each country is computed by means of the method explained in Model 1 with some minor adjustments for EM1 and EM4 by year. For the first earnings management proxy by year, I obtain one ratio for each year (for each country) using cross-sectional data of the respective year, as opposed to time series data from model 1. In order to determine EM4, I add '1' to each numerator and denominator to circumvent invalid results.

As a measure for real economic performance, I use the economic growth rate. I agree with Guenther and Young (2000) that GDP is an appropriate measure because it completely reflects a country's economic activity. Most researches in the field use real GDP growth as a proxy for real economic activity because it reflects the underlying strength of the economy best. In addition, the GDP estimate is determined independently from financial accounting on firm-level.

As GDP is an estimate with substantive differences in estimation methods, the use of the percentage change in my analysis balances out the differences. However, any other measure of real economic performance should yield similar results. I also determine the percentage change of the aggregate measure of earnings management for each year and country of observation because the earnings management score is only a relative measure rather than absolute, as stated before.

Sample selection

I chose the countries Germany, Japan, and the USA for my analysis because they represent principal types of standard setting in the world. Especially among those countries, I find different institutional factors from which I can derive my expectations.

The period of observation ranges from 1990 to 2004. I omit accounting data from 2005 till today because the introduction of the IFRS in Germany and Japan has somewhat changed the way of financial reporting and therefore may disturb the credibility of the results. All of the considered target economies have been stable over that time span.

The sample consists of all listed firms on the national stock exchange in each country except those from regulated industries, such as financial services. This action is taken because management decisions in those businesses are restricted by Government regulations.

4. Results and analysis

Annual accounting data is obtained through the Thomson Financial database. The selected currency is Dollars to increase comparability across countries. GDP rates are taken from the United Nations Statistics Division. My final sample consists of 2 130 firm-year observations.

Table 1 displays the distribution of the firm-year observations over the three countries and the median firm size of the observed companies in US\$. The Median \$US sales of the firms from 1990 to 2004 are used as a proxy for firm size. The average debt/asset ratio in each country is obtained from financial data from 1990 to 2004. Here is to note that, against the expectations, the debt/asset ratio of German firms is smaller than that of Japanese firms. Average GDP per capita is computed from 1990 to 2004 and exhibits similar values for all countries

Table 1: Descriptive statistics of sample firms and countries

	Germany	Japan	USA	Total
# Firm years	735	720	675	2 130
# Firms	49	48	45	142
Median Firm Size in US\$	1,585,343	988,647	1,473,000	
Debt/Asset ratio	20,07 %	30,29 %	17,32 %	
GDP per capita	26,259	33,359	30,102	

Model 1

Table 2 provides descriptive statistics for the four individual earnings management scores. The results for EM1 and EM2 reveal that earnings are smoother in Germany than in Japan and the USA and smoother in Japan than in the USA. This is expressed by the percentage scores which indicate the tendency to manage earnings.

Earnings management tendencies for EM3 and EM4 are about similar for Japanese and German firms, but much lower for the US. In total, Germany obtains the highest rank in earnings management pervasiveness. Additional results are that the rank order for the three sample countries is different for EM1 and EM2 than for EM3 and EM4. The two smoothing measures (EM1 and EM2) indicate a greater extent of earnings management for Germany than for Japan, whereas the so called discretion measures (EM3 and EM4) indicate a higher pervasiveness for Japan than for Germany.

Table 2: Individual and aggregate earnings management scores

The individual earnings management scores for EM1 to EM4 are obtained as described in the model theory. For EM1, EM3 and EM4, annual statement data from 1991 to 2004 is used. To compute EM2, annual statement data from 1990 to 2004 is used. In order to be able to compute an aggregate earnings management score, I transform the individual scores into a percentage index which represents the tendency to manage earnings. Thereby, high values indicate a strong tendency to manipulate accounts.

	Germany		Japan		USA	
		%index		%index		%index
EM1	0,597	65,248	0,7	46,809	0,924	31,206
EM2	-0,895	78	-0,845	58	-0,703	1,2
EM3	0,782	58,103	0,795	59,311	0,465	28,51
EM4	3,381	38,402	3,81	45,315	1,556	8,961
EMAggr	59,938		52,358		17,469	

Table 3: P-values for significance of differences in aggregate earnings management score

The two tailed p-values are displayed in this table.

	Germany	Japan	USA
Germany	--	--	--
Japan	0,49	--	--
USA	0,06	0,05	--

My results show a difference in the extent of earnings management in Germany and Japan, which is however not significant. A possible explanation is the unusually low percentage of debt/asset ratio in Germany, as noted in Table 1. A high debt/asset ratio is an encouraging factor for earnings management. As a result, it may be that the selected German or Japanese firms do not represent the expected institutional factors, which may distort the results.

Another possible explanation for the insignificant difference of the scores is that there is a difference in the power of influence of the prevailing institutional factors. Leuz et al. (2003) have tested for the strength of the relation of specific institutional factors and the pervasiveness of earnings management. Their findings reveal that outside investor protection and legal enforcement explain a substantial portion of the earnings management score, whereas ownership structure, the political situation, and the degree of tax conformity as individual factors do not have any explanatory power. Those cognitions coincide with recent literature. Nenova (2003) and Dyck and Zingales (2002) find that with increasing investor protection, private benefits of control by dominant firm owners decrease.

I conclude that the ownership structure is only an effect of investor protection policies and therefore not a substantive determinant for the pervasiveness of earnings management. In addition, although it is generally believed that the use of earnings for tax purposes raises earnings management (Ball et al. (2000), Coppens and Peek 2003), there exist no empirical evidence for that.

As a consequence of the analysis above, the driving factor for the difference in the extent of earnings management pervasiveness in Germany and Japan is most likely the extent of investor protection. Therefore, shareholder rights must be more strongly enforced in Japan than in Germany, whereas the difference is not significant.

My results coincide with the findings of Leuz et al. (2003) who developed the model used and determined the extent of earnings management in 31 countries. Among those countries were Germany, Japan, and the USA. Small differences in the scores for EM1 to EM4 with respect to my results can be observed.

A possible reason for that lies in the sample size. My sample size of 2 130 firm year observations in total is considerably lower than Leuz et al.'s (2003) for the three countries (24 707 firm-year observations). Since the median is used to select the respective score for

EM1 and EM3, and the number of ranks is important for the determination of the Spearman rank correlation coefficient, the volatility of the results increases with a decreasing number of observations.

In addition, Glaum et al. (2004) note, that a firm's propensity to manage earnings is dependent on the size. In particular, the authors find that discretionary practices to avoid losses are more widespread in firms of greater size, especially in Germany. As a consequence, a difference in the firm size should lead to a modified result. Leuz et al. (2003) indicate a lower median firm size for Germany (US\$ 336 894), and for Japan (US\$ 463 191), and a higher one for the USA (US\$ 3 597 429) in their sample. (See Table 2)

As described in the literature review, both Germany and Japan belong to Leuz et al.'s (2003) cluster 2 which predominantly comprises countries with accounting standards with code-law origin, and other earnings management encouraging factors. Accordingly, the USA are assigned to cluster 1, which consists of countries with outsider economies, and other earnings management discouraging factors. This classification indicates that Leuz et al. (2003) does not consider earnings management pervasiveness to be significantly different in Germany and Japan.

Model 2

Table 4 presents the aggregate earnings management scores (denoted by EMaggr) for the three sample countries by year.

Table 4: Descriptive analysis EM1 to EM4 by year

The table represents aggregate earnings management scores by year and country. In order to obtain an aggregate earnings management score, I translate the individual scores into a percentage which denotes the tendency to manipulate accounts.

	Germany	Japan	USA
EMaggr	% index	% index	% index
2004	45,03	75,86	22,50
2003	50,82	64,43	23,65
2002	60,18	36,40	27,01
2001	59,88	54,66	11,17
2000	50,50	38,34	24,24
1999	68,79	61,75	19,42
1998	47,35	63,35	23,62
1997	65,49	45,60	21,84
1996	50,84	67,04	26,08
1995	53,64	69,88	24,48
1994	57,38	53,93	15,05
1993	56,31	55,03	11,56
1992	67,37	53,84	37,64
1991	71,32	73,00	34,76

For the analysis, I relate the percentage change of real GDP for the respective country per year with the percentage change in the aggregate earnings management measure per year. The associations between the two measures are presented in Table 5.

Table 5: Correlation Coefficients of the Percentage Change of Real GDP and EM

The considered time period is 1992 to 2004. The displayed p-values are two-tailed

Country	Correlation	p-value (two tailed)
Germany	0,088	0,388
Japan	-0,156	0,306
USA	-0,137	0,327

The results show that there is a very small positive correlation in Germany and a small negative correlation in Japan and the USA. None of the correlations are significant. However, although without significance, the result is partly consistent with hypothesis 2. I denote a negative correlation at least for Japan and the USA, as anticipated. As a consequence, I cannot confirm hypothesis 2.

I also conducted a randomization test, according to Noreen (1989), in order to test for the difference in the correlation coefficients. This procedure provides evidence for hypothesis 3. However, since the correlation coefficients for all three countries have been low initially, the test does not provide any further evidence. As a consequence, the result is not consistent with hypothesis 3a, 3b and 3c. In contrast, it is to note that I obtain a higher negative association for Japan and the USA than for Germany, as expected.

A reason for the low association in each country may lie in the small sample size and the specific model used to detect earnings management. As noted by Burgstahler et al. (2006), the model developed by Leuz et al. (2003) only reveals relative values that can only be used for comparison. I conclude that it may be inappropriate for a comparison with economic activity. In addition, a small number of observations increase the volatility of the results which leads to a distortion of the aggregate earnings management score, as in model 1.

Another reason for this outcome may be that many of the sample firms are multinational firms and thus their earnings figures include national and international performance. To address this issue, I calculate the economic growth rate based on GNI because this measure accounts for the value of products and services owned by the country, regardless of where they are located.

Table 6 presents the correlation coefficients between the percentage change of EMaggr by year and the percentage change of GNI. The table indicates that there is a closer association of earnings management and real economic activity in Germany than in Japan and the USA and the lowest correlation in Japan. The results also show a clear tendency in all sample countries for earnings management to correlate negatively with real economic

activity, although the results are not significant. In conclusion, hypothesis 2 cannot be confirmed, but a tendency to a negative association in each sample country can be observed. In addition, since the results are not significant, I can not confirm hypothesis 3a, 3b, and 3c.

Table 6: Correlation Coefficients Percentage Change in GNI and Earnings Management

The time period of 1992 to 2004 is considered. The displayed p-values are two-tailed.

Country	Correlation	p-value (two tailed)
Germany	-0,252	0,203
Japan	-0,006	0,48
USA	-0,171	0,288

As mentioned before, the analysis of the impact of institutional and economic factors in a country on earnings management practices leaves much room for further research. More reliable measures of earnings management need to be developed and the relationships between further institutional and economic factors need to be analysed. Other possible measures of economic performance may be the percentage change of current year's unemployment rate, the inflation rate, or the percentage change of the following year's money market interest rate.

5. Summary and conclusions

This research paper provides further evidence in the area of international accounting research of earnings management. I provide a summary of previous research about the impact of institutional factors on the pervasiveness of earnings management. As a result, it becomes clear that since varying institutional factors in different countries prevail, the general pervasiveness of earnings management is also expected to differ across countries.

Using a descriptive earnings management detection model, I find that the extent of accounts manipulation differs among Germany, Japan, and the USA. Thereby, the tendency to manage earnings is lowest in the USA, whereas it is highest in Germany with Japan exhibiting scores in between. However, a significant difference in the aggregate score can only be proved between German and American firms, and Japanese and American firms. The difference in earnings management pervasiveness for Germany and Japan is not significant. As a conclusion, I can confirm hypothesis 1a and 1b, but not hypothesis 1c.

In order to explain the insignificant difference, I have analysed findings by previous research about the influence of specific institutional factors on the pervasiveness of earnings management. The result was that investor protection is most likely the driving factor for the extent of earnings management. I conclude that this institutional factor may not be significantly different from Germany's which also leads to an insignificant difference in earnings management pervasiveness. Another reason may be that the selected companies for my research do not entail the expected characteristics of firms

from that country. Therefore, the results may be distorted. An indicator for that is the unusually low debt/asset ratio for German companies (0,2) compared to the ratio for Japanese firms (0,3). According to expectations, the ratio should be lower for Japan than for Germany.

Having analysed the influence of institutional factors on accounting practices, my research is especially interested in one specific external factor that may influence earnings management: real economic performance of a country. I expect a negative association between the two items, i.e. when the economy of a country is growing, earnings management decreases, and vice versa. Using the percentage change of GDP as a measure for real economic activity, I obtain a negative correlation for the USA and Japan and a positive correlation for Germany. However, none of the results is significant. In addition, the rank order of the three associations is not according to my expectations. As a conclusion, I cannot confirm hypothesis 2, 3a, 3b, and 3c. However, the result indicates a closer relation of real economic activity and earnings management for Japan and the USA than for Germany, as expected.

Since the selected sample countries are multinational firms and generate a substantive part of revenues abroad, I exchange the percentage change of real GDP with GNI as a measure of economic performance and test again for the association in each country. The result is somewhat different. I obtain a negative correlation for each country. The outcome is still not significant, but reveals a clear tendency to a negative association in all sample countries. Correlation exhibits the highest value for Germany and the lowest value for Japan with insignificant differences in the magnitudes.

Regarding my analysis of institutional and economic factors and their impact on the extent of earnings management, it is difficult to make absolute statements because earnings management is generally difficult to detect and measure. For instance, Healy and Whalen (1999) express that academic research gives only a limited knowledge about earnings management measures. We never know what accounting choice would have been made with the absence of economic and institutional factors.

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Voluntary disclosure: Evidence from UK

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Executive summary

This paper investigates the voluntary disclosure of Intellectual Capital (IC) of British firms and provides some evidence on an unexplored area of the literature; that of the association of Corporate Governance (CG) with IC disclosure. Inconsistent with expectations, the results show that British firms disclose more information about their human capital. On the other hand, findings indicate that ownership structure, size and industry are important factors in describing disclosure trends of IC which is in line with what anticipated. Lastly the outcomes of the study support the notions of Agency theory that refer to manager's opportunism and information asymmetry.

1. Introduction

During the last decades information age competition started to substitute the traditional industrial age competition and inevitably firms started to formulate their strategies in order to be up-to-date with the new business environment and the phosphorus opportunities of the new era. In line with this change, the users of financial statements adjusted their needs for information to the new circumstances that had been emerged from this transaction of economical conditions.

However, the inadequacies of the traditional accounting systems to incorporate the requirements of firms have resulted in an information gap between managers and stakeholders. A possible solution for this problem is the provision of voluntary disclosures through the annual reports of the firms, which will eventually reduce this gap. Thus, voluntary disclosures have gained much attention and have been the center of academics and accounting legislators during the last years. Apart from the one described above, a new problem came into sight and contributed to the increased demand of voluntary disclosures; agency costs, which resulted from the separation of the principals from the decision-making function of the firms (Fama and Jensen 1983). . Consequently, voluntary information which will eventually eliminate the gap between internal and external parties has become a necessity.

The present paper focuses on a particular type of voluntary disclosure, that of IC. Although there is not a consistent definition of IC, it is regarded as a type of intangible asset and a form of unaccounted capital. Moreover, IC is highly connected with knowledge management and it is a sign of competitive advantage, especially in developed economies where technological advances and R&D are of great significance.

Previous studies concerning IC disclosure explored the reporting practices of companies; nevertheless IC literature is still developing and more studies will have to be carried out, so that to provide a strong background for future researchers. It has to be mentioned that

¹⁴ The author would like to thank his supervisor, Mrs dr. Yue Wang, for the attention and the valuable advice that has provided throughout the period of the research.

none of the studies concerning IC disclosure incorporates the term of corporate governance (CG), despite the fact that in the voluntary disclosure literature CG is described as a significant factor influencing disclosures. More specifically it is argued that voluntary disclosures are a result of managers' decisions and that the board of directors is the main control mechanism in terms of monitoring the management's actions. Therefore, corporate governance (CG) can be a significant factor in explaining voluntary disclosure patterns and academic research shows that determinants of CG, such as board composition and ownership structure, are positively associated with the voluntarily provision of information.

This study deals with the description of IC disclosure trends of British listed firms and the relationship of CG attributes and other firm's characteristics with IC disclosure. Moreover the main objectives of the research is i) the contribution to the existing literature in terms of results and ii) the investigation of an unexplored area of the literature; that of the association between IC and CG.

For this purpose, two different techniques were employed. The first is content analysis, which aimed to capture the voluntary disclosure trends based on pre-defined IC categories. The second is regression analysis, which was the main tool in describing the relationship between measures of CG and other firm's attributes, and IC disclosure.

The remainder of this paper is organized as follows: Next chapter includes the literature review, as well as a review of relevant prior research results. Chapter 3 underlines the research objectives and presents the major aspects of the methodology employed. Chapter 4 describes the results obtained, while chapter 5 discusses these empirical results. Finally, Chapter 6 concludes the study, discusses the main problems and limitations of the present paper, and provides suggestions for further research.

2. Literature review

2.1 Theoretical background

Although Johansson et al. (2001) maintain that IC definitions are connected with various theories of the organization, in the literature there is not a common view of which theory provides a better understanding of IC disclosure, and thus researchers tend to use different approaches in order to perform their studies. This is also proven by the fact that the majority of the studies do not provide a clear link between IC reporting practices and theoretical approaches. This paper acknowledges this fact and addresses this issue by adopting Positivist Agency Theory, as a relevant theoretical background in explaining voluntary IC disclosure patterns.

The paradigm on which the paper chose to base its analysis is the positivistic one, which assumes that the IC phenomenon is given and can be understood by dividing it in isolated parts and adding knowledge to these parts (Bornemann et al. 1999). This approach includes hypothetico-deductive testing (O'Donnel 2004) and is based on the assumption that social reality is independent of individuals and exists even if these individuals are not aware of it (Collis and Hussey 2003).

Agency theory states that principals (managers) will provide voluntary information only if this action increases their welfare or in other words if the benefits from disclosure are

higher than the costs incurred. Additionally individuals may be self-interest-seeking. This implies that agents may act to serve their own interests rather than the interest of the principals. Hence, managers should try to satisfy and convince shareholders that they are not acting for their own-interest by providing voluntary information in the annual reports (Eisendhardt 1989).

The emergence of agency costs and the increased demand for voluntary disclosures are two strong incentives for managers to disclose a considerable amount of voluntary information. Provision of voluntary information by managers can potentially decrease both the information gap between the firm and the stakeholders, and the agency costs arisen. As Depoers (2000) argues, widely held firms present higher agency costs, which can be controlled and eventually decreased through voluntary disclosure.

Concerning CG, agency theory suggests that wider ownership is more likely to result in a higher level of voluntary information, since wide share ownership can create more conflicts between managers and stakeholders (principals and agents). Thus, CG policies should be formed in such a way that address these conflicts and potentially reduce agency costs. Consequently, CG has a crucial role in addressing the relationship between the firm and the providers of finance. In view of the fact that IC reflects the hidden value of the firm and it is a an indicator of competitive advantage, the role of CG is of major importance in formulating the IC reporting trends, indicating the significance placed on IC and revealing the will of managers to provide voluntary information related to IC.

2.2 Measuring intellectual capital

Within the literature there have been identified several frameworks which are used over time in order to classify and measure intellectual capital (Table 1). However, the present paper focuses on the framework which is considered to be the most relevant for the purposes of the study; Intangible Asset Monitor. This framework for IC measurement was the major template for the conduction of the research. Intangible Asset Monitor was created by Karl Sveiby (1997), who managed to create an intangible asset monitor (IAM), which is regarded as one of the most widely accepted models for understanding and reporting on IC. The scholar tried to address this issue, by dividing intangible assets into three categories; internal structure, external structure and employee competence.

2.3 Prior research studies

In the literature there are several studies dealing with the issue of voluntary disclosure and its determinants. Meek et al. (1995) showed that size and, to a lesser extent, industry are important factors in explaining voluntary disclosures. However, their results vary depending on the kind of information. Hossein et al. (1995) proved that size, foreign listing status and leverage are considered as important incentives for voluntary disclosure. On the other hand auditor and assets are insignificant. Furthermore, Chow and Wong (1987) also underlined the strong association between size and voluntary disclosure; nevertheless their results do not reveal a significant correlation between leverage and assets, and corporate disclosure. In line with the previous findings, Depoers (2000) and Raffournier (1995) showed that size as well as internationality of a firm affects the provision of voluntary information. Finally, the results of McKinnon and Dalimunthe (1993) demonstrated significant relationships between disclosure and size, industry and ownership structure.

The present paper acknowledges the results of the above studies and further focuses on papers that examine a. the IC disclosure and b. the influence of CG on voluntary provision of information.

TABLE 1: FRAMEWORKS FOR MEASURING IC

Developers	Framework	Classification of IC
Kaplan and Norton (1992)	The Balanced Scorecard	Internal process perspective Customer perspective Learning and Growth Financial Perspective
Haanes and Lowendahl (1997)	Classification of Resources	Competence Relational
Lowendahl (1997)	Classification of Resources	Competence Relational
Sveiby (1997)	Intangible Asset Monitor	Internal structure External structure Employee competence
Edvinsson and Malone (1997)	The Navigator	Human capital Structural capital
Petrash (1996)	Value Platform	Human capital Customer capital Organizational capital
Danish Confederation of Trade Unions (1999)	Three categories of knowledge	People Systems Market
Roos et al. (1997)	Intellectual Capital Index	Human capital Infrastructure capital Relationship capital

2.3.1 IC disclosure

Empirical studies were performed in several countries to investigate the corporate reporting practices on IC and the majority of these studies utilized different IC indicators and measurement approaches. The latter fact is rather expected, since both the definition and the theory of IC is controversial, as it was previously discussed. The results of the studies vary, as far as the content of IC reporting is concerned. On the other hand, the majority of the studies reveal a significant relationship between the disclosure amount and firm's characteristics. The findings of the most relevant studies are summarized below.

The study of Guthrie and Petty (2000) had a number of imperfections; however it provided valuable information to researchers on how to address the crucial issue of IC reporting. Findings indicated that IC disclosure was low and Australian firms did not report according to an IC framework. Brennan (2001) focused on Irish knowledge-based companies and the results showed that companies had substantial IC assets, but they are not measuring these assets in an appropriate way. Among the categories, external capital was the most reported, followed by internal capital and human capital. The study of Bozzolan et al. (2003) revealed that firms pay attention to their external structure, while industry and size seem to be relevant factors in explaining the reporting practices. Abeysekera and Guthrie (2005) found that companies had increased their IC reporting level and the more reported category of the three was external capital, followed by internal capital and human capital. Garcia-meca et al. (2005) concluded that the most reported categories of IC are customers, strategy and process. On the other hand, firms did not choose to report a big amount of information about innovation and R&D. Additionally, the scholars showed that the size and the internationality of the firm are positively associated with IC disclosure. Guthrie et al. (2006) tried to provide a comparative analysis of IC disclosure in Australia and Hong-Kong. Results indicated that Australasian firms did not disclose a high amount of information related to IC, while they focused primarily on qualitative data. As it was anticipated, size was positively correlated with disclosure for both locations.

2.3.2 Corporate governance

Corporate governance is highly related to agency theory and its assumptions, since it can be defined as a way to protect the shareholders' interests (Tirole, 2001). Thus the linkage between the problem (agency costs) and the potential solution (voluntary disclosure) is how effectively organizations deal with the concept of CG. Within the literature there have been identified various determinants of CG, such as ownership structure, board composition, managerial ownership, governmental ownership, audit committee and audit firms. Regarding the association of CG and disclosure, only few studies have been conducted that examine the impact of CG on the extent of voluntary disclosures.

More particularly, Eng and Mak (2003) examined whether CG measures and other relevant factors affect the disclosure of voluntary information. The results showed that ownership structure and board composition influence the voluntary disclosure and that lower managerial ownership and considerable government ownership are positively associated with voluntary disclosure. Blockholder ownership, though, was not a relevant factor in describing disclosure trends. Haniffa and Cooke (2002) found that two CG measures and only one cultural characteristic of firms were associated with voluntary disclosure. Chau and Gray (2002) examined the influence of ownership structure of firms on voluntary disclosures. The findings showed that more widely held firms disclosed more voluntary information, while "insider" or family-controlled firms demonstrated a lower level of disclosure. Lastly, Barako et al. (2006) showed that audit committee, board composition, foreign ownership and percentage of stocks owned by institutional shareholders are the most statistically significant CG measures that influence voluntary disclosure. Among the other factors, size and leverage ratio were positively related to the extent of disclosures.

3. Methodology

3.1 Research design

The main purpose of this research is to investigate the magnitude of IC disclosure in annual reports of British firms and thus the main research question of the paper is: “What is the importance placed from British firms on IC?” Furthermore, one main objective is to examine the extent of IC disclosure and reveal the significance placed on IC categories, while another goal is to identify the association between IC disclosure and CG measures, as well as other firm’s attributes.

3.2.1 Coding Process

The coding process involved reading the annual report of each company and coding the information according to pre-defined categories of IC. More specifically, after reading the annual report, each sentence was coded based on a numerical scheme: “0” if no information was provided, “1” if qualitative information was provided, “2” if quantitative information was provided and “3” if information was presented in graphs, tables or figures. Additionally this paper focused on information, that was not requested by laws or accounting principles and was provided voluntarily by the companies. Same information regarding an IC item was not counted more than once. After its identification, each item was classified into the three main categories and sub-categories based on key words that were the titles of each sub-category (Table II).

3.2.2 Statistical Models

The four main categories (Overall IC disclosure, Internal Capital, External Capital and Human Capital) were set as the dependent variables for four statistical models (Model 1, Model 2, Model 3, Model 4). The models were estimated based on the following equation:

Regression Model:

$$D_i = a + b_{1i}BC_i + b_{2i}OS_i + b_{3i}MO_i + b_{4i}Ln(TA_i) + b_{5i}ROA_i + b_{6i}ROE_i + b_{7i}LR_i + b_{8i}IND_i$$

a = constant

b = Coefficients for each variable

D = Disclosure index (Total Disclosure, Internal capital, External capital, Human capital)

BC = Board composition (percentage of independent directors in the board of directors)

OS = Ownership structure (Sum of substantial shareholders, who hold more than 3% of ordinary share capital)

MO = Managerial ownership (Percentage of ordinary shares held by executive directors)

Ln(TA) = Natural Logarithm of Total Assets (as at 31/12/07)

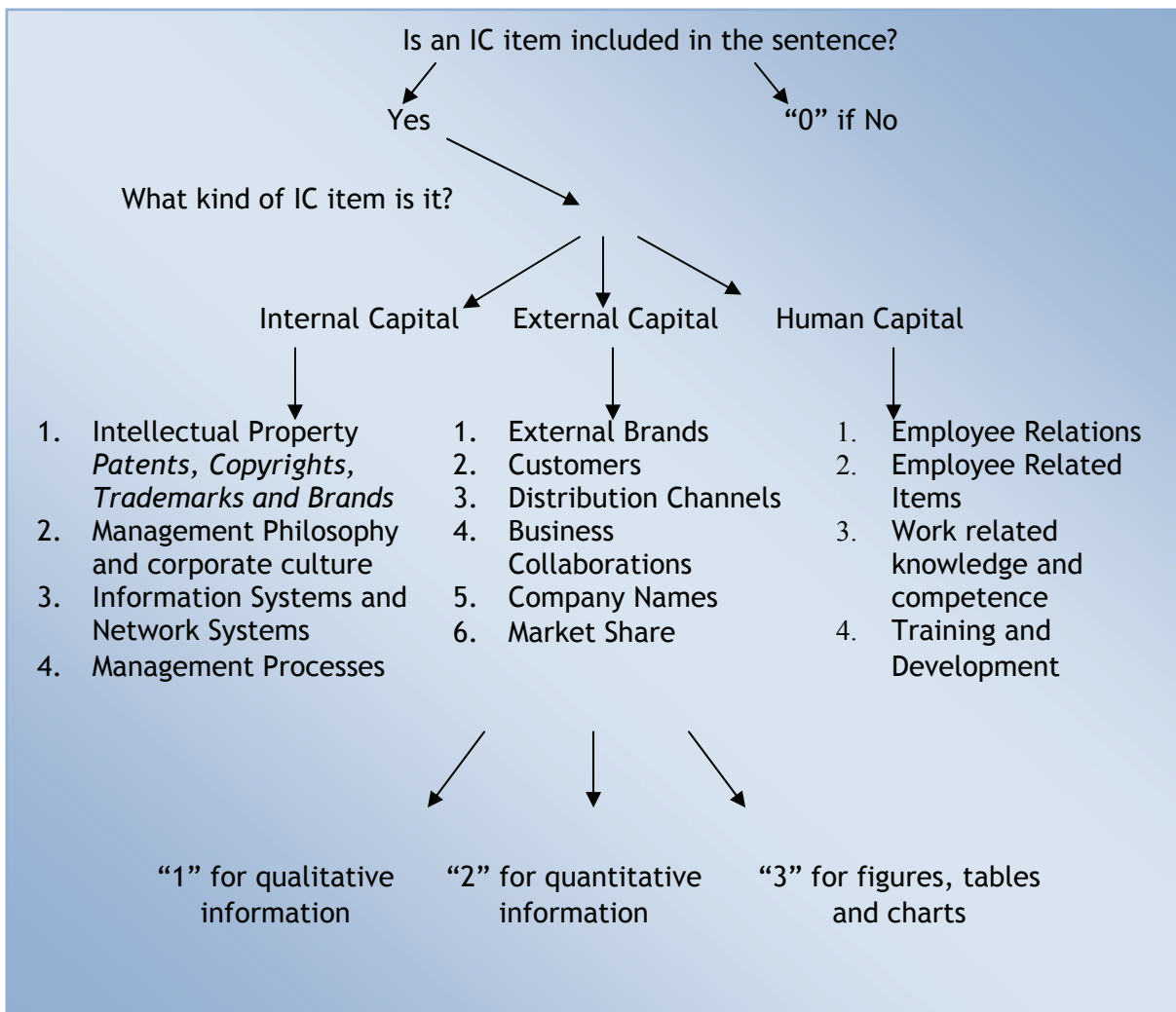
ROA = Return on assets

ROE = Return on equity

LR = Leverage ratio (defined as Total Assets/Total Liabilities)

IND = Industry (Dummy Variable; 0 for Financial companies and 1 for non-financial companies)

TABLE II: CODING PROCESS



3.2.3 Hypotheses development

Board Composition

Non-executive directors are a crucial element of the board’s ability to address a potential agency conflict (Barako et al. 2006). Hence, higher proportion of non-executive members in the board of directors can be a strong incentive for voluntary disclosure.

H1 = IC disclosure is positively associated with the proportion of non-executive members in a board.

Ownership structure

Agency theory underlines that widely held firms are more likely to disclose voluntary information due to the effort of managers to prove that they do not act self-centered. Thus companies with wide share diffusion are expected to present a higher level of disclosure.

H2 = IC disclosure is negatively associated with the proportion of shares held by substantial shareholders

Managerial Ownership

Agency costs are more likely to emerge when managerial ownership is low (Eng and Mak 2003) and thus low managerial ownership is expected to lead to higher disclosure levels

H3 = IC disclosure is negatively associated with managerial ownership

Size

Large companies undertake more activities and consequently firms need to report more information to external parties in order to reduce agency costs. This study utilizes the natural logarithm (Ln) of Total Assets as the proxy measure for a firm's size.

H4 = IC disclosure is positively associated with size

Industry

Companies were separated in two different groups; financial and non-financial companies. In the regression model "Industry" was set as a dummy variable and the first group of firms was assigned with "0", while the second was assigned with "1".

H5 = IC disclosure is higher for Non-Financial companies

Profitability

Profitability is regarded as a significant factor from the scope of agency theory, since managers of profitable firms tend to use voluntary disclosure as a way to justify their position and compensation package (Barako et al. 2006). In the present paper profitability is measured with two proxies; ROA and ROE.

H6 = IC disclosure is positively associated with ROA

H7 = IC disclosure is positively associated with ROE

Leverage Ratio

Finally, leverage ratio is an important factor in corporate reporting, since higher debts tend to increase agency costs and hence voluntary disclosure (Meek et al. 1995). Leverage ratio is calculated as Total Assets divided by Total Liabilities.

H8 = IC disclosure is positively associated with debt

3.2 Methods Employed

The first method employed is content analysis, which is a significant tool for gathering data through the codification of qualitative and quantitative information into pre-defined categories in order to derive patterns regarding the presentation and the reporting of information (Abeysekera and Guthrie 2005). The second method, regression analysis,

describes the relationship between a quantitative dependent variable and one or more independent quantitative variables. In the literature regression analysis is used in order to investigate whether various factors are relevant in explaining the amount of IC disclosure.

3.3 Sample

The final sample consisted of 97 companies, which were listed on FTSE 100 as at 31st December 2007 (Appendix I). Three companies (TUI Travel, Thomson Reuters and Carnival) were excluded from the sample since they did not provide adequate information about CG. The data were gathered mainly by hand, while information about industry and profitability was obtained from the official site of LSE¹⁵ and Compustat Global respectively.

It could be argued that the selection of the sample is biased. Nevertheless the majority of the previous studies concerning voluntary reporting show that the size of firms is a key factor that determines the extent of voluntary information (Gray et al. 1995, Mitchell et al. 1995). More particular Gray et al. (1995) mention that a sample consisted of large companies is more likely to demonstrate examples of voluntary disclosure, than a similar sample of medium or small companies. In addition to this, it has been proved that bigger firms tend to disclose more information on their annual reports (Guthrie and Mathews 1985) and are the pioneers in any improvements in corporate disclosure, due to the demanded financial resources that they possess (Andrew et al. 1989). Bigger firms are also expected to possess more intellectual capital because they are more noticeable and have more resources at their disposal to fund new projects (Abeysekera and Guthrie 2005). Thus a sample consisted of large companies is more appropriate, in terms of examining trends, identifying innovations and recording voluntary disclosure practices. Therefore, this study focuses on the biggest companies listed on the index FTSE-100 of the London Stock Exchange, which tracks the performance of the top listed companies ranked according to criteria such as market capitalization, liquidity and free float of shares.

3.4 Data Source and Unit of Analysis

The source of the data was the annual report of each firm for the fiscal year 2007. Annual reports are a highly useful source of data, because companies use them to provide helpful and important information to account users (Guthrie and Petty 2000). Moreover, annual reports give the opportunity to users to make comparisons of management strategies across reporting periods, since annual reports are the product of a regulatory procedure (Abeysekera 2001; Abeysekera and Guthrie 2005).

The unit of analysis that should be used in content analysis is a crucial part of this study and many papers have highlighted its importance. However, the appropriate unit of analysis is a topic highly debated in the IC literature, with words, sentences, paragraphs and pages being as the most suitable unit. According to Milner and Adler (1999) words contain little meaning without context, while paragraphs and pages have several different meanings that are difficult to be coded. Thus, the present paper uses sentences as the unit of analysis, so as to ensure that problems related to the use of words, paragraphs or pages are overcome and unnecessary unreliability is avoided (Bozzolan et al. 2003). This method is supported by many scholars (Abeysekera and Guthrie 2005; Bozzolan et al. 2003; Beattie

¹⁵ www.londonstockexchange.com

and Thomson 2006) because sentences are easily identifiable wholes (Carney 1972) and they are preferred when meanings are to be deduced from written data (Gray et al. 1995).

4. Results

4.1 Content analysis

The most reported category of IC was human capital and the most reported sub-categories were i) employee related measures, ii) work related competence and knowledge, and ii) management philosophy and corporate culture. On the other hand the least reported category of IC was external capital and the least reported subcategories were i) external brands, ii) market share, and iii) information and network systems. During the research the term “intellectual capital” was included to one annual report; nevertheless the company that used the term of IC did not provide any relevant information. Regarding the categories of IC, all companies disclosed more information about their Human Capital which is far the first reported category, followed by Internal Capital and External Capital. Detailed descriptive statistics are shown on table III. What is interesting is that out of the first ten ranked companies in IC reporting the first is a financial one, while the majority of the rest belongs to the non-financial group (Table IV).

TABLE III: DESCRIPTIVE STATISTICS

Company	Internal Capital	External Capital	Human Capital	Total IC disclosure
Mean	37,4433	30,0619	55,7526	123,2577
Median	35,0000	27,0000	56,0000	116,0000
Std. Deviation	17,92052	19,55112	23,33632	46,64053
Minimum	8,00	2,00	9,00	28,00
Maximum	101,00	82,00	130,00	242,00

TABLE IV: TOP 10 COMPANIES ACCORDING TO TOTAL IC DISCLOSURE

Company	Internal Capital	External Capital	Human Capital	Total IC disclosure
1. HSBC Holdings PLC	60	52	130	242
2. GlaxoSmithKline	70	81	87	238
3. National Grid	101	35	80	216
4. Vodafone Group	54	54	99	207
5. Rio Tinto	71	18	115	204
6. FirstGroup	64	55	81	200
7. SABMiller	49	42	108	199
8. HBOS	42	82	67	191
9. Aviva	52	66	69	187
10. BP	55	24	108	187

4.1.1 Overall disclosure

British companies included on average 123 items that are related to IC items in their annual reports; 37 of them refer to internal capital, 30 refer to external capital and 56 refer to human capital. This means that 52% of the reported IC items are related to external capital, 27% to internal capital and 21% to human capital. The most reported sub-categories were those of “Employee Related measures” and “Management Philosophy and Corporate Culture”, while the least reported were “External Brands” and “Information and Networking Systems”.

As far as the companies are concerned, “HSBC Holdings Plc” was ranked first in the Overall Disclosure index, followed by “Glaxo SmithKline”, “National Grid”, “Vodafone Group” and “Rio Tinto”. All of the previous firms chose to disclose more information about their Human Capital, except “National Grid” which reported a fairly big percentage of Internal Capital items. Details of the top ranking companies are shown in Table VI. Finally, the last five companies in IC reporting are “Cadbury”, “Liberty International”, “ENR Corporation”, “Lonmin” and “Bunzl”.

4.1.2 Internal capital

Internal capital is considered as the structural capital which is held inside the company. The two most reported sub-categories of internal capital were “Management philosophy and corporate culture” and “Management Processes”, representing half of the total sentences related to internal capital. On the other hand the category “Information and Networking systems” had the lowest marks, although many companies included IT costs on their balance sheet. Chart 1 shows the distribution for each internal capital sub-category. “National Grid” reported the highest amount of internal capital information, giving emphasis on Infrastructure Assets which were assigned with 52 marks. The next ranked companies were “Shire” and “AstraZeneca”, which both belong to the Pharmaceutical Industry. Finally Bunzl, Eurasian and Liberty International reported the lowest level of information with marks 10, 10 and 8 respectively.

4.1.3 External capital

External Capital, which was the least reported category of IC, refers to relationships and value resources that derive from outside the firm. The category with the highest number of marks was “Distribution Channels”, while the next two most reported sub-categories were “Customers” and “Business Collaborations”. An encouraging sign was that a large number of companies included not only sections of “corporate social responsibility” reports, but also environmental reports. Of course those companies, which dedicated a big part of their annual reports for environmental activities, were mainly companies that their operations had an impact on natural resources (Mining, Oil & Gas). The percentages of each external capital item are shown in Chart 2.

“HBOS” was the company with the highest number of reported sentences, followed by “Glaxo SmithKline” and “3I Group”. It has to be mentioned that the majority of the first ranked companies were financial and this was rather expected since this type of companies pay more attention to external business factors.

4.1.4 Human capital

Human Capital has as its focus the employees of the firm and includes areas such as education, know-how and entrepreneurial spirit. This category was the most reported among the others, representing almost the half marks of the total IC disclosure. The sub-category with the highest number of sentences was “Employee Related Measures” followed by “Work related Knowledge and Competence”. The category of human capital was also the most reported in terms of the number of charts, tables and figures. Chart 3 shows in detail the percentages of the reported categories.

”HSBC Holdings”, “Rio Tinto”, “BP” and “SAB Miller” reported the highest amount of information about human capital. All of the previous companies included statements for equality in the working sector and gave much emphasis to employee knowledge and competence.

4.2 Regression Analysis

In order to examine whether CG and firm’s characteristics have a statistically significant effect on British firms in terms of IC reporting, four different models were estimated. This method assists in examining possible negative or positive associations between the amount of IC information disclosure and measures that can affect this amount. In each one of the four models, a different dependent variable was set; Overall Disclosure, Internal Capital, External Capital and Human Capital. The results are summarized in Table V¹⁶ (numbers inside the brackets stand for the results of the t-test).

¹⁶ Details about the regression results can be found in Appendix II

TABLE V: REGRESSION RESULTS

	Internal Capital	External Capital	Human Capital	Total IC disclosure
R^2	0,262	0,304	0,239	0,371
Adjusted R^2	0,195	0,241	0,170	0,314
F statistic	3,912	4,806	3,454	6,489
Significance	0,001	0,000	0,002	0,000
Variables:				
BC	0,115(1,144)	-0,200(-2,041)*	-0,039(-0,394)	-0,059(-0,636)
MO	0,022(0,228)	-0,098(-1,043)	0,033(0,339)	-0,016(-0,183)
OS	-0,178(-1,749)*	-0,233(-2,358)*	-0,228(-2,261)*	-0,280(-2,894)**
Ln(TA)	0,236(1,914)*	0,332(2,773)**	0,450(3,680)**	0,455(3,999)**
ROA	0,007(0,062)	-0,044(-0,400)	-0,008(-0,073)	-0,020(-0,190)
ROE	-0,048(-0,421)	-0,005(-0,050)	0,11(-0,097)	-0,015(-0,145)
LR	0,189 (1,544)	0,023(0,197)	0,12(0,097)	0,088(0,781)
IND	0,401 (3,822)**	-0,084(-0,789)	0,309(2,962)**	0,294(3,999)**

* significant at 5% level

** significant at 1% level

BC = Board composition

OS = Ownership structure

MO = Managerial ownership

Ln(TA) = Natural Logarithm of Total Assets

ROA = Return on assets

ROE = Return on equity

LR = Leverage ratio

IND = Industry

5. Analysis

5.1 Analysis of results

The results of the present research show that the crucial elements of IC were adequately identified and captured by the firms; nevertheless they were not reported within a consistent IC reporting framework. This was rather expected since none of the companies that were included in the sample had installed IC reporting framework. More specifically the term “Intellectual Capital” was mentioned only in one of the annual reports. This proves that British firms seem to be unaware of the systematic reporting of their IC assets. The high percentage of human capital items indicates that organizations have highlighted the importance of their human assets and resources. Guthrie (2001) gives credit to the fact that the adequate reporting of human capital can create several advantages for the company, such as the efficient allocation of human resources, the identification of gaps in

skills and abilities of employees, and finally public policy benefits. The lower percentages of external and internal capital can be the result of the firms' unawareness and inadequacy to efficiently report information about these items. On the other hand, when taking into account the notions of agency theory one could underline that managers are acting in an opportunistic way and thus are hiding crucial IC elements. Eitherway, firms did disclose a substantial amount of information about their human capital, which clearly shows the importance placed on this aspect of IC.

Furthermore, the different weight given on IC categories raises questions as to whether British firms have evaluated the significance of their IC as a whole. Particularly the relatively low percentage of external capital items can be explained as an inadequate identification of external factors related to globalization and intense competition. April et al. (2003) outlines the importance of external capital in a domestic economy that is pressured from globalization and the need for companies to centre their attention on external factors for future growth. Additionally, Guthrie (2001) states that the emphasis given towards external capital is related with the intense competition, which characterizes segmented and fractured markets. Moreover the reason for lower percentages of external and internal capital may lie on the fact that managers are concerned with the exploitation of such additional information by competitors. Thus IC disclosure may hide risks, even though companies have strong theoretical incentives for disclosing IC information. This finding can be explained within the fields of Agency Theory, since such actions indicate that managers are acting in an opportunistic way and they do not wish to disclose information about IC, because it can be used from competitors to increase their competitive advantage.

The results of the regression analysis can be described as partly adequate in explaining the factors of IC disclosure, with the models showing relatively weak explanatory power. On the other hand all the models present a significant relationship with only one measure of CG; ownership structure. In addition to this, a number of other independent factors that are further analyzed below are associated with IC disclosure. Independent variables, when used together, can reliably predict the dependent variables at a significant level of 1%, since the p-values of F-stat for all models are lower than 1% (Dielman 1991). Furthermore, R-squared is relatively low for all IC categories, which indicates that the model was not properly specified, since the fit of the regression line to the data is considered better, as the value of R-squared tends to one (Dielman 1991, 99). In other words, other variables which are not being taken into account by this study, can explain a larger amount of the variance. However, R-squared is not in such a low level that deters the researcher from reaching to a reliable conclusion.

Managerial ownership (MO) seems to have a negative association with Total disclosure; however p-values for t-tests are insignificant and hence we can reject H1. Board structure does not affect IC disclosure, with the exception of external capital, where the association is significant at 5% level. Thus, although there seems to be a negative association between board structure and IC disclosure for the majority of the models, the adverse statement cannot be rejected with high confidence (90% or more). This means that British firms disclosed information about their IC, regardless of the percentage of non-executive directors in the board or the percentage of ordinary shares held by executive directors.

This result is inconsistent with the prior studies, in which both variables demonstrated a strong association with voluntary disclosure.

On the other hand ownership structure (OS) demonstrates a negative association for all models, which is considered significant at 1% for total disclosure and 5% for the rest of the models. This leads us to accept H2 for all models and conclude that higher percentage of ordinary shares held by substantial shareholders results in lower amount of IC information provided by the firms. In this case there is a consistency between the present paper and previous studies.

As far as the rest of the factors are concerned, profitability does not influence voluntary disclosure, since in any case the association can be considered as significant. Thus, we cannot accept H6 and H7 with a high level of confidence. Conversely, *size* seems to have a strong association with IC disclosure, as it was expected. All models demonstrate strong associations between size and disclosure, with p-values lower 1% for the majority of the models. Therefore we can state that big firms tend to disclose more voluntary information about their IC. This fact is consistent with all the studies in the literature and, mostly, supports the notion of agency theory about information asymmetry and opportunistic behavior. On the other hand, debt does not seem to significantly influence voluntary provision of IC information, although there seems to be a positive association with the dependent variables. Consequently, it is evident that debt is not an incentive for firms to disclose non-mandatory information related to IC. Finally industry seems to have a significant association with voluntary disclosure with the exception of the second model. Therefore we conclude that Non-Financial of the firms disclose a higher amount of voluntary information than financial firms.

TABLE VI: RESULTS OF THE HYPOTHESIS TESTED

	Internal Capital	External Capital	Human Capital	Total IC disclosure
H1	NS	SS*	NS	NS
H2	NS	NS	NS	NS
H3	SS*	SS*	SS*	SS**
H4	SS*	SS**	SS**	SS**
H5	NS	NS	NS	NS
H6	NS	NS	NS	NS
H7	NS	NS	NS	NS
H8	SS**	NS	SS**	SS**

* significant at 5% level
 ** significant at 1% level
 NS - Not Significant
 SS - Statistically significant

5.2 Comparative Analysis

As far as content analysis is concerned, comparisons with other studies should not be performed in terms of absolute numbers, since the numerical scheme followed by these papers is not similar to the method adopted by this study. However, the results can be compared in percentages, which depict the general trend of IC disclosure.

British companies focused on their human capital, which is the most reported category followed by internal capital, while the least reported category is external capital. This is inconsistent with most of the previous IC studies, which showed that companies paid more attention to their external capital. Moreover, these studies also revealed the unawareness of companies concerning the understanding of IC. This fact was underlined by the present paper which revealed that firms in UK have not implemented a theoretical framework on which to report IC.

Abeysekera and Guthrie (2005) argue that the high percentage of external capital reported by firms in Sri Lanka stems from the fact that organizations are facing an external competition from developed economies where visible brand names are dominant. The adverse statement can be also true for British firms since the economy that they operate in, which is one of the strongest of the world, does not provide with them with strong incentives to report on specific information. This can also be a reason that the “External Brand” sub-category is the least reported within the British companies’ sample.

Guthrie and Petty (2001) attribute the high amount of external capital items reported by Australian firms to the rationalization of distribution channels, reconfiguration of firm value chains and re-assessment of customer value. However, it seems that British economy either has already gone through the economical changes mentioned before or pays less attention to these changes since they are not influencing the economy as a whole.

Finally, Bozzolan et al. (2001) discuss that Italian companies reported a low level of information about human capital, because managers were concerned with the potential exploitation of such information from competitors. However, it seems that managers of British firms place a completely different meaning on human capital and this shows that the reporting of IC items is highly attributable to the economic circumstances and the corporate reporting background of each country.

Concerning the measures of CG (ownership structure, managerial ownership and board structure) only one seems to be strongly associated with disclosure at 1% significant level. McKinnon and Dalimunthe (1993) also reached the same conclusion in their study for Australian firms, while this result is inconsistent with the study of Eng and Mak (2003) who showed that ownership structure is not related to disclosure. Hence it is obvious that CG affects voluntary disclosure depending on the economic environment of each country. It is possible that in more developed countries substantial shareholders of firms have different motives for corporate disclosure, than in less developed countries. Moreover, board composition and managerial ownership are not affecting disclosure of British firms in contrast with the findings of previous studies (Eng and Mak 2003; Chau and Gray 2003; Ho and Wong 2001; Barako et al. 2006; Haniffa and Cooke 2002).

Regarding the other factors, size has a positive association with IC disclosure. This was rather expected since all of the previous studies have underlined the association of size with IC disclosure (Bozzolan et al. 2003; Guthrie et al. 2006; Bozbura 2004; Garcia-meca et al. 2005) and voluntary disclosure in general (Meek et al. 1995; Barako et al. 2006; Chow

and Wong 1987; Depoers 2000; Hossein et al. 1995; Raffournier 1995; Schadewitz and Blevins 1998). Hence size is the most important factor related to voluntary disclosure. This notion is valid for all economies around the world, regardless of the development level of each economy.

6. Conclusion

The aim of this paper was to investigate the extent of voluntary disclosure and whether measures of CG as well as other firm's characteristics are associated with the provision of IC information. A sample of ninety-seven listed British firms was used and a total number of eight factors were set as independent variables in four statistical models. Additionally, content analysis and statistical techniques, such as regression analysis, were utilized in order to gather the data and establish statistical relationships between the dependent and independent variables.

Findings showed that British firms presented a high level of IC disclosure, although they have not implemented a framework on which to report IC. Human capital was the most reported IC category, suggesting that British firms not only give more emphasis on the human factor but also have identified the major importance of human resources, since they are regarded as the driving force of a company and a potential source of sustained competitive advantage (Wright et al. 1994). On the other hand the low percentage of external capital can be attributed to the small importance placed by British firms on it. However the fact that information about important aspects of the organization is not disclosed or not disclosed adequately leads us to the conclusion that managers are following an opportunistic approach in providing information to stakeholders. Thus the firms' effort to reduce agency costs with the provision of voluntary information has certain gaps and insufficiencies, which recycles the agency problem.

Concerning the outcomes of the statistical methods findings indicated that CG measures do not influence IC disclosure, with the exception of ownership structure which showed a strong positive association with disclosure in all models estimated. Thus it is evident that substantial shareholders are a crucial part in a company's reporting policy development. This finding supports the concept of Agency theory which underlines that widely held firms tend to disclose more voluntary information, due to agency problems. Among the other factors only size and industry seem to be important in describing IC disclosure trends. The results of the present paper present a contradiction when compared to previous studies. On one hand, content analysis showed that British firms focused mostly on their Human Capital which is totally inconsistent with all studies related to IC. On the other hand, the strong association of the majority of the factors that were incorporated by the present paper is also supported by previous researchers. Specifically ownership structure and size seem to be important factors regardless the economic environment.

The results of the paper also support the notion of *reliability* since there seems to be strong association between a number of factors and voluntary disclosure. However, as Collins and Hussey (2003, 58) mention, a research can be regarded as reliable if it can be repeated. At this point several arguments can be raised against the method of content analysis since it includes a high level of subjectivity when coding the data. Therefore, to ascertain reliability, the researcher conducted his study very carefully and with

consistency to the guidelines of previous papers. As for *validity*, Groves *et al.* (2004) argue that a survey is valid according to the extent to which its findings accurately reflect the intended construct. The sample of the present study can be considered at least as adequate in describing reporting trends of big British firms and thus the study can be considered as valid. Finally, as far as *generalisability* is concerned, taking into consideration that the sample consists only of the biggest firms in LSE, generalizations should be made with caution and care.

▪ ***Contribution***

The paper acknowledged the increased significance placed on IC and the importance of CG in terms of providing information and tried to present valuable information with the scope of contributing to the IC literature, which is still being under development. This contribution refers to the results of IC disclosure as well as to the identification of the factors that affect this disclosure. Additionally, this study provided evidence about an area of IC literature that has not been investigated before and aimed at presenting a picture of annual reporting practices and revealing critical issues concerning IC disclosure in UK. The importance of the results lies on the fact that English companies are provided with significant information about IC reporting trends, enabling them to either improve or modify their disclosure practices. Lastly, this paper is concerned to make visible the crucial roles for accounting in the English economy, particularly in the field of IC, and contribute in the identification process of the competitive advantage in organizations.

▪ ***Limitations and suggestions for future improvement***

This research has both theoretical and practical implications. Concerning the highly debated topic of the appropriate theoretical approach, the findings of this paper was analyzed on the grounds of Agency theory. However, it is possible that an alternative approach may yield more comprehensive conclusions. Thus, future studies will have to deal with a crucial theoretical dilemma, which demands an in-depth understanding of the accounting literature.

On the other hand, practical implications of this study are mainly related to the content analysis. A major issue of content analysis is the subjectivity involved in its methodology. This is due to the heavy reliance of the method on the reliability of the coder (Abeysekera 2006). Reliable data are regarded the data that remain stable during the measuring process (Krippendorff 2004). Neuendorf (2002) points out that without the establishment of reliability, content analysis measures are uninterpretable. However, she argues that reliability is an essential, but not an adequate condition for validity. According to Milne and Adler (1999) the estimation of reliability requires the measurement of accuracy, stability and reproducibility. Consequently future researchers will need to address this issue before carrying out their study by distinguishing the accurate nature of information related to IC and judging whether references to IC should be counted as IC items (Beattie and Thomson 2006). Other implications of the statistical model are related to the sample and the variables. A bigger sample can possibly result in higher accuracy and *generalisability*, while other variables which were not taken into account by this study, could explain a larger amount of the variance.

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Appendix I: Companies

3i Group	Friends Provident	Royal Bank of Scotland Group
Admiral Group	G4S	Royal Dutch Shell
Alliance Trust	GlaxoSmithKline	RSA Insurance Group
Amec	Hammerson	SABMiller
Anglo American	HBOS	Sage Group
Antofagasta	HSBC Holdings plc	Sainsbury (J)
Associated British Foods	ICAP	Schroders
AstraZeneca	Imperial Tobacco Group	Scottish and Southern Energy
Aviva	Innvensys	Severn Trent
BAE Systems	InterContinental Hotels Group	Shire
Barclays	International Power	Smith and Nephew
BG Group	ITV	Smiths Group
BHP Billiton	John Wood	Standard Chartered
BP	Johnson Matthey	Standard Life
British Airways	Kazakhmys (WI)	Tesco
British American Tobacco	Kingfisher	Thomas Cook Group
British Energy Group	Land Securities Group	Tullow Oil
British Land Co	Legal and General Group	Unilever
British Sky Broadcasting	Liberty International	United Utilities Group
BT Group	Lloyds TSB Group	Vedanta Resources
Bunzl	London Stock Exchange Group	Vodafone Group
Cable and Wireless	Lonmin	Whitbread
Cadbury	Man Group	Wolseley
Cairn Energy	Marks and Spencer Group	WPP Group
Capita Group	Morrison WM Supermarkets	Xstrata
Carphone Warehouse Group	National Grid	
Centrica	Next	
Cobham	Old Mutual	
Compass Group	Pearson	
Diageo	Petrofac	
Drax	Prudential	
Enterprise Inns	Reckitt Benckiser Group	
Eurasian Natural Res Corp	Reed Elsevier	
Experian	Rexam	
FERREXPO	RIO TINTO	
FirstGroup	Rolls-Royce Group	

Appendix II: regression results

Model 1: Internal capital

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,512a	,262	,195	16,07590

a. Predictors: (Constant), IND, MO, BC, LR, ROE, OS, ROA, LNTA

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8087,708	8	1010,964	3,912	,001 ^a
	Residual	22742,230	88	258,434		
	Total	30829,938	96			

a. Predictors: (Constant), IND, MO, BC, LR, ROE, OS, ROA, LNTA

b. Dependent Variable: INTCAP

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-12,286	14,232		-,863	,390
	BC	,173	,151	,115	1,144	,256
	MO	,038	,166	,022	,228	,820
	OS	-,179	,103	-,178	-1,749	,048
	LNTA	2,399	1,253	,236	1,914	,035
	ROA	,011	,183	,007	,062	,951
	ROE	-,011	,026	-,048	-,421	,675
	LR	14,685	9,510	,189	1,544	,126
	IND	16,361	4,281	,401	3,822	,000

a. Dependent Variable: INTCAP

Model 2: External capital

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,551 ^a	,304	,241	17,03536

a. Predictors: (Constant), IND, MO, BC, LR, ROE, OS, ROA, LNTA

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11157,735	8	1394,717	4,806	,000 ^a
	Residual	25537,893	88	290,203		
	Total	36695,629	96			

a. Predictors: (Constant), IND, MO, BC, LR, ROE, OS, ROA, LNTA

b. Dependent Variable: EXTCAP

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	23,691	15,082		1,571	,120
	BC	-,327	,160	-,200	-2,041	,044
	MO	-,183	,176	-,098	-1,043	,300
	OS	-,256	,109	-,233	-2,358	,021
	LNTA	3,683	1,328	,332	2,773	,007
	ROA	-,078	,194	-,044	-,400	,690
	ROE	-,001	,028	-,005	-,050	,961
	LR	1,985	10,078	,023	,197	,844
	IND	-1,606	4,537	-,036	-,354	,724

a. Dependent Variable: EXTCAP

Model 3: Human capital

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,522 ^a	,273	,207	20,78531

a. Predictors: (Constant), IND, MO, BC, LR, ROE, OS, ROA, LNTA

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14261,494	8	1782,687	4,126	,000 ^a
	Residual	38018,568	88	432,029		
	Total	52280,062	96			

a. Predictors: (Constant), IND, MO, BC, LR, ROE, OS, ROA, LNTA

b. Dependent Variable: HUMCAP

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,805	18,401		-,044	,965
	BC	-,077	,196	-,039	-,394	,695
	MO	,073	,214	,033	,339	,735
	OS	-,300	,133	-,228	-2,261	,026
	LNTA	5,962	1,620	,450	3,680	,000
	ROA	-,017	,237	-,008	-,073	,942
	ROE	,003	,034	,011	,097	,923
	LR	1,190	12,296	,012	,097	,923
	IND	16,397	5,535	,309	2,962	,004

a. Dependent Variable: HUMCAP

Model 4: Total disclosure

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,609 ^a	,371	,314	38,63405

a. Predictors: (Constant), IND, MO, BC, LR, ROE, OS, ROA, LNTA

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	77484,675	8	9685,584	6,489	,000 ^a
	Residual	131347,881	88	1492,590		
	Total	208832,557	96			

a. Predictors: (Constant), IND, MO, BC, LR, ROE, OS, ROA, LNTA

b. Dependent Variable: TOTDIS

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10,599	34,203		,310	,757
	BC	-,231	,363	-,059	-,636	,526
	MO	-,073	,399	-,016	-,183	,855
	OS	-,736	,247	-,280	-2,984	,004
	LNTA	12,044	3,012	,455	3,999	,000
	ROA	-,084	,440	-,020	-,190	,850
	ROE	-,009	,063	-,015	-,145	,885
	LR	17,860	22,855	,088	,781	,437
	IND	31,153	10,288	,294	3,028	,003

a. Dependent Variable: TOTDIS

Disclosure of information concerning remedies against directors' liability

Andrew van der Schalk MSc. LL.M¹⁷

Executive summary

Why do some corporations decide to voluntarily disclose information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance in contrast to others? In order to explain why some corporations disclose more information on this topic than others, first, the literature on liability of directors, remedies against these liabilities and motives for voluntary disclosure is researched. After that, empirical research is performed to determine if listed corporations in The Netherlands significantly differ in disclosing information regarding a granted indemnification clause and a concluded directors' and officers' liability insurance.

1. Presentation of the research problem

Public indignation regarding a number of corporate scandals have lead to an increasing demand of transparency and information disclosure and an emphasis on the importance of decision usefulness of annual reports. According to Foster (1986), the usefulness of financial statements is affected by the content or timing of information disclosures. The most important way for corporations to disclose information is still through regulated financial reports, including the financial statements (Healy and Palepu 2001). Besides information disclosure that is prescribed by regulations, corporations can also disclose information voluntary. Voluntary disclosure is the release of financial and non-financial information in excess of that what is required by regulations.

Improving the decision usefulness of annual reports is a topical subject. The most important criticism is the fact that the information being provided in annual reports is too much based on the past and insufficiently focused on the future (Knoops 2004). More information should be disclosed dealing with opportunities and threats, risks and all sorts of events and circumstances that can be of influence on future developments of the corporation. Disclosing more information about possible risks and whether or not the corporation has taken any precautions to cover those elements of risk could contribute to this. In other words, disclosing information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance could enhance the decision usefulness of annual reports. Especially interesting to see, is whether corporations listed on the AEX, AMX or AScX significantly differ in disclosing information concerning this subject.

¹⁷ Supervisor: Drs. R. van der Wal RA. The author is currently employed at KPMG Accountants N.V.

The research question is formulated as follows:

Why do some corporations, listed on the AEX, AMX or AScX, decide to voluntarily disclose information in their annual report or articles of association concerning a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance in contrast to others?

In the second chapter prior literature is discussed. The chapter will start with an overview of the legal grounds on which a director can be held liable according to Dutch law. The legal grounds for liability of directors will be discussed because an exclusion or limitation of internal liability and indemnification for external liability and a directors' and officers' liability insurance only become relevant after a directors is being held liable for his actions or his failure to act. It is important to know what the scope of coverage is of these different remedies and to what extend a listed corporation in The Netherlands is obligated by Dutch law to disclose information concerning a granted exclusion of liability and indemnification clause and a concluded directors' and officers' liability insurance. This will be discussed in the second part of this chapter. If corporations listed on the AEX, AMX or AScX significantly differ from each other in disclosing information regarding a granted exclusion of liability and indemnification clause and a concluded directors' and officers' liability insurance, a possible explanation might be found in accounting theory. To this end, in the last part of this chapter, some light will be shed on Positive Accounting Theory, research on voluntary disclosure and the Signalling Theory.

The third chapter presents the research design.

In the fourth chapter the empirical results will be elucidated.

Possible explanations for differences in the level of disclosure will be discussed in the fifth chapter using the theoretical framework of the second chapter. At the end of this chapter suggestions for future research will be given.

Some conclusions will be drawn and a short summary will be given in the sixth chapter.

2. Prior literature

2.1. Legal grounds for liability of directors

First an overview will be given of the legal grounds on which a director can be held liable according to Dutch law. Only Civil Code provisions are discussed since these provisions most often lead to settlements or result in directors having to pay damages. Dutch scholarly writers generally make a distinction between internal and external liability of directors.

2.1.1. Internal liability

Internal liability can be seen as liability towards the corporation. The main rule of internal liability can be found in Section 2:9. This provision provides that each managing director has an obligation towards the legal entity to perform properly the duties assigned to him. Managing directors must have a certain amount of freedom to lead the corporation. Entrepreneurship means taking risks every now and then. Not every mistake or incorrect

choice of policy automatically leads to liability (Assink and Olden 2005). When a managing director causes damages to the corporation, these damages can, under certain circumstances, be recovered by the corporation from the director. The Supreme Court has held that a managing director is liable for the damages the corporation has suffered if, depending on all the circumstances, serious negligence (*ernstig verwijt*) is attributable to him.¹⁸ According to Van Schilfgaarde (2006) and Orsel (2005) serious negligence not only covers behavior of which a managing director ‘knew’ it would lead to damages but also behavior of which he ‘should have known’ would cause damages to the corporation. The underlying idea of Section 2:9 is collective responsibility resulting in joint and several liability. However, the director has the possibility of individual exoneration.

Unique for The Netherlands is the right to initiate inquiry proceedings (*enquêteprocedure*)¹⁹ before the Enterprise Chamber (*Ondernemingskamer*) of the Amsterdam Court of Appeals. The Enterprise Chamber will grant a request for an inquiry if there is a good reason to doubt the proper management of the corporation.²⁰ Experts will then be appointed by the court. These experts will produce a report on their findings of the inquiry. Central to this inquiry are the policy and the course of affairs (*beleid en gang van zaken*) in the corporation. If, on the basis of this report, the Enterprise Chamber finds mismanagement (*wanbeleid*), it may set aside corporate resolutions. The Enterprise Chamber can allow the corporation to recover the costs of the inquiry from the managing and supervisory directors. The Supreme Court held that a decision of the Enterprise Chamber finding mismanagement does not imply that a director is personally liable. The Supreme Court added that the stated facts in inquiry proceedings are still uncertain in civil proceedings. Nevertheless, the inquiry proceedings can have great significance in the area of liability of directors.

2.1.2. External liability

External liability is liability towards third parties. The basic tort (*onrechtmatige daad*) provisions are set forth in Sections 6:162 and 6:163. To protect creditors and to prevent abuse of legal entities, three acts were introduced in the 1980’s. The First Abuse Act is not relevant for directors’ liability. The Second Abuse Act provides for personal liability of managing directors for premium, wage tax and value added tax obligations of a legal entity that is in default in its payments thereof, if the non payment is caused by the managing director’s evidently improper management (*kennelijk onbehoorlijk bestuur*). The structure of the Second Abuse Act is similar to that of the Third Abuse Act. Therefore it will not be discussed in more detail since the Third Abuse Act is of greater importance in view of liability of directors. The Third Abuse Act makes it possible for the trustee in bankruptcy to hold directors liable for evident improper management that has led to the bankruptcy. Section 2:138/248 provides that each director is jointly and severally liable to the bankruptcy estate in the amount of any liabilities that cannot be satisfied out of the

¹⁸ HR January 10, 1997, NJ 1997, 360, JOR 1997, 29 (*Staleman/Van de Ven*) and HR April 4, 2003, JOR 2003, 134 (*Skipper Club Charter*).

¹⁹ Section 2:129/239.

²⁰ Section 2:350(1).

liquidation proceeds, if it is evident that the board has performed its duties improperly and plausible that this was an important cause of the bankruptcy.²¹ The Supreme Court ruled that there is evidently improper management if no reasonable managing director would perform his duties in such manner under the same conditions.²² The director can avoid liability if he proves the shortcoming is not attributable to him and he has not breached any duty to take measures to prevent its consequences.²³ Liability cannot be avoided by making an appeal to internal assignment of duties. No director can avoid his responsibilities by saying that he lacks the specific expert knowledge that is required to understand the decision being made in those situations. The Third Abuse Act attaches great importance to the duty to engage in proper bookkeeping and the duty to make the annual accounts public. In the event of a bankruptcy there is an irrefutable presumption that the board has performed these two duties improperly. In addition, there is a refutable presumption that this improper performance was an important cause of the bankruptcy.

If the annual accounts, interim accounts and annual report give a misleading presentation of the situation of corporation, the managing directors are jointly and severally liable to third parties for any resulting damage.²⁴ This liability is only relevant to the extent that these documents have been made public. The misleading presentation must relate to the current financial condition of the corporation. A director can only avoid liability by showing that the misleading presentation is not attributable to him. Section 2:150/260 contains a similar rule for the supervisory directors, with two exceptions. Firstly, this Section does not apply to the interim accounts and the annual report. Secondly, the individual avoidance of liability is treated differently with respect to the annual accounts. To avoid liability a supervisory director only has to show that the misleading presentation is not due to any failure in the exercise of his supervisory duties (De Savornin Lohman 1996). The supervisory director may rely on the information provided to him by the management board and the auditors (Asser-Maeijer 2000).

2.2. Remedies against liability

A director is only liable if an irrevocable judicial judgment is pronounced or if he voluntarily accepts his liability. It is not an established fact that the damages and fines paid and the cost of defending made by a director must come at his own expense, since these costs stem from his actions or failure to act as a director of the corporation (Potjewijd 2003). The legal literature makes a distinction between the internal and external liability of directors. The remedies against liability claims can also be divided in an internal and external cluster.

2.2.1. Exclusion or limitation of internal liability

Directors may stipulate that their contracts include a clause providing for an exclusion or limitation of internal liability. This means directors are excluded for claims of the

²¹ Section 2:149/259 declares Section 2:138/248 of similar application with regard to the supervisory director.

²² HR June 7, 1996, NJ 1996, 695 (*Van Zoolinge*) and HR June 8, 2001, NJ 2001, 454 (*Panmo*).

²³ Section 2:138/248 subsection 3.

²⁴ Section 2:139/249.

corporation by virtue of Section 2:9. An exclusion of liability clause provides for exclusion of liability in advance. In The Netherlands it is possible for a corporation to exclude or limit the internal liability of directors beforehand on the basis of Section 2:9 as long as it does not extend to an act or failure to act that can be characterized as intentional or intentionally reckless (Orsel 2006). Besides this, managing and supervisory directors can also be granted a discharge by the corporation. A discharge is a release of liability after the fact. If a discharge is granted to a director, the corporation can no longer hold him accountable for improper management. If, on the basis of the report, the Enterprise Chamber finds mismanagement, it may nullify the resolution granting a discharge.

2.2.2. Indemnification for external liability

Directors can also stipulate that their contracts include a clause providing for an indemnification for external liability. An indemnification may be granted to directors under Dutch law since an implicit or explicit legal provision prohibiting such a clause is absent (Glasz et al. 1994; De Nijs Bik 1998). In The Netherlands an exclusion of liability and indemnification clause can be incorporated in the articles of association. It is also possible to lay down such a clause in a separate contract. The aim of an indemnification clause is to compensate a director for the loss he suffered due to the disputes he is personally involved in because of the position he fulfils within the corporation (Potjewijd 2003). Firstly, the members of the board of directors can be reimbursed for the amount of damages they are personally due for. Secondly, the members of the board of directors have a right to be reimbursed for reasonable²⁵ costs of defending claims. Lastly, a member of the board of directors has a right to be reimbursed for costs of legal assistance in case no claim against him is submitted but he gets involved in a lawsuit on account of the position he fulfils within the corporation.

2.2.3. Directors' and officers' liability insurance

In granting an indemnification the loss suffered will come at the expense of the corporation. The situation is completely different if the corporation has concluded a directors' and officers' liability insurance to cover this risk. The loss will now come at the expense of the insurer. Central to a directors' and officers' liability insurance is to cover the personal liability of directors. Besides this, such insurance can also be concluded by a corporation to cover the risk it runs after it has granted an exclusion or limitation of internal liability and indemnification for external liability to the directors. This will almost always be included in a directors' and officers' liability insurance (Franssen van de Putte 2004). It is in the best interest of a corporation to enter into a directors' and officers' liability insurance. Firstly, external liability of a director can also lead to liability of the corporation.²⁶ If the insurance enables a director to fulfil his debt, the corporation is also freed (De Nijs Bik, 1998). Secondly, it is also better to insure the risk of internal liability. Usually it concerns a substantial amount of money. If the director is unable to pay the amount of money claimed by the corporation, the capital position of the corporation is being affected (De Nijs Bik, 1998). Lastly, side effects can occur if directors are too afraid

²⁵ Section 6:69 (2) and HR October 16, 1998, NJ 1999, 196.

²⁶ Section 6:170, 171 and 172.

of being held liable (Kroeze, 2005). Fear can lead to directors becoming extremely cautious. The economy of a country can experience serious disadvantages of risk averse behavior by entrepreneurs.

2.2.4. Disclosure

According to Section 2:382(2) and Section 2:383e a corporation must state in the notes to the annual report the amount for which it has granted loans and guarantees to their managing and supervisory directors. Van Schilfgaarde (2006) is of the opinion that this also includes a clause providing for an exclusion of liability and indemnification. The legislator has not ventured an opinion on that point. According to Potjewijd (2003), the existence of an exclusion of liability and indemnification clause means that the director finds himself in a financially dependent situation in proportion to the corporation. In addition, such a clause can lead to a situation in which the corporation lends to a director the reasonable costs of defending claims. If the act or failure to act of a director is qualified as serious negligence in an irrevocable judicial judgment the director will have to pay back all the money lent to him by the corporation. These financial ties of the director with the corporation should be made public in the annual report, but it is highly disputable whether Section 2:382(2) and Section 2:383e obligate a corporation to state in their annual report that an exclusion of liability and indemnification is granted to their directors.

The risk a corporation runs by granting an exclusion or limitation of internal liability and indemnification for external liability can be covered by a directors' and officers' liability insurance. The payment of the premium to the insurer can be seen as a cost for the corporation and must be included in the financial statements. The rules and regulations do not prescribe that a corporation presents these costs separately and as a result they cannot be distinguished from the other costs disclosed in the financial report. In addition, nowhere is stated that a corporation is obligated to disclose information on which insurances have been concluded.

Furthermore, no relevant case law could be found. This leads to the conclusion that a listed corporation in The Netherlands is not required to disclose any information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance.

2.3. Motives for voluntary disclosure

Proposed introductions of, or amendments to, mandated accounting requirements are always a source of great interest to corporate management. They often spend a lot of time and effort trying to influence accounting regulators. On the other hand corporations also release financial and non-financial information in excess of that what is required by regulations. What could motivate such behavior?

2.3.1. Positive Accounting Theory

There are several theories aimed at predicting and explaining particular accounting-related phenomena. Positive Accounting Theory developed by Watts and Zimmerman and others is one of them. It is based on research that proposed that markets were efficient

and that contractual arrangements were used as a basis for controlling the efforts of self-interested agents. It focuses on how accounting can assist in the functioning of the agency relationship and emphasizes that accounting can be used to reduce the agency costs of a corporation.

Watts and Zimmerman (1990) identified three hypotheses that were frequently used in research that sought to explain and predict accounting practice. The hypotheses identified are the bonus plan hypothesis, the debt/equity hypothesis and the political cost hypothesis. The political cost hypothesis can be used to explain voluntary disclosures. Some corporations have a higher public profile than others and are therefore subject to greater interest by the public, media, government, financial analysts and so on. According to Linsley and Shrives (2003), these corporations can disclose more additional information to avert this unwanted attention. Watts and Zimmerman (1978) believe that the magnitude of the political costs is highly dependent on corporation size. Healy and Palepu (2001) are more cautious and point out that size is likely to proxy for many other factors. Financial analysts have a significant influence on a corporation. Lang and Lundholm (1993) find that firms with more informative disclosures have larger analyst following, less dispersion in analyst forecasts and less volatility in forecast revisions. Poshakwale and Curtis (2005) find a positive correlation between the level of voluntary disclosure and the number of analysts following, the number of news items and accuracy of analysts' forecasts.

2.3.2. Voluntary disclosure literature

Research on voluntary disclosure focuses on capital market motives for accounting and disclosure decisions. This research supplements the positive accounting literature. Researchers discuss six forces that effect managers' disclosure decisions for capital market reasons: capital market transactions, corporate control contest, stock compensation, litigation, proprietary costs and management talent signaling.

Only two of these forces are useful for this research: capital market transactions and litigation. In the capital market transactions hypothesis great importance is attached to investors' perception of a corporation. Healy and Palepu (2001) conclude that there is a significant relation between investors' perceptions and the managers' decision to issue public debt or equity. Through greater disclosure, corporations attempt to reduce the cost of capital by reducing investor uncertainty. Research supports the idea that there is a negative relation between the level of voluntary disclosure and the cost of equity capital (Barry and Brown 1985, 1986; Diamond and Verrecchia 1991; Botosan 1997; Botosan and Plumlee 2002; Francis et al. 2005).

The cost of litigation also effects managers' disclosure decisions. Corporate managers face the threat of a claim of shareholders or other investors after voluntarily disclosing information. Legal action could be brought against managers for inadequate or untimely disclosures. This could encourage corporations to increase voluntary disclosure. Litigation could also reduce managers' incentives to provide disclosure. The legal system therefore plays an important role in the managers' decision to voluntarily disclose information (Healy and Palepu 2001). Large, wealthy corporations face a greater litigation risk since litigants

seek out corporations that can potentially pay a high amount of damages (Kothari et al. 2009).

The Signalling Theory can also help to explain why corporations choose to voluntarily disclose information. It suggests that some corporations wish to signal the capital market about having stronger risk management capabilities than others (Linsley and Shrivess 2003). High quality corporations, in order to distinct themselves from low quality corporations, will have to voluntarily provide investors with credible information (Çelik et al. 2006).

3. Hypotheses development and research design

3.1. Hypotheses development

Directors are nowadays being held liable by the corporation as well as third parties more often when problems occur within the corporation (Vroom 1999; Potjewijd 2003; Van Olffen 2004; Assink and Olden 2005). There are a number of remedies against such claims. Directors may stipulate that their contracts include a clause providing for an exclusion or limitation of internal liability and indemnification for external liability. Such a clause can be qualified as a risk for the corporation. To cover this risk a corporation can conclude a directors' and officers' liability insurance. The fact that directors nowadays run a greater risk of being held liable and the amount of money claimed by third parties has rapidly increased over the last decade, make it important for shareholders and potential investors to know whether the corporation has granted the managing and supervisory directors an exclusion or limitation of internal liability and indemnification for external liability. To know whether the corporation has concluded a directors' and officers' liability insurance to cover this risk, is possibly even more important for them.

Public indignation regarding a number of corporate scandals have lead to an increasing demand of transparency and information disclosure and an emphasis on the importance of decision usefulness of annual reports. The most important criticism is the fact that the information being provided in annual reports is too much based on the past and insufficiently focused on the future (Knoops 2004). More information should be disclosed dealing with opportunities and threats, risks and all sorts of events and circumstances that can be of influence on future developments of the corporation. Disclosing more information about possible risks and whether or not the corporation has taken any precautions to cover those elements of risk could contribute to this. In other words, disclosing information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance could enhance the decision usefulness of annual reports. A listed corporation in The Netherlands is not required to disclose any information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance. Therefore, it is especially interesting to see whether corporations listed on the AEX, AMX or AScX significantly differ in disclosing information concerning this subject. The most important way for corporations to disclose information is still through regulated financial reports (Healy and Palepu 2001). This leads to the following hypotheses:

- Hypothesis 1 (a) Corporations listed on the AEX voluntarily disclose more information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance in their annual report than corporations listed on the AMX.
- Hypothesis 1 (b) Corporations listed on the AEX voluntarily disclose more information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance in their annual report than corporations listed on the AScX.
- Hypothesis 1 (c) Corporations listed on the AMX voluntarily disclose more information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance in their annual report than corporations listed on the AScX.

In The Netherlands, an exclusion of liability and indemnification clause can also be incorporated in the articles of association. Therefore the following hypotheses are formulated:

- Hypothesis 2 (a) Corporations listed on the AEX voluntarily disclose more information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance in their articles of association than corporations listed on the AMX.
- Hypothesis 2 (b) Corporations listed on the AEX voluntarily disclose more information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance in their articles of association than corporations listed on the AScX.
- Hypothesis 2 (c) Corporations listed on the AMX voluntarily disclose more information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance in their articles of association than corporations listed on the AScX.

3.2. Research design

The website of Euronext gives an overview of all national indices and which corporations are listed on these different indices. The corporations listed on the AEX, AMX or AScX in 2006 are shown in Appendix A.

There is no database in existence that contains the detailed information that is needed to conduct this research. *Company.info* was used to download all the annual reports. The articles of association are not included in this database. These were downloaded from the website of the corporation. In The Netherlands, an exclusion of liability and indemnification clause can also be laid down in an employment contract. This possibility will not be examined because a corporation does not provide any information regarding the employment contract of their directors.

An independent *t*-test will be conducted to assess whether corporations listed on the AEX, AMX or AScX significantly differ in voluntarily disclosing information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance in their annual report or articles of association. The independent *t*-test is applicable since it determines whether two distributions significantly differ from each other and different subjects are assigned to conduct the test (Field 2000). The statistical research will be carried out on SPSS.

3.3. Presuppositions

Three presuppositions are made with regard to the empirical research. Firstly, all corporations listed on the AEX, AMX or AScX have granted their directors an exclusion or limitation of internal liability and indemnification for external liability and concluded a directors' and officers' liability insurance. No conclusions can be drawn without this presupposition. Not disclosing information regarding a directors' and officers' liability insurance in the annual report or articles of association, for example, could otherwise mean that the corporation simply did not conclude a directors' and officers' liability insurance. *Nassau verzekeringen N.V.* and *AIG Europe N.V.*, two major players on the Dutch market for directors' and officers' liability insurances, state that the top five hundred corporations in The Netherlands, including all the listed corporations, have concluded a directors' and officers' liability insurance (Van den Heuvel, 2007).

Secondly, it is presupposed that if in the annual report or articles of association is stated that an exclusion or limitation of internal liability and indemnification for external liability *may* be granted or a directors' and officers' liability insurance *may* be concluded by the corporation, this can be seen as sufficient evidence that an exclusion or limitation of internal liability and indemnification for external liability is granted or a directors' and officers' liability insurance is concluded by the corporation.

Lastly, it is a possibility that the annual report does not mention both the granted exclusion or limitation of internal liability and indemnification for external liability and concluded directors' and officers' liability insurance. Sometimes only one of the two is mentioned. In that case, however, it is presupposed that both are mentioned. Without this presupposition it is very difficult to draw a meaningful comparison and come to an overall conclusion. The same, off course, applies to the articles of association.

3.4. Limitations

The empirical research of this thesis is subject to two limitations. Firstly, the annual report and articles of association are not the only sources of information disclosed by corporations. However, the most important way for corporations to disclose information is, in my opinion, through their annual reports. According to Lang and Lundholm (1993), a positive correlation exists between information being dispersed by annual reports and other types of information. This suggests that corporations coordinate their overall disclosure policy. In addition, Hail (2002) believes that, given their formalized structure, annual reports are more easily comparable among corporations than less formal communication channels.

The second limitation is that a corporation, listed on the AEX, AMX or AScX, can also be listed on an index in another country. This especially applies, in my opinion, to corporations listed on the AEX. As a consequence, different rules and regulations could apply to these corporations. This limitation will be met by investigating which corporations are also listed on the NYSE and how many of them disclose the relevant information. According to their website, the NYSE is the largest equities marketplace in the world. The listed corporations represent approximately \$25 trillion of total global market value per December 31, 2006. All corporations listed on the NYSE are compelled to apply the Sarbanes-Oxley Act. The Sarbanes-Oxley Act was introduced in 2002, but some corporations just had to apply to these new rules per January 2006. It was introduced to improve quality, transparency and reliability of financial reports of public corporations (Jain and Rezaee, 2005).

4. Results

The annual reports and articles of association of the seventy corporations listed on the three indices are scrupulously examined. The results of this examination are shown in Appendix B, C and D. An independent *t*-test is conducted to determine whether the ascertained differences between the three indices are indeed significant. The null hypothesis is tested that there is no difference in voluntarily disclosing between the three indices. The confidence interval is set at 95%. Choosing a higher confidence interval means you can be stricter about your analysis but you run a higher risk of failing to detect a genuine effect (Blalock Jr. 1979; Field 2000).

The two-tailed probability is used if no prediction can be made about the direction of the effect. In this case a prediction can be made about which group will have the highest mean. Dutch law does not compel a listed corporation to disclose any information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance. The different theories and hypotheses discussed, lead me to believe that a larger corporation will choose to voluntarily disclose more information. In other words, it is probable the level of disclosure will show a declining trend since the corporations listed on the AEX, AMX and AScX represent approximately €536 billion, €40 billion and €20 billion per December 31,

2006.²⁷ Since SPSS only produces the two-tailed significance, the obtained p -value needs to be divided by two to ascertain the one-tailed probability. The results of the t -tests are shown in Appendix E and F. Comparing the results for the level of disclosure concerning a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance in the annual reports makes clear that there is only a significant difference between the means of the AEX and AScX. The one-tailed value of p is 0.018. There is no significant difference between the means of the AEX and AMX. In this case the one-tailed probability is 0.285. The means of the AMX and AScX also do not significantly differ from each other. The one-tailed p -value is 0.068. Comparing the results for the articles of association provides a similar picture. There is only a significant difference between the means of the AEX and AScX. The one-tailed p -value is 0.024. There is no significant difference between the means of the AEX and AMX. The means of the AMX and AScX also do not significantly differ from each other. These t -tests are non-significant because $p = 0.112$ respectively 0.235.

A limitation of this research is that a corporation, listed on the AEX, AMX or AScX, can also be listed on an index in another country. As a consequence, different rules and regulations could apply to these corporations. This limitation is met by investigating which corporations are also listed on the NYSE and how many of them disclose the relevant information. The NYSE is the largest equity market in the world and the rules and regulations that apply to the corporations listed on the NYSE are perceived as one of the most comprehensive in existence today. Nine corporations were listed on the AEX as well as on the NYSE in 2006: ABN AMRO Holding N.V., Aegon N.V., Buhrmann N.V., ING Groep N.V., Reed Elsevier N.V., Royal Dutch Shell plc, Royal KPN N.V., Royal Philips Electronics, and Unilever N.V. None of the corporations listed on the AMX or AScX are also listed on the NYSE. According to Appendix B, only six of the nine corporations disclose the information concerned. This means that the rules and regulations that apply to the corporations listed on the NYSE do not prescribe the disclosure of this type of information.

5. Analysis and suggestions for future research

5.1. Analysis

After an analysis of the different outputs produced by SPSS it can be concluded that corporations listed on the AEX more often disclose information concerning a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance than corporations listed on the AScX. They voluntarily disclose this type of information more often in their annual report as well as in their articles of association. Additional research proves that this outcome is not influenced by the fact that some corporations listed on the AEX are also listed on the NYSE.

²⁷ www.euronext.com (last visited February 20, 2007).

In the second chapter a theoretical framework was presented to explain such differences in the level of disclosure. The political cost hypothesis predicts that some corporations have a higher public profile than others and are therefore subject to greater interest by the public, media, government, financial analysts and so on. According to Linsley and Shrides (2003), these corporations can disclose more additional information to avert unwanted attention. It can be argued that corporations listed on the AEX have a higher public profile than corporations listed on the AScX.

In the capital market transactions hypothesis great importance is attached to investors' perception of a corporation. Prior research predicts that corporations reliant on external financing are more likely to undertake a higher level of disclosure (Francis et al. 2005). Through greater disclosure, corporations attempt to lower their cost of both debt and equity capital by reducing investors uncertainty. This argument may also relate to corporation size (Çelik et al. 2006). Larger corporations make greater use of debt because of tax advantage. It can therefore be argued that corporations listed on the AEX undertake a higher level of disclosure.

The decision to disclose information is also affected by the cost of litigation. This threat of litigation can have two effects. Legal action could be brought against managers for inadequate or untimely disclosures. This could encourage them to increase voluntary disclosure. Litigation could also reduce managers' incentives to provide disclosure. The legal system therefore plays an important role in the decision to voluntarily disclose information. Large, wealthy corporations face a greater litigation risk since litigants seek out corporations that can potentially pay a high amount of damages (Kothari et al. 2009). The litigation hypothesis asserts that the incentive to disclose information is lower for corporations listed on the AEX. On one occasion the spokesperson of a corporation listed on the AEX told me they explicitly choose not to disclose any information on whether or not a directors' and officers' liability insurance has been concluded by the corporation, because they felt this could only attract liability claims.

The Signalling Theory suggests that some corporations wish to signal the capital market about having stronger risk management capabilities than others (Linsley and Shrides 2003). High quality corporations, in order to distinguish themselves from low quality corporations, will have to voluntarily provide investors with credible information (Çelik et al. 2006). In this respect it is interesting to mention that an employee of a corporation listed on the AEX told me they released information in excess of that what is required by regulation for this exact reason. The corporation wants to emphasize that it is more transparent than other corporations. It also wants to enhance the usefulness of its annual report.

The different theories and hypotheses give reason to believe that a large corporation will choose to voluntarily disclose more information. The level of disclosure would then show a declining tendency since the corporations listed on the AEX, AMX and AScX represent approximately €536 billion, €40 billion and €20 billion. The different outputs produced by SPSS only partially support this line of reasoning. Comparing the results for the level of disclosure concerning a granted exclusion or limitation of internal liability and

indemnification for external liability and a concluded directors' and officers' liability insurance in the annual reports makes clear that there is no declining trend. The results for the articles of association do show a declining tendency. It is interesting to note that the corporations listed on the AMX do not significantly differ in their level of disclosure from the corporations listed on the AEX despite the fact that they represent almost the same market value as the corporations listed on the AScX. A conclusive explanation cannot be found in the theories and hypotheses discussed. Apparently there are still more factors that influence the level of disclosure.

5.2. Suggestions for future research

The first two suggestions for future research are related to the two limitations of the empirical research. Firstly, the annual report and articles of association are not the only sources of information disclosed by corporations. One suggestion is to examine more sources of information.

Secondly, a corporation, listed on the AEX, AMX or AScX, can also be listed on an index in another country. Another suggestion is to investigate other influential indices in the world to determine their influence on this research.

Disclosing more information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance could enhance the decision usefulness of annual reports. The third suggestion is to determine the value users of annual reports attach to the disclosure of this information.

Research results concerning the level of disclosure and the existence of differences between the three indices provide accounting policymakers with useful knowledge for designing disclosure rules. The last suggestion is to research the need to alter the rules and regulation in connection with the results of this master thesis.

6. Summary and conclusions

First an overview is given of the legal grounds on which a director can be held liable according to Dutch law. A distinction can be made between internal and external liability. Internal liability can be seen as liability towards the corporation. External liability is liability towards third parties. A director is only liable if an irrevocable judicial judgment is pronounced or if he voluntarily accepts his liability. Directors may stipulate that their contracts include a clause providing for an exclusion or limitation of internal liability. This means directors are excluded in advance for claims of the corporation. Directors can also stipulate that their contacts include a clause providing for an indemnification for external liability. The aim of an indemnification clause is to compensate a director for the loss he suffered due to the disputes he is personally involved in because of the position he fulfills within the corporation. Central to a directors' and officers' liability insurance is to cover the personal liability of managing and supervisory directors. Besides this, such insurance can also be concluded by a corporation to cover the risk it runs after it has granted an exclusion or limitation of internal liability and indemnification for external liability to the directors. A listed corporation in The Netherlands is not required to disclose any

information regarding a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance.

If corporations listed on the AEX, AMX or AScX significantly differ from each other in disclosing information regarding a granted exclusion of liability and indemnification clause and a concluded directors' and officers' liability insurance, a possible explanation might be found in accounting theory. According to the political cost hypothesis, some corporations have a higher public profile and are therefore subject to greater interest by the public, media, government, financial analysts and so on. To avert this unwanted attention they can disclose more additional information. In the capital market transactions hypothesis great importance is attached to investors' perception of a corporation. Through greater disclosure, corporations attempt to lower their cost of both debt and equity capital by reducing investors uncertainty. The decision to disclose information is also affected by the cost of litigation. According to the Signalling Theory, some corporations wish to signal the capital market about having stronger risk management capabilities than others.

Comparing the results for the level of disclosure concerning a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance in the annual reports makes clear that there is only a significant difference between the means of the AEX and AScX. Comparing the results for the articles of association provides a similar picture.

The different theories and hypotheses give reason to believe that a large corporation will choose to voluntarily disclose more information. The level of disclosure would then show a declining tendency since the corporations listed on the AEX, AMX and AScX represent approximately €536 billion, €40 billion and €20 billion. The different outputs produced by SPSS only partially support this line of reasoning. Comparing the results for the level of disclosure concerning a granted exclusion or limitation of internal liability and indemnification for external liability and a concluded directors' and officers' liability insurance in the annual reports makes clear that there is no declining trend. The results for the articles of association do show a declining tendency. It is interesting to note that the corporations listed on the AMX do not significantly differ in their level of disclosure from the corporations listed on the AEX despite the fact that they represent almost the same market value as the corporations listed on the AScX. A conclusive explanation cannot be found in the theories and hypotheses discussed. Apparently there are still more factors that influence the level of disclosure.

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Appendix A: Listed corporations in The Netherlands in 2006

AEX	AMX	AScX
ABN AMRO Holding N.V.	Aalberts Industries N.V.	Arcadis N.V.
Aegon N.V.	ASM International N.V.	Ballast Nedam N.V.
Koninklijke Ahold N.V.	Koninklijke BAM Groep N.V.	Beter Bed Holding N.V.
Akzo Nobel N.V.	BinckBank N.V.	Brunel International N.V.
ArcelorMittal N.V.	Koninklijke Boskalis Westminster N.V.	Draka Holding N.V.
ASML Holding N.V.	Corio N.V.	Eurocommercial Properties N.V.
Buhrmann N.V.	Crucell N.V.	Exact Holding N.V.
Koninklijke DSM N.V.	CSM N.V.	Grontmij N.V.
Fortis N.V.	Fugro N.V.	Hunter Douglas N.V.
Hagemeyer N.V.	Heijmans N.V.	Imtech N.V.
Heineken N.V.	LogicaCMG N.V.	Laurus N.V.
ING Groep N.V.	Nutreco Holding N.V.	Macintosh Retail Group N.V.
Koninklijke KPN N.V.	Océ N.V.	OPG Groep N.V.
Koninklijke Numico N.V.	Ordina N.V.	Pharming Group N.V.
Koninklijke Philips N.V.	SNS Reaal N.V.	Sligro Food Group N.V.
Randstad Holding N.V.	Stork N.V.	Smit Internationale N.V.
Reed Elsevier N.V.	Tele Atlas N.V.	Telegraaf Media Groep N.V.
Rodamco Europe N.V.	USG People N.V.	Koninklijke Ten Cate N.V.
Royal Dutch Shell plc	Van der Moolen Holding N.V.	Unit 4 Agresso N.V.
SBM Offshore N.V.	Koninklijke Vopak N.V.	Van Lanschot N.V.
TNT N.V.	Wereldhave N.V.	VastNed Offices/Industrial N.V.
TomTom N.V.	Koninklijke Wessanen N.V.	Vastned Retail N.V.
Unilever N.V.		Wavin N.V.
Vedior N.V.		
Wolters Kluwer N.V.		

Appendix B: AEX

	Exclusion of liability and indemnification clause in the annual report	Directors' and officers' liability insurance in the annual report	Exclusion of liability and indemnification clause in the articles of association	Directors' and officers' liability insurance in the articles of association
ABN AMRO Holding N.V.	No	no	no	no
Aegon N.V.	No	no	article 28A	article 28A.7
Koninklijke Ahold N.V.	No	no	no	no
Akzo Nobel N.V.	No	no	article 38	article 38
ArcelorMittal N.V.	No	no	article 8.8	no
ASML Holding N.V.	p. 13/14, 19/20, 24/25 & 76	p. 76	articles 19.3 & 26.3	article 19.3 & 26.3
Buhrmann N.V.	p. 46 & 47	p. 47	article 30	article 30.6
Koninklijke DSM N.V.	p. 35 & 67	no	article 29A	article 29A.6
Fortis N.V.	No	no	no	no
Hagemeyer N.V.	No	no	article 28	article 28
Heineken N.V.	No	no	article 7.9	article 7.9
ING Groep N.V.	No	no	no	no
Koninklijke KPN N.V.	No	p. 65	article 33	article 33.6
Koninklijke Numico N.V.	No	no	no	no
Koninklijke Philips N.V.	p. 106 & 228	p. 106 & 228	articles 17.4 & 23.2	article 17.5 & 23.3
Randstad Holding N.V.	No	no	article 18	article 18.6
Reed Elsevier N.V.	p. 107	no	no	no
Rodamco Europe N.V.	No	p. 47	article 8.4	article 8.4
Royal Dutch Shell plc	p. 75	no	article 151	article 151
SBM Offshore N.V.	No	no	article 27	article 27
TNT N.V.	No	no	article 33	article 33.6
TomTom N.V.	No	no	no	no
Unilever N.V.	p. 38	p. 38	article 19.9	article 19.9
Vedior N.V.	No	p. 51	article 29A	no
Walters Kluwer N.V.	No	no	article 26	article 26.6

Appendix C: AMX

	Exclusion of liability and indemnification clause in the annual report	Directors' and officers' liability insurance in the annual report	Exclusion of liability and indemnification clause in the articles of association	Directors' and officers' liability insurance in the articles of association
Aalberts Industries N.V.	No	no	no	no
ASM International N.V.	No	no	no	no
Koninklijke BAM Groep N.V.	p. 23	p. 23	article 24.4	no
BinckBank N.V.	No	no	no	no
Koninklijke Boskalis Westminster N.V.	No	no	article 21	article 21
Corio N.V.	No	p. 94	no	no
Cruceil N.V.	p. 121	no	article 28	article 28.7
CSM N.V.	No	p. 51	article 15	article 15
Fugro N.V.	No	no	article 23A	article 23A
Heijmans N.V.	No	no	no	no
LogicaCMG N.V.	p. 41	p. 41	no	no
Nutreco Holding N.V.	No	no	article 20	article 20
Océ N.V.	No	p. 67	article 21	article 21
Ordina N.V.	No	no	no	no
SNS Reaal N.V.	No	no	article 14.4 until 14.10	article 14.9
Stork N.V.	No	no	no	no
Tele Atlas N.V.	No	no	article 15	article 15.5
USG People N.V.	No	no	article 26	no
Van der Moolen Holding N.V.	p. 23	p. 23	article 15 & 23	article 15.4 & 23.2
Koninklijke Vopak N.V.	No	no	article 13.4	article 13.4
Wereldhave N.V.	No	no	no	no
Koninklijke Wessanen N.V.	No	no	no	no

Appendix D: AScX

	Exclusion of liability and indemnification clause in the annual report	Directors' and officers' liability insurance in the annual report	Exclusion of liability and indemnification clause in the articles of association	Directors' and officers' liability insurance in the articles of association
Arcadis N.V.	p. 74	no	article 13	article 13.3
Ballast Nedam N.V.	No	no	no	no
Beter Bed Holding N.V.	No	no	no	no
Brunel International N.V.	No	no	article 10	article 10
Draka Holding N.V.	No	no	no	no
Eurocommercial Properties N.V.	No	no	no	no
Exact Holding N.V.	No	no	no	no
Grontmij N.V.	No	no	article 32	article 32.6
Hunter Douglas N.V.	No	no	no	no
Imtech N.V.	No	no	article 22	article 22
Laurus N.V.	No	no	no	no
Macintosh Retail Group N.V.	No	no	article 30	no
OPG Groep N.V.	No	p. 65	article 13.8	article 13.8
Pharming Group N.V.	No	no	no	no
Sligro Food Group N.V.	No	no	article 32	article 32
Smit Internationale N.V.	No	p. 39	no	no
Telegraaf Media Groep N.V.	No	no	no	no
Koninklijke Ten Cate N.V.	No	no	no	no
Unit 4 Agresso N.V.	No	no	no	no
Van Lanschot N.V.	No	no	article 28B	article 28B.6
VastNed Offices/Industrial N.V.	No	no	no	no
Vastned Retail N.V.	No	no	article 13.6	article 13.6
Wavin N.V.	No	no	article 20	article 20.5

Appendix E: Output independent t-test annual report

AEX - AMX

Group statistics

INDEX	N	Mean	Std. Deviation	Std. Error Mean
SCORE 1.00	25	1.6000	.5000	.1000
SCORE 2.00	22	1.6818	.4767	.1016

Independent t-test

	Levene's Test for Equality of Variances		t-test for Equality of Means				95% Confidence Interval of the Difference		
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Upper	Lower
SCORE	1.286	.263	-.572	45	.570	-.0818	.1430	-.3699	.2063
Equal variances assumed			-.574	44.691	.569	-.0818	.1426	-.3691	.2054
Equal variances not assumed									

AEX - AScX

Group statistics

	INDEX	N	Mean	Std. Deviation	Std. Error Mean
SCORE	1.00	25	1.6000	.5000	.1000
	3.00	23	1.8696	.3444	7.180E-02

Independent t-test

	Levene's Test for Equality of Variances		t-test for Equality of Means				95% Confidence Interval of the Difference		
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Upper	Lower
SCORE	21.208	.000	-2.157	46	.036	-.2696	.1250	-.5212	-.0180
			-2.190	42.734	.034	-.2696	.1231	-.5179	-.0213

AMX - ASCX

Group statistics

	INDEX	N	Mean	Std. Deviation	Std. Error Mean
SCORE	2.00	22	1.6818	.4767	.1016
	3.00	23	1.8696	.3444	7.180E-02

Independent t-test

	Levene's Test for Equality of Variances		t-test for Equality of Means				95% Confidence Interval of the Difference		
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Upper	Lower
SCORE	10.080	.003	-1.520	43	.136	-.1877	.1236	-.4369	6.143E-02
			-1.509	38.126	.140	-.1877	.1244	-.4396	6.415E-02

Appendix F: Output independent t-test articles of association

AEX - AMX

Group statistics

INDEX	N	Mean	Std. Deviation	Std. Error Mean
SCORE 1.00	25	1.2800	.4583	9.165E-02
SCORE 2.00	22	1.4545	.5096	.1087

Independent t-test

	Levene's Test for Equality of Variances		t-test for Equality of Means				95% Confidence Interval of the Difference		
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Upper	Lower
SCORE	4.430	.041	-1.236	45	.223	-.1745	.1412	-.4589	.1098
Equal variances assumed			-1.228	42.630	.226	-.1745	.1421	-.4613	.1122
Equal variances not assumed									

AEX - ASCX

Group statistics

	INDEX	N	Mean	Std. Deviation	Std. Error Mean
SCORE	1.00	25	1.2800	.4583	9.165E-02
	3.00	23	1.5652	.5069	.1057

Independent t-test

	Levene's Test for Equality of Variances		t-test for Equality of Means				95% Confidence Interval of the Difference		
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Upper	Lower
SCORE	4.008	.051	-2.048	46	.046	-.2852	.1393	-.5656	-.0048
			-2.039	44.474	.047	-.2852	.1399	-.5671	-.0034

AMX - ASCX

Group statistics

	INDEX	N	Mean	Std. Deviation	Std. Error Mean
SCORE	2.00	22	1.4545	.5096	.1087
	3.00	23	1.5652	.5069	.1057

Independent t-test

	Levene's Test for Equality of Variances		t-test for Equality of Means				95% Confidence Interval of the Difference		
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Upper	Lower
SCORE	Lower	.066	Lower	Upper	Lower	Upper	Lower	Upper	Lower
	Equal variances assumed	.799	-.730	43	.469	-.1107	.1516	-.4163	.1950
Equal variances not assumed			-.730	42.889	.469	-.1107	.1516	-.4164	.1950

Materiality of misstatements from the perspective of the users of the financial statements - Narrowing the expectation gap between users and auditors

Doris de Rooij²⁸

Executive Summary

Misstatements or omissions in the financial statements are considered material if they could influence the economic decisions of users based on the financial statements. This research presents an empirical research, which provides evidence that a relevant expectation gap regarding materiality of misstatements exists between users of the financial statements and auditors. This gap can mainly be explained by lack of communication.

According to the respondents, the expectation gap can be narrowed by introducing a uniform guideline, which incorporates quantitative rules, and especially by disclosing the materiality threshold used by the auditor in the audit report.

1. Introduction and research questions

Introduction

‘Information is material if its omission or misstatement could influence the economic decisions of users taken on the basis of the financial statements.’
(NIVRA 2007, NV COS 320.3).

As long as misstatements do not violate the true and fair view the financial statements give of the financial position of a company, they are considered immaterial. It is the responsibility of the auditor of the financial statements to be reasonably sure that the financial statements are free from material misstatement.

Because the user is the one, who makes decisions based on the annual financial statements, in theory it should be the user of the financial statements, who decides what is material and what is not material. However, users of the financial statements are not a homogenous group. Shareholders, creditors and clients have different information needs and preferences and therefore consider other things as being material to their decisions.

²⁸ This research was supervised by E. A. de Knecht RA. Doris de Rooij is currently working as a controller at TNT Post.

Therefore, in practice the auditor decides on materiality thresholds for the audit of the financial statements. The auditor is the confidant of the financial statement users who audits the financial statements of a company on behalf of the users.

The auditor assesses the level of misstatement above which economic decisions of users of the financial statements will be affected. Next to his professional judgment of the perceived threshold of users, rules and guidelines support the auditor executing his materiality decisions. Real consultation of the user of the financial statements is unusual.

Although the definition of the term explicitly addresses users' economic decision-making, in practice, users are not involved in the concept at all.

This gives reason to suspect that the implications of the concept of materiality are not known, or not fully known to users of the financial statements.

Economic scientific literature refers to the existence of an expectation gap between auditors and users of the financial statements, if what the users perceive the auditor does is not in line with what the users expect the auditor does (Porter 1993, 49). This gap can also exist where it regards materiality.

Research question

A suitable way to discover what users need regarding materiality and how to narrow the possible expectation gap is to consult the users themselves.

Therefore, the main question in this research is:

'Does a relevant expectation gap exist between users of the financial statements and auditors concerning materiality of misstatements, and if so, in which way do the users want to narrow this gap?'

In order to arrive at an answer to this main research question, several sub topics will be outlined in this paper.

In this chapter, the concept of materiality of misstatements and its relevance were introduced.

Chapter 2 explains the relation between users and auditors by describing the origination of the audit of the financial statements from the point of view of the agency theory and by describing in which way materiality levels are determined.

The expectation gap is introduced in chapter 3.

In chapter 4, the issues concerning materiality that might contribute to an expectation gap are structured into possible measure to improve the concept of materiality to users. Based on an instrument that is specially designed for this research, hypotheses are derived that forecast what measures users want to introduce to narrow the expectation gap.

Chapter 5 outlines the design of the empirical part of the research that is executed among users of the financial statements.

Chapter 6 presents and analyses the results of this empirical research, which contain information regarding the knowledge and opinion of users regarding materiality and the measures they would like to introduce in order to improve the concept of materiality. The last chapter - chapter 7 - presents the answer to the main research question. Finally, recommendations for future research and for audit practice are presented.

This scientific research aims at providing insight in the composition of the expectation gap regarding materiality. At the same time, measures that might narrow the expectation gap are presented to the users of the financial statements. Recommendations result from this, which might contribute to the narrowing of the possible expectation gap regarding materiality.

2. The user of the financial statements, the auditor and materiality

The Framework of the IASB

It is commonly accepted that well-functioning capital markets are a key to economic development and growth. The financial statements of a company are a valuable economic decision-making tool for users of the financial statements and therefore, the financial statements contribute to the well functioning of the capital markets (Hoogendoorn and Mertens 2001, 3/10). This is one of the reasons, why companies need to prepare financial statements. According to the Framework for the Preparation and Presentation of Financial Statements (Framework) of the International Accounting Standards Board (IASB), is 'the objective of financial statements to provide information about the financial position, performance and changes in financial position of an entity that is useful to a wide range of users in making economic decisions' (IASB 2005, Framework, paragraph 12).

The Framework also describes what qualitative characteristics information should possess in order to be useful. These are: Understandability, relevance, reliability and comparability (Framework, paragraph 24). When preparing the financial statements, the management of the company should at all times keep these qualitative characteristics in mind. These elements of useful information are also used in assessing the usefulness of the measures for improving the concept of materiality (see chapter 4).

The agency theory and the audit of the financial statements

Financial statements have to be put up for company-stakeholders. However, management of the preparing company can have goals that deviate from the goals of the users of the financial statements, or unintentional mistakes can be made when preparing the financial statements. Users cannot just rely on the financial statements to present a true and fair view of the company's income and assets and liabilities. This is an agency problem (Jensen and Meckling 1976).

A solution to solve or diminish the agency problem of potentially unreliable financial statements presented by the management of the company, is the introduction of a monitor. This is the auditor. The auditor assesses on behalf of the principal (the

shareholder) whether the agent prepared financial statements that are in line with the applicable rules and regulations and present a true and fair view of the company.

In the Netherlands, the auditor is the legally required external monitor that represents the interests of all the users of the financial statements (Santen et al. 2006, 48).

Audit rules

The audit of the financial statements originates from the need to have an independent party assessing the reliability of the financial statements. Materiality is a concept that relates to the audit of the financial statements. The choices of the auditor regarding the materiality thresholds have influence on the financial statements and subsequently on users' decision-making. Therefore, in which way to handle the concept of the materiality of misstatements has been a matter of continuous discussion.

Rules and guidelines are available in audit standards, in audit literature and in audit manuals of audit firms. In the Netherlands, the rules for auditors regarding the audit engagement are incorporated in the so-called Nadere voorschriften Controle- en overige standaarden (NV COS), which are drawn up by the NIVRA.

Most of the applicable rules regarding materiality are included in NV COS 320 - Audit Materiality (NIVRA 2007). Paragraph 4 of this audit standard states that 'the objective of an audit of financial statements is to enable the auditor to express an opinion whether the financial statements are prepared, in all material respects, in accordance with an applicable financial reporting framework' (NIVRA 2007, NV COS 320.4). In the Netherlands this is the framework of the IASB.

To achieve the goal of an audit the auditor successively plans and designs an audit approach, executes the audit procedures based on the audit plan and evaluates the results of the audit (Arens et al. 2007, 160).

Evaluation materiality

Throughout the audit process, the auditor uses different materiality levels for different purposes. The most relevant materiality level to the user is the materiality level that is set by the auditor at the end of the audit and on which he bases his opinion whether the financial statements represent a true and fair view or not. This is the so-called *evaluation materiality*. The determination of this materiality level consists of selecting a materiality benchmark and a percentage to quantify the materiality level (Arens et al. 2007, 250). Net income before taxes is frequently considered the most sensitive predictor of future cash flow for a company and a critical item of information for users. That is why auditors often choose income as a benchmark (Arens et al. 2007, 250; Zuber et al. 1983, 43). The determination of a percentage depends on among other factors on the benchmark chosen. When the audit is fully executed, the auditor has to evaluate, based on the evidence gathered, whether the financial statements present a true and fair view of the financial position of a company. Financial statements may be materially misstated (or: alter users' economic decision-making) due to the effect of an individual omission or misstatement, or

due to the aggregate effect of a number of omissions or misstatements that are not individually considered material.

3. The expectation gap

The expectation gap

If what the users perceive the auditor does is not in line with what the users expect the auditor does, an expectation gap exists between users and auditors (Porter 1993, 49). In the first place, this expectation gap exists there were society (or the user of the financial statements) has unreasonable expectations of the auditor (unreasonable expectations gap). An auditor cannot fulfil all of society's needs because of limited control methods and control techniques and because a cost-benefit analysis needs to be taken into account. Secondly, sometimes the auditor does not live up to society's expectations, because he is limited or not required to do so by certain regulation (deficient standards gap). These two parts of the expectation gap together are also called the communication gap (Pheijffer 2005, 44).

A third cause of the expectation gap is a deficient performance by the auditor (deficient performance gap). The auditor does not always seem to be able to recognize what the reasonable expectations of society about the auditor's performance are, or he simply fails in doing his job.

Porter (1993) modelled the expectation gap as follows:

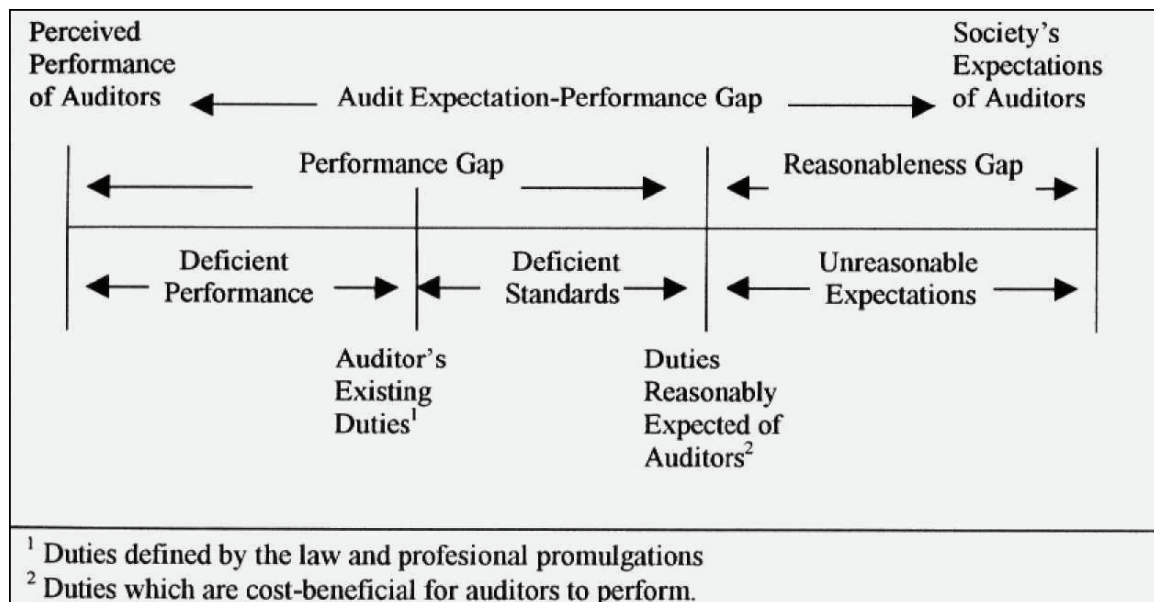


Figure 3.1 - The Audit Expectation-Performance Gap

An expectation gap regarding materiality seems to exist. Several studies indicate that users demonstrate lower materiality thresholds than auditors (deficient performance gap) (Cho et al. 2003, 75; Holstrum and Messier 1982, 58; Højskov 1998, 6). Many users expect that an unqualified audit report implies that an auditor has performed a hundred percent

check and guarantees the preciseness of the financial statements (unreasonable expectations gap) (Den Dekker 2005, 25; Gowthorpe and Porter 2002). The gap that is caused by unreasonable expectations of users is also referred to as the 'knowledge gap', because it results from users having not enough knowledge with respect to the auditors' existing responsibilities (Gowthorpe and Porter 2002).

In her research, Brakenhoff states that one third of the users of the financial statements are not informed about the concept of materiality (Brakenhoff 2002, 37).

The existence of an expectation gap regarding materiality, might contribute to a reduction of the perceived value of the auditor's opinion as regards to the true and fair view of the financial statements of a company. This is not in the interest of users and auditors of the financial statements. Therefore, it is important to know whether a relevant expectation gap regarding materiality exists and if so, how to narrow it.

4. Solutions to narrow the possible expectation gap

Introduction

In this chapter, based on issues commented in audit literature and scientific economic literature that might contribute to the existence of a gap regarding materiality, measures (or: 'solutions') are presented that might solve materiality issues.

In the second part of this chapter, an instrument is presented, based on which the solutions can be weighed in terms of desirability for the user of the financial statements. From this, hypotheses regarding the desirability of the measures are derived, which will be investigated empirically. This will contribute to getting insight in what needs regarding materiality the user might have and what measures need to be taken in order to reduce the expectation gap.

A uniform guideline

An often-heard shortcoming of the audit standards concerning materiality, is that they do not provide an unambiguous basis for the quantification of materiality (Majoor 2006, 50). The only information concerning materiality that users can derive from the audit report is the phrase 'the financial statements are prepared, in all material respects'. This does not contribute to much clarity and does not provide much information (Koopmans 2003, 15; Majoor 2006, 50).

If it is possible to formalize materiality practice into one uniform standard for the whole audit profession, the user has something to hold on to in determining the amount of immaterial misstatements or omissions that might be left in any financial statement.

Therefore, in the empirical research, the subsequent statement regarding a uniform audit standard is presented to the respondents of the survey:

A uniform guideline should be developed based on which all auditors are obliged to determine the materiality threshold.

Currently, no rules or guidelines exist in which a method for the quantification of the materiality threshold is incorporated and on which the auditor needs to base his materiality decision. It is possible for the auditor to use for example existing quantitative rules of thumb or the audit firms' audit manuals.

When developing a uniform guideline, the quantitative materiality level will be determined. The auditor is only allowed to deviate from this level if he motivates this. In any way, the auditor should apply his professional judgment, especially regarding qualitative elements. In the audit report will be reported in which audit standard of the NIVRA the condition is incorporated.

Abolish materiality

Many users of the financial statements have the supposition that the audited financial statements contain no omissions or misstatements. They assume and expect that during the audit, the auditor checks every item accurate to the euro (Den Dekker 2005, 25; Gowthorpe and Porter 2002). An unqualified opinion does only state that a user can reasonably rely on the information presented in the financial statements, not that it does not contain any errors or omissions of immaterial importance. On this point, an expectation gap seems to exist.

Although the auditor cannot give full insurance on the financial statements being fully correct, there exists discussion on to what extent the auditor should audit the financial statements. The cost aspect is of importance, but next to that the opinion exists that reputation damage could harm a company a lot more, if material errors become known after the issuance of the financial statements.

In the empirical research, the subsequent statement regarding abolishing materiality is presented to the respondents of the survey:

Materiality of misstatements should be abolished.

An example of a rule of thumb that is currently applied by auditors is a materiality threshold of 5% of pre-tax income. The auditor uses the established materiality level in planning the audit work that needs to be executed. The audit procedures to verify the financial statements are partial. They contain sampling of the segments.

A materiality of zero implies the auditor checks every item of the financial administration of the company that is contained in the financial statements (a full audit). All the identified misstatements need to be adjusted in the financial statements. In this situation, the financial statements might still contain misstatements that the auditor is not capable to detect, neither by means of a full audit. As a result of this measure, the audit would become much more expensive.

Correct all discovered misstatements

Many users of the financial statements are in the supposition that the financial statements contain no omissions or misstatements (Den Dekker 2005, 25; Gowthorpe and Porter 2002). This implicates they expect that all the detected misstatements are corrected. What is even less known, is that the auditor often advises management to correct immaterial

misstatements discovered during the audit, but that it is up to the management to decide whether they want to do that or not.

In the empirical research, the subsequent statement regarding the correction of discovered misstatements is presented to the respondents of the survey:

All detected misstatements should be corrected, whether material or not.

This measure requires that all the misstatements the auditor has identified during the audit, need to be corrected in the financial statements by the management, whether they are material or not (an exception holds for very small misstatements of for example < 1% of the materiality level). The audit is not aimed at identifying all the misstatements in the financial statements, as is the case with abolishing materiality.

Disclosure

The materiality of errors chosen by the auditor affects the annual financial statements. Depending on the choices, the financial statements may differ. The user has to execute his economic decisions based on the financial statements, but no information is presented in the audit report or any other place in the financial statements about the materiality level the auditor has determined (Koopmans 2003, 15; Majoor 2006, 51). The consequence is that the user cannot simply compare the financial statements of companies, especially not when different audit firms have audited them. Moreover, the user is not informed about the possible magnitude of deviation.

In the empirical research, the subsequent statement regarding the disclosure of materiality thresholds is presented to the respondents of the survey:

The materiality level that is applied by the auditor should be reported in the audit report.

In the audit report accompanying the audited financial statements, the auditor reports the applied materiality level and communicates a short explanation of the way in which the threshold is determined.

Shareholder input

As has become clear from chapter 2, during his audit the auditor determines the different materiality levels. When executing this, the auditor should base his decisions on the possible effect of a certain materiality level on the economic decision-making of users of the financial statements. Because the auditor is allowed to use professional judgment, no real obligation for the auditor exists to consult the user. It seems paradoxical that the users, for who the financial statements are prepared and audited, cannot influence the materiality deliberations made by auditors.

Therefore, in the empirical research, the subsequent statement regarding the input of the shareholder is presented to the respondents of the survey:

The shareholder should have a voice in the materiality level the auditor needs to apply.

Shareholders (possibly assisted by their financial advisors) should have the opportunity to yearly anonymously express the magnitude of the materiality level that is desired to the company's auditor, based on which the auditor should determine an average desired materiality level. Based on qualitative factors and his professional judgment, the auditor may adjust the materiality threshold downwards. Adjusting the materiality level upwards is not allowed.

No relevant expectation gap

Does materiality really matter to the user? There might be a gap, but the gap might not be relevant. Solutions that provide the user more insight in materiality all come at a cost (e.g. cost of working out the details) and are a hassle to implement.

In the empirical research, the subsequent statement regarding not changing the concept of materiality is presented to the respondents of the survey:

The way materiality of misstatements currently is designed, is good as it is.

As a user of the financial statements, you are satisfied about the way materiality is handled in practice by the auditor and of the degree to which you are informed about the concept. According to you, considering the possibilities presented before and your opinion regarding materiality of misstatements, no measures are needed.

Predictive instrument and hypotheses

While the importance of the different components of the expectation gap to users is not known, it is hard to predict how users perceive the concept of materiality as it is and what measures users might want to introduce in order to improve the concept, thereby narrowing the expectation gap. An instrument is developed to guide in predicting the users' preferences. The qualitative characteristics of information (see chapter 2) and a cost-benefit consideration are incorporated in this instrument. Next to that, another variable 'influence on users' perception' is added. Each component represents a characteristic that a measure might, or might not have.

This table indicates the relative preferences of each of the measures by the users. From this table, the hypotheses are derived that state whether the measure is valued by the user. These predictions can be helpful in interpreting the results of the empirical research and if they align with respondents' opinion, strengthen the conclusions of the empirical research.

Table 4.1 - Relative contribution of solutions to several characteristics of information²⁹

	Understan- dability	Relevance	Reliability	Compara- bility	Influence on users	Sub-total
Uniform guideline	1,4	0	0,6	1,4	0,6	4
Abolish materiality	0,4	-0,2	1,1	0,8	1	3,1
Correct all misstatements	0	0	1	0,4	0,6	2
Disclosure	0,6	0,4	0,6	1,2	1,6	4,4
Shareholder input	1	0,8	-0,4	-0,6	1,2	2
No change	-0,4	0,2	-0,2	-0,4	0,1	-0,7

Table 4.1 - Continued

	Easy	Cheap	Total
Uniform guideline	1,6	1,6	7,2
Abolish materiality	-0,6	-2	0,5
Correct all misstatements	1	-0,6	2,4
Disclosure	0,4	0,4	5,2
Shareholder input	-1,6	-1	-0,6
No change	0,8	0,8	0,9

The hypotheses that are derived from this table read:

- H1:** Users want the uniform guideline measure to be implemented.
- H2:** Users want the disclosure measure to be implemented.
- H3:** Users do not want the ‘correct all discovered misstatements’ measure to be implemented.
- H4:** Users do not want the abolish materiality measure to be implemented.
- H5:** Users do not want the shareholder input measure to be implemented.
- H6:** Users do at least want one measure to be implemented in order to narrow (part of) the expectation gap regarding materiality.

5. Design of the Empirical Research

Units of analysis

The research is executed amongst a variety of users of financial statements of listed companies. The biggest share of these users (83%) consists of shareholders and creditors.

²⁹ The table is compiled as follows: 5 independent auditors provided each of the characteristics of each of the measures a value of -2, -1, 0, 1, or 2, dependent on the relative contribution or reduction of each of the measures to the specific characteristics. The averages of these scores are included in the table. The auditors had to reason from the point of view of users when assessing the values of each measure.

Professional representatives of creditors and shareholders are equated with creditors and shareholders, while they represent the interests of shareholders and creditors.

The remaining respondents are persons that use the financial statements for a variety of purposes that do not contain considering, taking, keeping, or abandoning a financial interest in a company.

Questionnaires

The instrument that is suitable to conduct the research is a questionnaire, which can provide information about both knowledge and attitude (Baarda and De Goede 1995, 144). Two questionnaires (part one and part two) are developed. The first part consists of a questionnaire with questions about the respondent and his position and general open-ended questions about his knowledge and his perception of materiality of misstatements. From part one, the aptitude of the respondent, his or her knowledge of the subject materiality of misstatements and qualitative information will be derived. The purpose of this is to express an opinion on the existence of an expectation gap together with the results of the second part of the research. The biggest part of the second questionnaire consists of closed-ended questions (statements) about the desirability of the different materiality measures. The measures are briefly described and the respondent needs to assess the lacking details himself. The respondent needed to choose the desirability of a certain measure out of five response categories often referred to as a Likert scale (Babbie 2007, 170). Before conducting the actual research, the draft questionnaires were submitted to a pilot study.

Data collection

From the database of Company.info several lists of Dutch companies were derived in which professional representatives of financial statement users might work. These companies included among others banks, investment companies and pension funds. This method is called random availability sampling.

Approximately 85 companies have been approached personally by telephone. Thirty subjects agreed to cooperate. Personal questionnaires by mail or e-mail were sent to them.

Next to the personal approach by telephone, thirty companies and/or persons have been sent an e-mail unannounced in which the request was made to fill out the survey or to pass the survey to a suitable person.

Finally, an important part of the respondents (N=27) were reached via the network of the author. This part contained first line respondents and next to that, the author was introduced or the research of the author was introduced to network contacts of people directly linked to the author. This sampling method is called snowball sampling (Baarda and De Goede 1995, 127; Babbie 2007, 184). The respondents were distributed questionnaires via mail or e-mail.

Response

In the end, 46 qualifying persons (N=46) took part in the whole survey, from which 38 qualify as investor, creditor or professional representative and eight as other users of the financial statements.

Table 5.1 - Response per category of respondents that was sent part one of the survey

	Amount sent	Valuable response	Response rate
Telephone acquisition	30	16	53%
Mail acquisition	30	3	10%
Snowball acquisition	NA	27	NA
Total		46	

Qualitative and quantitative analysis of results

The results of the research are assessed in two different ways.

All the information that is obtained from the open-ended questions is assessed qualitatively. Next to that, also the information from the closed-ended questions is assessed qualitatively. A thorough analysis of the possible deeper meanings of the information is executed.

In addition, the quantitative information from the statements containing the materiality measures are analyzed using a quantitative statistic program (SPSS, version 15.0). The answers of the respondents on the statements are coded as follows:

- Strongly agree = 1
- Agree = 2
- Neutral = 3
- Disagree = 4
- Strongly disagree = 5

The ordinal scale variables are subjected to non-parametric tests. From this, the hypotheses that have been formulated which reflect the expectations of users' opinion in which way to narrow the gap, can be confirmed, or rejected with a higher reliability. For all the statistical tests in this research, the results are considered statistically significant if the p-value is less than 5% ($p < .05$).

Limitations

As can be deduced from the approach just described, the population sample that is taken is not a random sample of the population, for a large part nonprobability sampling is used instead, because it is practically impossible to determine the size of the whole population of users of the financial statements. Consequently, it is not possible to access a random sample of the whole population.

The attempt is made to include 'randomly chosen' respondents by phoning to the companies that were included in the lists from the Company.info database. Obviously, in case of snowball sampling, a random sample is out of the question.

The representativeness of the samples using snowball sampling is questionable (Babbie 2007, 185). However, snowball respondents were not informed about the research in advance and did not have more information in advance than any arbitrary respondent did.

Therefore, it is deliberated that the respondents approached via the snowball-method constitute an as valuable contribution to the survey as any other respondent with no ties to the author does.

6. The results of the empirical research

Introduction

In this chapter, the results of the empirical part of this research will be presented. In the next paragraph, the knowledge of respondents regarding the concept of materiality is assessed. After that, the vision of respondents regarding materiality and their opinions on whether to improve the concept of materiality or not, are presented.

Knowledge regarding the concept of materiality

The first objective of the research is to determine whether an expectation gap concerning materiality exists. An important element of the answer to this question is to know whether respondents of financial statements are aware and informed of the concept.

In the first part of the survey, questions are posed whereof the answers provide insight about the knowledge and attitude of respondents concerning materiality.

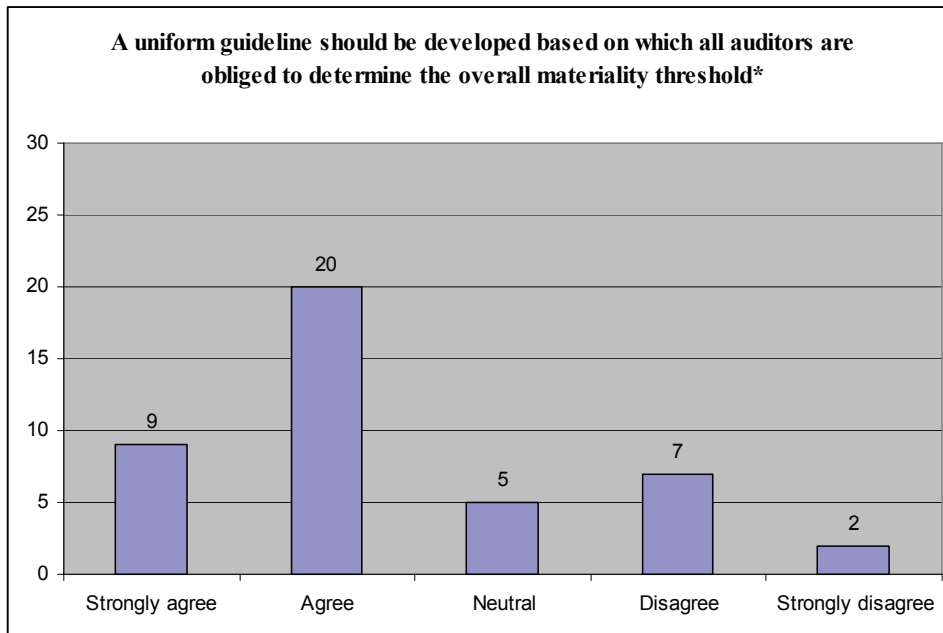
The results whether respondents of the financial statements are informed and aware of the existence and the implications of the concept of materiality are mixed, but it can be concluded that for at least one third of the respondents (35%) a lack of knowledge exists.

Ways in which the respondents want to improve the concept of materiality

All the respondents had to express their opinion on six different statements that represented the different possible measures regarding materiality as introduced in chapter 4 of this research.

A uniform guideline should be developed based on which all auditors are obliged to determine the materiality threshold

Bar chart 6.1



* Two respondents answered 'Don't know'.

In the audit standards that currently exist, no prescriptions of in what way to determine the quantitative materiality threshold exist. The figures show that the majority of respondents would like to end this situation by introducing a new uniform standard with quantitative thresholds included.³⁰ The auditor should refer to this guideline in the audit report.

Several reasons exist why respondents are attracted to this measure:

- Clearness and transparency; many respondents indicated they would support a clear standard to which is referred to in the audit report, because this would make the concept more clear to users as well as to auditors.
- The increase of uniformity among auditors in determining materiality, would increase the uniformity of financial statements and with that the comparability.
- The standard would introduce more objectivity, based on which users can more easily rely on the reliability of the financial statements.

Opponents argue:

- The auditor is best capable of judging materiality.
- Some matters are just impossible to capture in rules. For example, in which way can be dealt with differences in branches and in size of companies?

³⁰ In this statement, the term uniform guideline is used and not audit standard. This can be considered as a flaw in the design of the research. The uniform guideline measure is intended as a uniform audit standard. Based on the answers, it could be determined that most respondents of the empirical research considered the guideline to be a prescriptive audit standard. Therefore, the term 'uniform guideline' and 'uniform standard' are used interchangeably.

- Despite of the uniformity in the quantitative assessment of materiality, this guideline would still leave room for professional judgment.

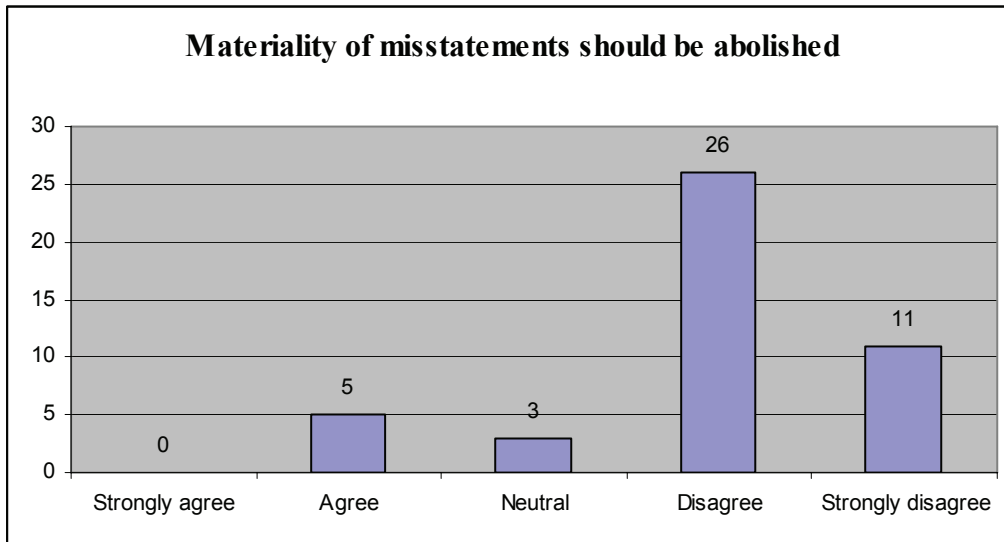
Both the proponents and opponents have valid reasons for being in favor or against this measure, but the tendency is unarguably that the majority of the respondents is in favor of this measure. The results of the Wilcoxon Signed-Ranks test significantly show that respondents would have no objection against introducing this measure for improving the concept of materiality. That is why hypothesis 1, ‘Users want the uniform guideline measure to be implemented’, seems tenable.

Conclusions regarding the expectation gap

- The existence of a deficient standards gap appeared. In order to achieve transparency and uniformity, the existing audit standards need to be adapted.
- The existence of an unreasonable expectations gap appeared. Respondents indicated the concept of materiality is not clear to them and therefore they need to be informed about it by means of a guideline that is known to them.
- A modest deficient performance gap can be discerned. Some respondents indicate the guideline would introduce more objectivity, which indicates they are concerned about the subjective assessment of materiality, as it currently exists.
- On the other hand, also proponents of professional judgment exist. This category would be of the opinion that the performance of the auditor becomes deficient if his professional judgment is suppressed.

Materiality of misstatements should be abolished

Bar chart 6.2



This measure implicates a full audit. Most respondents recognized this as a very expensive option, with limited benefit. Practically half (49%) of the respondents rank this measure as least favorable measure.

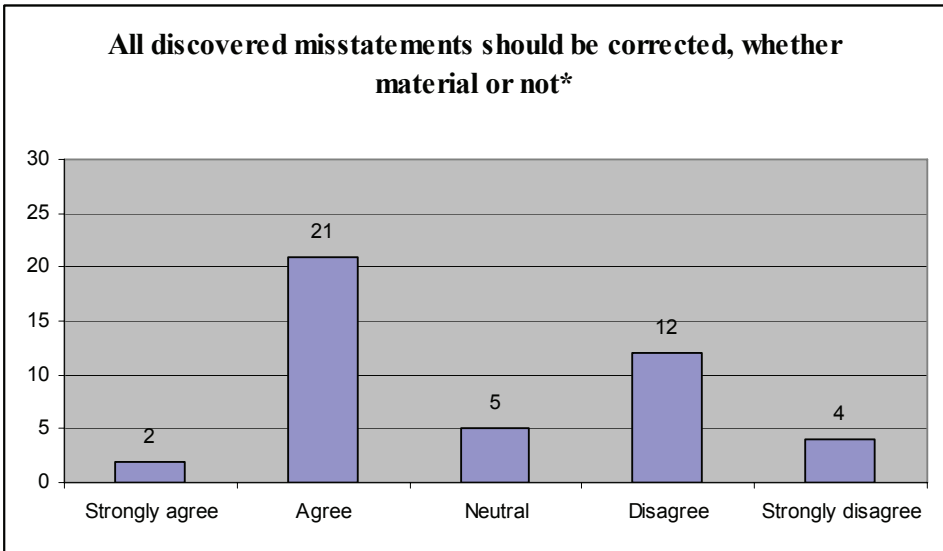
The results of this statement support hypothesis 5, 'Users do not want the abolish materiality measure to be implemented'. This conclusion is also statistically supported in the Wilcoxon Signed-Ranks test.

Conclusions regarding the expectation gap

- Earlier results presented a lack of knowledge of 35% of the respondents regarding the concept. These respondents might not have been aware of the existence of a materiality threshold. Some comments support this assumption. Therefore, a reasonableness gap is subscribed to the results of this measure.
- No deficient performance gap is encountered and neither a deficient standards gap.

All discovered misstatements should be corrected, whether material or not

Bar chart 6.3



* One respondent answered 'Don't know'.

The opinions on this measure are much dispersed. Proponents present the following arguments:

- An error should be redeemed at all times.
- Discovered misstatements should be corrected to safeguard the reliability of the financial statements.

The measure seems to have a strong subjective appeal on respondents, for them correcting mistakes is a matter of principle.

The opponents argue:

- From a cost-benefit perspective, it is not desirable to correct immaterial misstatements.
- Because they do not influence the view of the company in the financial statements, correcting misstatements that are not relevant is senseless.

These comments seem to appeal more to the relevance aspect of the measure and the costs of the measure and are more rational than emotional arguments.

The results of the Wilcoxon Signed-Ranks test, do not provide a decisive answer to the question whether respondents would like to introduce the ‘correcting all misstatements’ measure. The result for this statement slightly bends in favor of introducing the measure, but this is not statistically significant so it cannot be concluded that respondents agree with this measure.

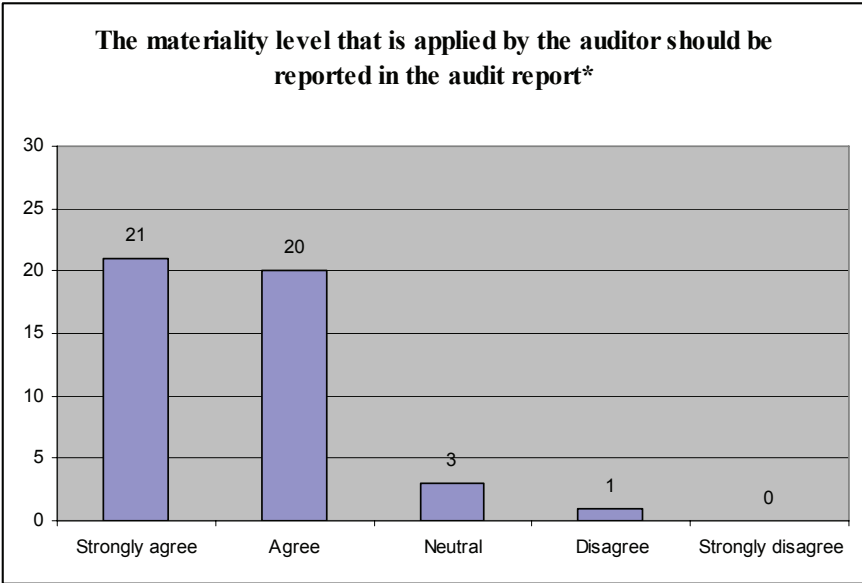
Splitting the sample group in respondents that use the financial statements to base decisions on to buy, hold or sell stock and respondents that do not, does show a significant result. Respondents that use the financial statements for stock related decisions seem to be proponents of the statement and the others are opponents. An explanation for this result might be that (indirect) shareholders want the financial statements to be more precise, because stock prices can react unpredictable to the discovery of misstatements (even when they are perceived immaterial by the auditor) and small changes in stock prices might have huge consequences for (short term) shareholders. However, from the comments presented with this statement this reasoning cannot be extracted. Provisionally, hypothesis 3, ‘Users do not want the ‘correct all discovered misstatements’ measure to be implemented’, is accepted.

Conclusions regarding the expectation gap

- The results are inconclusive, but a deficient standards gap is looming.
- No deficient performance or reasonableness gap is derived from these results.

The materiality level that is applied by the auditor should be reported in the audit report.

Bar chart 6.4



* One respondent answered ‘Don’t know’.

This measure requires the auditor to report the applied materiality level in the audit report and to present a short clarification of the establishment. It was the most agreed upon statement in the research. It was the only measure with an extreme answer ('strongly agree') as the mode answer.

Proponents state:

- Having this knowledge has value to the user. It provides knowledge about the reservedness with which the financial statements should be assessed.
- Transparency is important.
- The measure provides users the possibility to assess the reliability of financial statements themselves.
- It will bring more uniformity in materiality thresholds, which will make financial statements of companies more comparable.
- If materiality levels become public, this might stimulate auditors to perform better.

Some respondents point at difficulties reporting the materiality in the audit report. The materiality figure alone is not sufficient to derive valuable information from. The auditor needs to provide an adequate explanation of the realization of this figure, but an overkill of information is not desirable either.

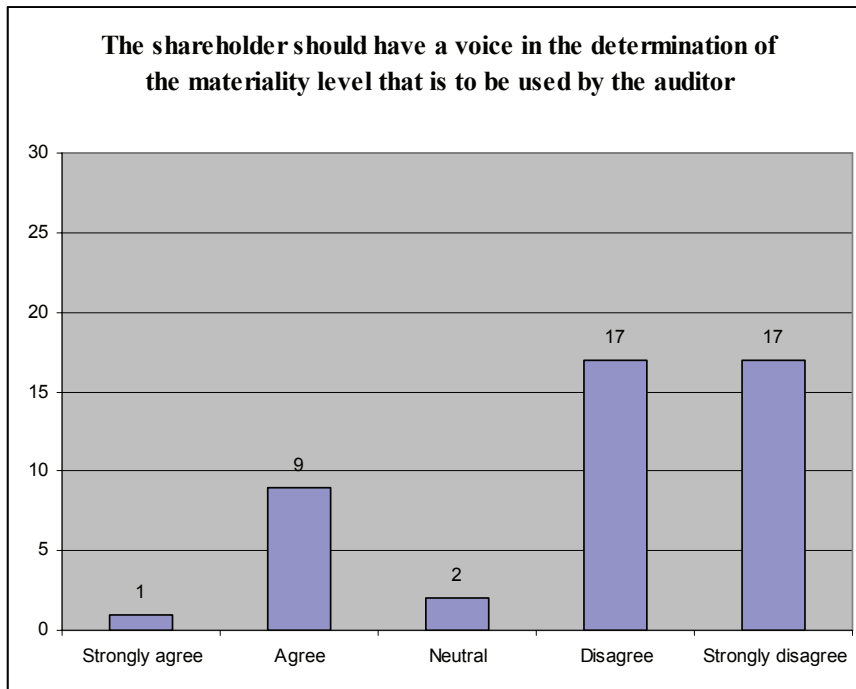
The results of the Wilcoxon Signed-Ranks test are significant. Together the results lead to the conclusion that hypothesis 2, 'Users want the disclosure measure to be implemented', is valid.

Conclusions regarding the expectation gap

- Respondents indicate they want to be informed of the materiality threshold, which implicates they currently lack information that might be valuable for decision-making. This constitutes a communication gap. The deficient standards should be adjusted (require disclosure) which subsequently diminishes the reasonableness gap.
- A deficient performance gap is not likely, but the need for information can possibly be interpreted as a need of the respondent to monitor the performance of the monitor.

The shareholder should have a voice in the materiality level the auditor needs to apply.

Bar chart 6.5



This measure is the only measure that implicates direct involvement of users of the financial statements (more specific: shareholders) in the determination of materiality thresholds.

Respondents are not of the opinion that shareholders should have more influence. Reasons for this are:

- Because auditors are the experts and most shareholders would not be able to make sensitive materiality valuations, this is a task of the auditor.
- If shareholders can judge materiality, it will become an expensive and complex affair.
- The auditor should operate independently and therefore should not be influenced by shareholders.
- Shareholders are not the only stakeholders. The interests of other stakeholders are neglected by a measure like this.

In the end, 74% of the respondents disagreed with the measure. This result is only slightly better than the result of the 'abolish materiality' measure.

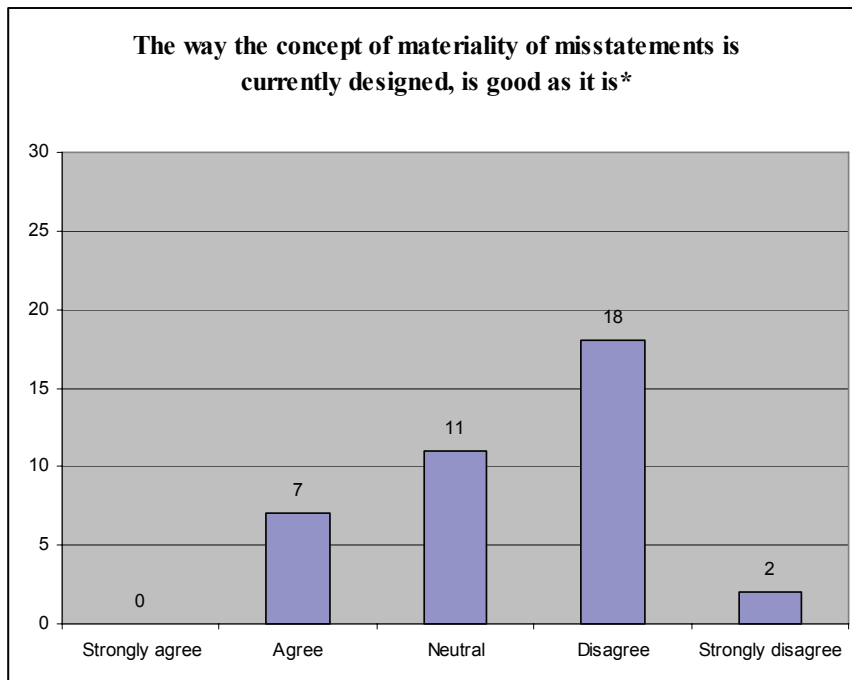
All together the hypothesis 'Users do not want the shareholder input measure to be implemented' (hypothesis 5), is considered accepted. This supposition is also statistically substantiated by means of a Wilcoxon Signed-Ranks test.

Conclusions regarding the expectation gap

- No real expectation gap can be distinguished from the results of this measure. However, some suggestions are presented to monitor the auditor, which indicates the respondents are not completely confident the auditor executes the materiality decisions eminently (and which might indicate a small deficient performance gap).

The way materiality of misstatements currently is designed, is good as it is.

Bar chart 6.6



* Eight respondents answered 'Don't know'.

A good score on this measure would implicate no relevant expectation gap regarding materiality exists. However, the Wilcoxon Signed-Ranks test indicates respondents do not favor the 'no change' measure and are therefore not satisfied and of the opinion that one or more measures should be introduced.

Conclusions regarding the expectation gap

- The concept of materiality should be changed, so hypothesis 7 ('Users do at least want one measure to be implemented in order to narrow (part of) the expectation gap on materiality') is accepted. The acceptance of the hypothesis implies a relevant expectation gap exists.

7. Conclusions and Recommendations

The goal of this research was to provide an answer to the main research question:

‘Does a relevant expectation gap exist between users of the financial statements and auditors concerning materiality of misstatements, and if so, in which way do the users want to narrow this gap?’

In the first part of the survey, more than half of the respondents who claimed to have (some) insight in which way the auditor applies materiality in practice, indicated that in order to judge financial statements well it is important to have knowledge about materiality. It appeared that a considerable number (at least 35%) of respondents was not informed about the concept of materiality.

In the second part of the survey, it turned out that many of the respondents, the ones that were knowledgeable of the concept beforehand as well as the ones that were not, are of the opinion the concept of materiality can be improved by introducing one or more measures. The statement ‘The way the concept of materiality of misstatements is currently designed, is good as it is’ is significantly rejected by the respondents, 43% of the respondents indicated to agree or strongly agree with changes regarding the concept. These results indicate that a relevant expectation gap regarding materiality exists between the respondents and auditors.

Therefore, the first part of the main research question is answered affirmative: a relevant expectation gap between users of the financial statements and auditors concerning materiality of misstatements does exist.

The elements that constituted the gap between respondents and auditors in this empirical research are also derived.

The performance of the auditor regarding the determination of materiality thresholds did not bother the respondents, becoming clear from the rejection of the ‘abolish materiality’ and ‘shareholder input’ measure. In general, respondents seem to trust the materiality assessment the auditor executes. Therefore, it is concluded that the expectation gap regarding materiality is not significantly present on the deficient performance part of the gap. However, indirectly a small deficient performance gap exists, while respondents indicate the need to be able to judge auditor performance via a uniform guideline and disclosure of materiality levels.

The materiality bottleneck turned out to concentrate on the deficient standards gap and on the reasonableness gap. Together these two parts of the gap are also known as the communication gap.

A lack of communication being a considerable cause of the expectation gap is the most prevalent conclusion that can be derived from the results of the survey. Because they now do not know what materiality of misstatements is, or do not fully understand the concept, many respondents indicated they wanted to be better informed about the concept. The two measures presented in the survey that will provide the user with information regarding materiality, a uniform guideline and disclosure, turned out to be popular measures.

A uniform guideline, to which the auditor refers in the audit report, would contribute to clearness and transparency regarding materiality according to the respondents. Disclosing the materiality levels applied by auditors accompanied by a short explanation, would be even a better solution for providing information and transparency about the subject.

Introducing a uniform guideline and/or the obligation to disclose materiality levels, would contribute in narrowing the deficient standards gap. Introduction of these measures would also narrow the reasonableness gap.

While a broad range of users participated in the survey and the results are quite convincing, the final answer on the second part of the research question is: users of the financial statements in general want to introduce a uniform guideline and a disclosure requirement in the audit report. To this, the comment is added that the results of the disclosure measure were more convincing than the results of the uniform guideline measure.

Recommendations for research

This research pointed out that respondents want the concept of materiality to be improved. It is recommended to further investigate the measures that were preferred by the respondents in terms of disadvantages and benefits to users in general (also for the long term) and in terms of design.

Next to that, it is essential that every measure will be researched from the point of view of all the different stakeholders related to the measure (preparers, auditors, users). This research was limited to the users' point of view regarding the different measures.

Recommendations for practice

The respondents provided many reasons for their opinion to introduce the two measures that, according to their point of view, will improve the concept of materiality for users of the financial statements. The message of these respondents (that can be regarded as representatives of all users) should be heard and not ignored.

A recommendation to the IFAC/IAASB (and the NIVRA) is to fuel the debate about the audit standards that might be interesting for users by actively approaching the user of the financial statements and assess their needs and opinion. Regarding materiality, the financial statement users of today do not seem to be a part of the concept of materiality anymore, despite the users being explicitly incorporated in the definition of materiality of misstatements of the IAASB.

Clarifying the concept of materiality to users has the potential to improve the confidence of users of the financial statements in the audit profession and that should sound attractive in these days of reduced confidence because of several scandals.

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The endogenous character of executive compensation: Does corporate strategy affect the choice to adopt residual income-based incentives?

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Executive summary

This study investigates whether firms following a prospector strategy are less likely to adopt residual income (RI) as their main performance measure than firms following a defender strategy. The rationale behind this research question is that previous research has shown that implementing RI-based incentives has some behavioral consequences that intuitively do not rhyme well with the objectives of a growing firm. The sample consists of 40 RI adopters, matched with 40 non-adopters, for each of which strategy is measured as a combination of three publicly available ratios. Although the empirical results of this study are inconclusive, the research has led to renewed insights that should be of use to researchers in the future.

1. Introduction

Residual income is a performance measure that has received a lot of attention in the past fifteen years. It is claimed to overcome the problems associated with traditional performance measures. These problems include (investment and operational) myopia and paying too little attention to the costs of capital involved to generate earnings.

RI is calculated by removing from operating income a charge on employed capital. What remains is, according to proponents of RI-type of measures, the true value a firm has created. That is, the value it creates beyond the demanded cost of capital. Under this definition, RI can be used by any for-profit company, at any time, as it is simply the measure that best encompasses all the different aspects of value creation: finance, investments and operations (Bouwens and Speklé 2007).

The most prominent assumption underlying the discussion in favor of RI, is that it is (most) closely aligned with stockholder value. One can therefore take in the advantages of a market-based measure, whilst leaving the disadvantages of uncontrollability and distortion aside. Various researchers, however, have concluded that RI does not explain stock returns as well as claimed (Biddle et al. 1997).

Reluctant to believe RI thereby loses all of its benefits, I seek to find out why, then, firms apparently still decide to embrace this measure as their primary basis for incentive

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compensation. The answer to this question, I believe, lies in the behavioral consequences of adopting an RI-based performance measure. According to Wallace (1997), firms that adopt RI-based compensation increase their RI performance in the years following RI adoption, thereby confirming the adage 'what you measure is what you get'. Firms do this by (1) decreasing investments, (2) increasing divestments, (3) increase payouts to shareholders, and (4) increase asset turnover. These results indicate the evolvement of more asset-conscious behavior when RI is adopted.

The next step in my line of reasoning is the hypothesized notion that the choice to adopt RI is an endogenous one. That is: some firms are more likely to adopt RI-based measures than others. Considering the behavioral consequences of RI adoption as Wallace (1997) found them, I argue firms following a defender-type of strategy are more likely to adopt RI than are firms following a prospector-type of strategy.

This argument molded into a research question looks as follows:

Are firms characterized as following a defender-type strategy more likely to adopt residual income-based performance incentives than firms characterized as following a prospector-type strategy?

I deliberately use the strategy typology defined by Miles and Snow (Miles et al. 1978), because of it's widespread use among researchers and because it is well documented (Simons 1987).

In my research, I create a strategy continuum ranging from defender to prospector. This method is appropriated from Iltner et al. (1997) and involves the measurement of three publicly available ratios which are then modified to weigh equally and compounded into one strategy measure. These ratios are: (1) research and development (R&D) expenditures-to-sales, (2) market-to-book-assets, and (3) employees-to-sales.

My sample consists of 40 firms that have adopted RI as their primary measure for incentive compensation in the last 13 years, matched with 40 control firms, identified through matching on standard industry classification (SIC) codes and total assets (to proxy for firm size). The result is a sample of 80 firms (40 firm couples). For availability reasons, I chose to investigate stock listed U.S. companies only.

With this research I aim to make a valuable contribution to existing incentive compensation literature because research on the endogenous character of RI adoption is scarce. Although corporate strategy has for long been linked to management control systems (Otley 1980), it has rarely been applied to RI-based performance measurement systems. A confirming answer to my research question could lead the way for other researchers to examine whether RI adopting firms following a defender strategy (and thus match the profile of an RI adopter) *perform* better than firms adopting RI whilst following a prospector strategy.

The rest of this paper is organized as follows: the second part will provide summary of relevant prior literature. This will be extended in part three where I will present my hypothesis development. In part four I will set out how I designed my research. The results are then presented in part five, and analyzed in part six. This part will also contain a summary of the paper.

2. Prior research

2.1 Performance based compensation

Performance based compensation finds its origin in agency theory (Eisenhardt 1989). Agency relationships arise because firms grow and are thereby forced to decentralize decision-making authorities (Jensen and Meckling 1992; Bouwens and Speklé 2007). Performance based compensation aims to re-align the interests of managers and their superiors.

The ultimate goal for any for-profit organization is to maximize shareholder (or firm) value. It would therefore seem logical to reward employees when they create value for the firm. However, since measuring one's contribution to firm value is rarely possible, alternative ways of rewarding employees have to be sought (Merchant and Van der Stede 2007).

Generally accepted finance literature states the value of any economic asset can be calculated by discounting all future cash flows the asset is expected to generate to present value (Berk and Demarzo 2007). The change in firm value over a certain period of time is called economic income. Building on the principle of discounted future cash flows, employees can create value for the firm by: (1) increasing the size of future cash flows, (2) accelerating the receipt of those cash flows (due to the time value of money), or (3) making the cash flows less susceptible to risk (to lower the discount rate) (Merchant and Van der Stede 2007).

Seeing as managerial tasks are broad and varied, the list of possible performance measures on the basis of which managers can be evaluated and rewarded is extensive. Following Merchant and Van der Stede (2007), I classify these measures to fit into one of two broad categories: market measures and accounting measures. Measures in each of these two categories have their individual advantages and disadvantages. Regardless of what certain consulting firms might argue, there is no such thing as a perfect performance measure.

2.2 Market- and accounting-based performance measures

The first type of measure we discuss are those that are market-based. These measures are based on the direct value created for shareholders, also referred to as shareholder return. Shareholder return is calculated as the sum of dividends plus the change in stock price (Berk and Demarzo 2007).

The popularity of stock-based compensation systems lies in the directness by which they relate to changes in shareholder value. Merchant and Van der Stede (2007) furthermore identify market measures of performance as being timely, precise and nearly impossible to manipulate.

Of course there are also disadvantages to using market measures of performance. The biggest of which lies in the numerous amount of uncontrollable factors that influence stock prices. Additionally, it is generally only top management that can significantly influence stock prices as stock prices contain aggregated information from a whole organization. Accounting measures of performance have traditionally been the primary base for manager evaluations (Van der Stede et al. 2006). Two basic forms of accounting based measures are distinguished by Merchant and Van der Stede (2007): (1) residual measures such as operating profit or RI, and (2) ratio measures such as return on assets (ROA) or return on

investment (ROI). I will be giving ROI special attention as it is, in characteristics, closest to RI.

Accounting measures of performance thank their popularity to a number of advantages which I will appropriate primarily from Merchant and Van der Stede (2007). First of all they are generally relatively congruent with the organization's goal of value (profit) maximization (Lev 1989). Nonetheless, accounting measures of performance are subject to some of the same controllability issues as market measures. A big difference between the two types of measures, however, is that accounting measures can be calculated for individual business units lower down the organization, whereas stock prices are usually only available for corporations as a whole.

Using accounting profits or any other accounting based performance measure, however, has its disadvantages as well. The most heard critique on accounting measures is that they focus on the past. They are said to be backward-looking (Kaplan and Norton 1992). The problem associated with this characteristic is that managers are not motivated to think proactively.

2.3 Return-on-investment

The one accounting measure I will address individually is ROI, because I consider it to be closest related to residual income - the measure this paper is about. ROI is a popular measure because it allows comparing of divisions of different sizes. A larger division is supposed to make more profit than a smaller division. Because ROI divides profit by total investments for the particular divisions, it controls for division size.

Other advantages are that ROI clearly reflects the revenue, cost and investment tradeoff managers have to make and the experience most managers have with widely-used measures like this (Merchant and Van der Stede 2007).

There are, however, important disadvantages to using ROI as a performance measure as well. The first disadvantage lies in the inherent difference between ratio and absolute measures. This is explained nicely by Balachandran (2006), who mentions maximizing a ratio measure can induce suboptimal investment behavior. A successful division manager might be reluctant to invest in a project that would lower his division's ROI, even though the project ROI is higher than the company's weighted average cost of capital (WACC). Conversely, a manager of a less successful division may choose to invest in a project that raises average ROI, but does not yield a return equal to the company's WACC. The result of this form of suboptimization is that company capital is gradually allocated away from the most successful divisions to the least successful divisions (Merchant and Van der Stede 2007).

2.4 Residual income

A measure that is supposed to combine the positive characteristics of both measures is residual income (RI). Over the past 2 decades it seems there has been increasing academic and practical interest in performance measures based on RI. This increased interest may be attributed to the New York consulting firm Stern Stewart & Co., that advocates a specific form³² of RI called economic value added (EVA) (Stewart 1991).

³² Various other authors, as well as consulting firms have introduced slightly adjusted versions of RI, but EVA is the best known. These other adjusted versions of RI are cash-flow return on investments (CFROI) by Holt Value

The concept of RI has been introduced as early as 1890, by Alfred Marshall (Bouwens and Van Lent 2000), who defined it as net income minus a capital charge.

In short, ROI is calculated by deducting from operating profit a charge on *all* capital employed. Schematically this looks like this (Bouwens and Speklé 2007):

	Sales revenue
-/-	Costs of operational activities
-/-	Financing costs (Cost of capital x Capital employed)
=	Residual income

The result is a measure that takes into account the various areas that affect value: finance, investment and operational decisions are brought into one measure (Bouwens and Speklé 2007). Operational decisions surface in the profit part of the measure, investment and financing decisions in the cost of capital and the size of total assets parts. Managers' decisions are thus directed to asset deployment (for example by increasing profits) and asset commitment (for example by decreasing the risk associated with the assets in place and by timing and determining the size of investments) (Stewart 1991).

RI is supposed to combine the advantages of market- and accounting based performance measures. O'Hanlon and Peasnell (1998) show that discounted RI valuation yields the same results as discounted cash flow valuation. Since it has long been acknowledged stock markets base their value judgments on expected discounted cash flows, it would be logical to assume the market value of a firm and its RI are closely related (Bouwens and Speklé 2007). The biggest advantage of RI-based measures over market-based measures of performance would then be that RI is less affected by external factors, and thus less noisy than stock prices. In addition, RI is more sensitive to managerial actions (Bouwens and Speklé 2007).

These advantages, however are not specific to RI-based measures of performance (Bouwens and Speklé 2007). Other accounting-based measures, such as net income or return on assets, can be applied in the same situations.

Proponents of RI type of measures claim RI, unlike traditional earnings, is closely aligned with the true value created by a company. Therefore, rewarding managers on the basis of this measure should best align manager and stockholder interests. The reasoning behind this is based on the age-old paradigm that a company creates wealth if it earns more than its cost of capital (debt and equity) (Biddle et al. 1997). Easton et al. (1992), however, provide convincing evidence that, especially over longer periods in time, accounting earnings and market value are related. Additionally, Biddle et al. (1997) show that RI and EVA are worse predictors of stock returns than traditional measures such as net income.

3. Hypothesis development

3.1 Behavioral consequences of RI adoption

The question raised by these findings is then why RI is still being used so widely. I can think of two possible explanations for this non-decreasing popularity: (1) companies aren't

Associates, Total Business Return by Boston Consulting Group, Economic Profit by McKinsey & Co. And Shareholder Value Added by LEK/Alcar (Merchant and Van der Stede 2007).

aware of the lack of information content of RI-based measures, or (2) other motives lead companies to adopt RI.

Assuming organizations act rational, I reject the first explanation. I do not find it conceivable that firms (or in this case, compensation committees) choose to use RI/EVA based on the proclaimed correlation between RI and stockholder returns when an extensive list of literature exists on the absence of this relation (Easton et al. 1992; Biddle et al. 1997). This implies RI/EVA is adopted for reasons other than the proclaimed information content. Again, I consider two different reasons: (1) the somewhat cynical explanation of copycat-behavior and consultant-influence, and; (2) RI offers advantages other than the claimed informativeness on stockholder returns.

Again, from the assumption of a rational firm, the first reason is rejected, implying RI has advantages we haven't discussed before. This reason, I claim, lies in the behavior RI induces from managers.

Wallace (1997) is one of the scarce researchers to examine management behavior after RI adoption. His findings support the adage 'what you measure is what you get'. Firms adopting RI-based incentives for top managers increase RI relative to non-adopting firms. Furthermore, they decrease investments, increase divestments, increase payouts to shareholders, and increase asset turnover. These are all actions consistent with the strong rate of return discipline associated with RI.

Balachandran (2006) extends the previous research by adding the factor of prior performance measures. His findings support Wallace's (1997) investment-oriented conclusions, but only for firms who switched from earnings-based incentives to RI-based incentives. His findings show weak evidence that firms switching from ROI to RI actually increase investments.

3.2 The value-based management framework

Increasing interest in value-enhancing performance measures such as RI and EVA has led Ittner and Larcker (2001) to incorporate these measures into a value based management (VBM) framework. The idea behind this framework is to combine different aspects of management accounting (such as activity based costing and balanced scorecards) into an integrated framework to measure and manage businesses in the current perspective of creating superior long-term shareholder value.

The six sequential steps of Ittner and Larcker's (2001) VBM framework are the following:

1. Choosing specific internal objectives that lead to shareholder value enhancement.
2. Selecting strategies and organizational designs consistent with the achievement of the chosen objectives.
3. Identifying the specific performance variables, or "value drivers", that actually create value in the business given the organization's strategies and organizational design.
4. Developing action plans, selecting performance measures, and setting targets based on the priorities identified in the value driver analysis.
5. Evaluating the success of action plans and conducting organizational and managerial performance evaluations.
6. Assessing the ongoing validity of the organization's internal objectives, strategies, plans, and control systems in light of current results, and modifying them as required.

Over the years, researchers and consultants have placed RI/EVA in the first of these six steps: RI being the primary indicator for shareholder value enhancement (Malmi and Ikäheimo 2003). Placing RI at the top of the VBM framework implies it is the measure that best reflects long-term shareholder value enhancement. As we have seen earlier, however, this assumption appears to be false. RI and EVA do not seem to correlate with stockholder returns as well as is often claimed (Biddle et al. 1997).

If RI, however, is adopted for the management-behavioral changes it is supposed to bring, I argue they do not belong at the top of the Ittner and Larcker (2001) VBM framework, but should be treated as 'just another' performance measure belonging to step three and below. RI-based measures should, then, be treated similar to other performance measurement systems (PMS') such as the balanced scorecard or regular accounting (earnings-)based compensation.

Taking another look at the VBM framework, we see strategic decision-making taking up the second step of the VBM sequence. Should RI-based performance measures belong at the top of the framework, as is usually argued (Malmi and Ikäheimo 2003), RI adoption should not be affected by corporate strategy. I argue, however, that RI/EVA should take its place among regular performance measures in step three and four. Following this line of reasoning, strategy should be a determinant in the choice whether or not to adopt RI-based performance measures.

3.3 Strategy typology

In this research I use the strategy typology adapted from Miles and Snow (Miles et al. 1978). Miles and Snow distinguish between three strategic types of organizations: defenders, analyzers and prospectors. Defenders operate in relatively stable product areas, offer more limited products than competitors, and compete through cost leadership, quality, and service.

They engage in little product/market development. Prospectors, on the other hand, compete through new products and market development. Product lines change over time and this type of firm is constantly seeking new market opportunities. Analyzers are an intermediate hybrid, combining parts of both defender and prospector strategies (Simons 1987). This spectrum from defender to prospector exhibits similar characteristics identified by other researchers.

3.4 Hypothesis development

When casting our minds back to Wallace's (1997) findings concerning behavioral consequences of RI adoption, I find these findings to be intuitively misaligned with prospector-types of strategies. Furthermore, previous research on the relative informativeness value of performance measures have shown that companies (Ittner et al. 1997) and business units (Govindarajan and Gupta 1985) following a prospector strategy are less likely to be evaluated by means of financial measures.

My explanation for this hypothesis stems from an informativeness perspective. For (owners of) firms following a prospector strategy, efficient asset utilization is not a primary concern. Since RI is a measure with a strong focus on tight asset management, I consider RI to be a less informative measure for owners of prospector firms than for those of defender firms.

Formally put, my research hypothesis reads as follows:

H1: Ceteris paribus, firms characterized as following a prospector strategy are less likely to adopt RI-based compensation for their top executives than firms characterized as following a defender strategy.

4. Research method

4.1 Sample selection

The sample in this study consists of 40 residual income-based compensation adopters and 40 matched control firms. Strategy scores, as well as three control variables are computed for each of these 80 firms. Data from the five years prior to adoption is used to calculate average scores per firm (400 firm-year observations). This method of matching each adopting firm with one matched control firm is the same as that used by other studies examining determinants of certain management control systems adoptions (Wallace 1997; Kleiman 1999; Said et al. 2003; Balachandran 2006).

Adopters of residual income-based incentives are defined as firms that use a residual income-based measure as their primary measure for annual cash bonuses to named executives³³.

The method by which adopters were identified involved extensive searches through proxy statements contained in the LexisNexis® Academic database. This method was appropriated from Ittner et al. (1997), who use the same method to identify firms using non-financial performance measures for executive compensation. The searches were performed using the keywords ‘economic value added’, ‘economic profit’ and ‘residual income’.

After having finalized the adopter identification process at 40 firms, each of these firms were individually matched on the basis of standard industry classification (SIC) code followed by total assets.

Table 4.1

Definitive sample of adopting firms and matched control firms

Year of adoption	SIC #	Adopting firm	SIC #	Control firm
1995	3841	Bard, C.R. Inc.	3841	United States Surgical Corp.
1995	3826	Beckman Instruments Inc.	3826	Millipore Corp.
1995	3600	Emerson Electric Co.	3674	Texas Instruments Inc.
1995	4911	IPALCO Enterprises Inc.	4911	KU Energy Corp.
1995	2711	Knight-Ridder Inc.	2711	Tribune Co.
1995	3571	Sequent Computer Systems Inc.	3571	Stratus Computer Inc.

³³ Named executives are a firm’s five most highly paid executives. Firms are required to disclose the names and total compensation values from these managers in their proxy statements (Balachandran 2006).

1996	2520	Kimball International	2531	BE Aerospace Inc.
1996	3350	Olin Corp.	3311	Allegheny Technologies Inc.
1996	1400	Vulcan Materials Co.	1400	English China Clays Plc.
1996	3350	Tredegar Corp.	3350	Oregon Metallurgical Corp.
1996	3140	K-Swiss Inc.	3140	Barry (R G) Corp.
1996	2911	Quaker State	2911	Tesoro Corp.
1996	3825	Tektronix	3825	Teradyne Inc.
1996	3661	ADC Telecommunications	3661	Tellabs Inc.
1996	3826	Hach Co.	3825	LTX Corp.
1996	4213	KLLM Transport	4213	Heartland Express Inc.
1996	2750	Donnelley & Sons	2750	Quebecor Inc.
		New England Business		
1996	2761	Services	2761	Ennis Inc.
1997	2834	Bausch & Lomb Inc.	2834	Alza Corp.
1997	2520	Miller-Herman Inc.	2510	La-Z-Boy Inc.
1997	7510	Ryder System Inc.	7510	Rollins Truck Leasing
1997	7359	Xtra Corp.	7359	Weatherford Enterra Inc.
1997	4955	Safety Kleen Systems Inc.	4955	OHM Corp.
1998	4931	Montana Power Co.	4931	Allete Inc.
1998	2750	Banta Corp.	2750	Paxar Corp.
1998	3861	Eastman Kodak Co.	3861	Fujifilm Holdings Corp.
1998	2540	Knape & Vogt MFG Co.	2540	Interlake Corp.
1998	3310	National-Standard Co.	3310	Steel Technologies Inc.
1998	5311	J C Penney Co.	5311	Macy's Inc.
1998	3555	Baldwin Technology Co.	3560	Zebra Technologies Corp.
1999	3612	SPX Corp.	3674	LSI Corp.
2000	3721	Boeing Co.	3720	United Technologies Corp.
2000	5661	Genesco Inc.	5661	Finish Line Inc.
2000	3743	Trinity Industries	3743	Wabtec Corp.
2000	6141	Credit Acceptance Corp.	6159	Financial Federal Corp
2000	2670	Lydall	2670	Nashua Corp.
2001	5093	Schnitzer Steel	5093	Newpark Resources Inc.
2002	3390	Harsco Corp.	3312	Carpenter Technology Corp.
2004	7830	Marcus Corp.	7841	Hollywood Entertainment Corp.
2005	2670	Playtex Products	2670	Cenveo Inc.

I control for industry effects because prior research shows RI-systems are heavily concentrated in the manufacturing industry (Kleiman 1999). Industry is therefore considered to be of influence in the decision to adopt RI-based compensation. Size is controlled for because larger firms are considered more likely to be aware of stockholders' expectations regarding return on equity, and are therefore considered more likely to adopt RI-based executive compensation. Firm size is measured by total assets. The definitive sample of adopting firms and matched peers is shown in table 4.1.

4.2 Variables

Filling in the independent and control variables was the next step in acquiring the data needed for this research. For that I used the Compustat and Center for Research in Security Prices (CRSP) databases. Compustat was used to obtain the relevant information from financial statements of the sample firms. CRSP was used to calculate the abnormal returns, in order to be able to determine the correlation between historical abnormal returns and historical residual incomes of the sampled firms.

4.2.1 Strategy

In order to measure whether strategy is a determinant in the choice to adopt residual income, a strategy score is computed. Following Iltner et al. (1997), I use three ratios to proxy for strategy: Research and Development (R&D) expenditures-to-sales, market-to-book-assets and employees-to-sales. I then aggregate these ratios into one strategy score per firm observation in which each ratio is weighted equally. I do this by calculating the average of the (equally weighted) individual factors.

The ratio of *R&D expenditures to sales* is a measure for a firm's tendency to search for new products. Because prospector firms are involved in more innovative actions, they are expected to spend more on R&D than defender firms (Hambrick 1983).

According to Adam and Goyal (2008), the *market-to-book assets* ratio is the best proxy for growth or investment opportunities. Since prospector firms are considered to have better growth opportunities than defender firms, their market-to-book assets ratio should be higher (Said et al. 2003).

The *employees-to-sales* ratio is included because defender firms are highly efficiency-orientated. Therefore, they are assumed to have less employees per dollar of sales (Iltner et al. 1997).

It was important to be as sure as possible that the way by which the strategy score was computed did not influence the results. I used a pragmatic approach to verify this, namely by computing the strategy score in different ways and checking whether my results changed. This did not appear to be the case.

4.3 Control variables

In addition to controlling for industry and size effects by matching firms, three control variables are added to the regression model: prior RI performance, leverage and the correlation between prior five-year residual income and prior five-year abnormal stockholder returns.

The first control variable concerns *prior RI performance*. Wallace (1997) finds that the adage 'what you get is what you measure and reward' holds with RI-based compensation. Firms adopting RI-based measures significantly improve their RI compared to a matched sample of firms that don't adopt RI-systems. Assuming firms are aware of this, low RI performance could be a motive to adopt RI-based compensation. Therefore, prior RI performance is expected to be negatively associated with RI adoption.

Leverage, measured as total debt divided by total assets, is expected to be negatively associated with the likelihood of RI adoption. For more highly leveraged firms, a larger fraction of capital costs consist of interest payments. This decreases the need for an additional charge on equity (Garvey and Milbourn 2000).

Jensen (1989) furthermore argues a high level of debt provides its own incentives to manage capital efficiently as the high interest payments can be seen as a forced way of distributing (free) cash flow. This counteracts managers' incentives to retain too large a proportion of free cash flow, which is also one of the effects of a RI adoption (Wallace 1997). More highly leveraged firms would therefore not benefit from RI adoption as much as less highly leveraged firms would.

Garvey and Milbourn (2000) find that a firm's decision to adopt an EVA incentive system is contingent on the degree to which EVA explains stock prices (relative information content). Assuming this finding holds for the more general RI measure as well, I include a measure for *relative information content* in the regression model computed as the correlation between residual income and abnormal stock returns in the five years prior to RI adoption.

5. Results

5.1 Preliminary tests

Before testing whether the hypothesis can be accepted or rejected, I conduct two preliminary analyses. The first is to see whether my method of using three ratios to measure strategy is correct, the second is to exclude outliers in my sample.

One of the underlying assumptions in my research is that the three ratios I use to measure strategy actually measure strategy. Although the same method has been used by various researchers in the past (Ittner et al. 1997; Said et al. 2003), I perform a factor analysis test to see how the three individual ratios are correlated. If all three ratios measure the same thing (strategy), their scores should be closely related.

The correlation matrix of the individual strategy scores is shown in table 5.1. The findings indicate employees-to-sales does not correlate well with the other two ratios. In fact, the correlation is negative, although the results are not significant. The correlation between R&D expenditures-to-sales and market-to-book-assets ratios is stronger, and proves significant at the .000 level.

Table 5.1 Strategy score correlation matrix

	R&D / Sales	Market to book assets	Employees / Sales
<i>Correlation</i>			
R&D / Sales	1.000	.556	-.177
Market to book assets		1.000	-.143
Employees / Sales			1.000
<i>Sig.</i>			
<i>(1-tailed)</i>			
R&D / Sales	-	.000	.123
Market to book assets		-	.174
Employees / Sales			-

These results are confirmed by the principle component analysis shown in table 5.2. Two components are extracted, as opposed to the hypothesized one component: strategy. The

first component is well correlated with R&D-to-sales and market-to-book-assets, whereas the second component is based mainly on a high correlation with employees-to-sales. The relevant question, then, is what these results mean for my research. If we assume the first component (the component closely related to R&D-to-sales and market-to-book-assets) is corporate strategy, apparently employees-to-sales measures something else. With this in mind, I decide to run my tests two times: one time including the employees-to-sales ratio and one time excluding it.

Table 5.2 Strategy score component matrix^a

	Component	
	1	2
R&D / Sales	.858	.195
Market to book assets	.846	.260
Employees / Sales	-.429	.903

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

As is the case in linear regression models, logistic regression can be significantly influenced by outliers. To prevent these outliers from distorting my results I chose to exclude them from the sample. A complicating factor specific to my type of research is the fact that my sample consists of 40 matched firm couples. Outliers should therefore not be identified by means of analysis of the absolute numbers (strategy scores), but as the relative difference between the strategy scores of two matched firms.

This difference is calculated by measuring the strategy score of the adopter firm as a percentage of the strategy score of its matched control firm. This way I identify outliers by couple instead of by firm. Considering the difference in characteristics between the strategy scores calculated with and without employees-to-sales ratios, outliers are determined separately.

Strategy scores calculated including employees-to-sales ratios are less spread out than those excluding employees-to-sales. A smaller difference between two matched firms is therefore tolerated for the analysis including employees-to-sales than for the analysis without employees-to-sales. For the former, outliers are defined as firm couples for which the adopter firm has a strategy score that is either less than 40%, or more than 250% (two and a half times in both directions) of the strategy score of its matched peer. Six firm couples, or twelve firms are identified as outliers. In the analysis excluding employees-to-sales the percentages are at 25% and 400% (four times in both directions). Here, eight firm couples, or sixteen firms are identified as outliers.

Table 5.3 Descriptive statistics for compounded strategy scores

	Full sample			Adopting firms			Control firms		
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Median</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Median</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Median</i>
<i>Strategy score</i>									
Including employees-to-sales	1.38	.91	1.19	1.28	.64	1.22	1.49	1.11	1.12
	N = 68			N = 34			N = 34		
Excluding employees-to-sales	1.34	1.40	0.88	1.15	.94	0.89	1.52	1.73	0.85
	N = 64			N = 32			N = 32		
<i>Control Variables</i>									
<i>(N = 80)</i>									
Prior RI performance	-42.26	136.04	-15.73	-32.56	135.16	-15.07	-51.97	137.93	-16.44
Leverage	0.27	0.20	0.24	0.24	0.17	0.22	0.29	0.23	0.27
RI - Stock price correlation	0.24	0.51	0.34	0.23	0.55	0.34	0.25	0.48	0.32

The outlier identification process described before has resulted in the descriptive statistics presented in table 5.3.

5.2 Binary logistic regression

The most important test used to test the relation between RI adoption and firm strategy is the binary logistic regression. Logistic regression is used to predict the likelihood of the occurrence of an event by fitting the data in a logistic curve³⁴. Binary (or binominal) logistic regression is used when the dependent variable is dichotomous, as is the case in this study. The idea to use this technique came from reading research comparable to mine (Garvey and Milbourn 2000; Said et al. 2003; Hogan and Lewis 2005).

³⁴ Source: Wikipedia. http://en.wikipedia.org/wiki/Logistic_regression (Accessed on July 19, 2008).

Table 5.4 Binary logistic regressions for compounded strategy scores

	Predicted sign	Strategy <i>including</i> employees-to-sales ratio		Strategy <i>excluding</i> employees-to-sales ratio	
		Coefficient	Odds ratio	Coefficient	Odds ratio
Strategy	-	-.388 (.209)	.678	-.289 (.184)	.749
<i>Control variables</i>					
Prior RI performance	-	.001 (.469)	1.001	.001 (.487)	1.001
Leverage	-	-1.440 (.287)	.237	-1.349 (.337)	.260
RI - Stock price correlation	+	-.403 (.423)	.669	-.052 (.919)	.949
Constant		1.084 (.112)	2.956	.791 (.183)	2.206
Chi-square		3.590 (.464)		2.720 (.606)	
Pseudo R-square (Nagelkerke)		.069		.055	
Sample size		68		64	

*, **, *** Significant at 0.10, 0.05 and 0.01 levels, respectively (one-tailed).

P-values between brackets.

For an extensive discussion of the included variables see chapter four.

The results, displayed in table 5.4, generally suggest the model is weak. The chi-square goodness-of-fit results indicate the step to include all four variables (from the constant-only model) is not justified at a significant level (indicated by a p-value lower than .05)³⁵. The Nagelkerke pseudo R-squared measures of 6.9% and 5.5% also indicate weak models. Nagelkerke's R-square is comparable to the R-square in a linear regression model. It ranges from 0 to 1 and loosely indicates the percentage in the dependent variable explained by the four independent variables (Pelsmacker, De and Van Kenhove 2006).

When looking at the results on the individual variable level, the image of a weak model persists. Although the direction of the strategy coefficients is negative as predicted, these coefficients are significant for neither of the two strategy constructs.

Interpretation of the logistic coefficients is difficult. Therefore I include the odds ratio in table 5.4. Odds ratios are computed as the natural log base, e, to the exponent, b, where b is the logistic coefficient³⁶. What remains after this calculation is the factor by which the

³⁵ Source: David Garson: Logistic Regression. <http://www2.chass.ncsu.edu/garson/pa765/logistic.htm> (Accessed on July 19, 2008).

³⁶ Idem.

likelihood of the occurrence of the dependent variable changes with a single-unit change in the independent variable. For example, if strategy (excluding employees-to-sales) would increase by one unit, the likelihood of the firm being an adopter firm decreases by the factor .749. Thus, the lower the odds ratio, the more likely a firm is to be a non-adopter when the strategy score increases by one. In this example, an increase of one in the strategy score would lower the odds of that firm to adopt RI by 25.1% (1 - .749).

Table 5.5 Wilcoxon signed-rank test for compounded strategy scores

Control firm strategy - Adopter firm strategy			
Strategy <i>including</i> employees-to-sales (n = 34*)		Strategy <i>excluding</i> employees-to-sales (n = 32*)	
Z	P-value	Z	P-value
-.932	.351	-.374	.708

* Defined as firm *couples*

5.3 Wilcoxon signed-rank test

I then perform a test to compare medians of the adopting and non-adopting sample. Because the strategy scores in my sample are not normally distributed, I have to turn to the Wilcoxon signed-rank nonparametric test (Aczel and Sounderpandian 2002). The Wilcoxon test does not assume a normally distributed sample is only slightly weaker than the t-test, which is normally used when comparing the means or medians of two samples (Aczel and Sounderpandian 2002). It is often used when comparing two populations with paired observations. The test assesses the null hypothesis that the medians of two populations do not differ³⁷.

Results from the Wilcoxon test are summed up in table 5.6. The results are, like the binary logistic regression, insignificant. The medians of the two populations can not be concluded to differ.

6. Discussion

6.1 Summary

This study aims to answer the question whether the choice to adopt RI is an endogenous one in general, and whether corporate strategy is a factor affecting this choice in particular. The motivation behind this research question primarily came from a study by Wallace (1997), who found firms adopting RI noticed observable behavioral effects of this adoption. RI adopters seemed to (1) decrease investments, (2) increase divestments, (3) increase payouts to shareholders, and (4) increase asset turnover in the years following RI adoption, compared to a matched sample of firms who did not adopt RI. I argue from an informativeness point of view these behavioral consequences fit a defender-type strategy better than a prospector-type strategy.

³⁷ Source: David Garson: Significance Tests for Two Dependent Samples: McNemar, Marginal Homogeneity, Sign, and Wilcoxon Tests. <http://www2.chass.ncsu.edu/garson/pa765/mcnemar.htm> (Accessed on July 21, 2008).

The research methodology used in this study is equal to that used in comparable research (Wallace 1997; Ittner et al. 1997; Kleiman 1999; Said et al. 2003). From the *LexisNexis®* proxy statement database I identify 40 firms that have adopted RI as their primary measure of performance for top executives in the past 13 years. These firms are matched to an equally large sample of 40 peer firms. These matches are based on standard industry classification (SIC) code, and on total assets, which I use to proxy for firm size. For these 80 firms, I compute a strategy score as an equally-weighted average of three ratios, measured over the five years prior to RI adoption: (1) R&D expenditures-to-sales, (2) market-to-book-assets, and (3) employees-to-sales. These strategy scores form a continuum ranging from defenders (low scores) to prospectors (high scores). Additionally, three control variables are measured which are hypothesized to influence the choice to adopt RI. Each of these are also measured as an average over the five year prior to RI adoption: (1) prior RI performance, (2) leverage, and (3) the correlation between prior RI's and prior abnormal stock returns. All financial data used in this study was obtained through the *Compustat North-America annual* database.

After taking a closer look at the strategy construct, I had to conclude employees-to-sales might be measuring something different than the other two ratios do. Therefore, all tests are conducted twice: one time with a strategy score as explained earlier, and one time with a strategy score excluding the employees-to-sales ratio. The empirical results for both of these models show the image of a weak model, with no significant results any of the individual variables.

6.2 Conclusions

The results in this research ask for an explanation, of which I will present a couple here. Despite the fact that my hypothesis cannot be confirmed by my findings, I do not believe a conclusion is appropriate that states no relation exists between corporate strategy and RI adoption. A very conservative outlier policy has significantly reduced my sample size³⁸. It is my belief that a larger sample size would have yielded results on which stronger conclusions could have been drawn.

Another possible explanation can be found in the assumptions I made in this study. One of these assumptions is that firms act rational. I mean by this that I assume firms that adopt RI do not do this for it's proclaimed (and proved wrong, Biddle et al. 1997) correlation with stock prices. This assumption is critical in the argumentation there are other advantages of adopting RI, mainly in the area of behavioral consequences.

After seeing the results of this study, we can question whether my assumption of the rational firm was correct. The absence of a significant relation between corporate strategy and the choice to adopt RI can be explained if firms do adopt RI for the expected correlation with stock returns. Firms may also choose to adopt RI for other non-rational reasons such as imitational reasons or because of the influence of consultants. Behavior of imitation would also explain the strong wave-like structure of RI adopters in my sample. RI adoption seems to decrease strongly in the later years of my sample (after 2000). Malmi and Ikäheimo (2003) confirm in a field study that increasing shareholder value is often mentioned as the primary motive for RI adoption. Nonetheless, contrary to my

³⁸ From $n = 80$ to $n = 68$ ($n = 64$ for the model excluding employees-to-sales). A reduction of 15% (20%).

hypothesis, they observe that firms adopt RI to foster two different strategic orientations. Two of the six firms they investigated considered themselves to follow a growth strategy, comparable to the prospector strategy in my study. These firms see RI as an aid in their creation of value through growth. For the other four firms, efficient asset utilization was mentioned as the primary motive for RI adoption. These findings are inconsistent with my hypothesis that growth firms do not benefit from RI adoption.

Remarkably, both growth firms in the Malmi and Ikäheimo (2003) study explicitly state that they have switched to RI after having experienced the drawbacks of ROI as they are discussed in paragraph 2.3 of this paper. This observation is consistent with the results of a study by Balachandran (2006), who discovered firms switching from ROI to RI showed a different change in managerial behavior than firms switching from earnings-based measures to RI. Whereas Wallace (1997) finds *all* firms adopting RI generally increase focus on efficient asset utilization, Balachandran (2006) finds this observation does not hold for firms switching from ROI-type of measures to RI.

The combination of these three studies gives rise to a new explanation for the lack of significant results in my study. I hypothesize, inspired by the statements of the two growth firms in the Malmi and Ikäheimo (2003) study, that the limitations of using ROI as a performance measure are much more relevant for growth (prospector) firms than for firms emphasizing efficient asset utilization (defender firms). Therefore I mainly expect prospector firms to switch from ROI to RI. Had I had the chance to redo my research, I would have altered my hypothesis to incorporate the effect of previous performance measures. The hypothesis would, then, look more like this: "Prospector firms are more likely to make the switch from ROI to RI measures than are defender firms".

With hindsight we can conclude that in Wallace's (1997) sample, firms switching from ROI to RI were under-represented compared to firms switching from earnings-based measures to RI. If my reformulated hypothesis is confirmed, we can also say *prospector* firms were under-represented in Wallace's (1997) sample. In other words: Wallace's (1997) findings may turn out to be contingent on strategy.

6.3 Limitations

It is important to note that there are limitations to the results of this research. The first being the way in which strategy is measured. Although the method is used quite widely among management accounting researchers, it remains an approximation of strategy.

There may furthermore be a difference in *realized* and *intended* strategies (Snow and Hambrick; 1980), with the method used by me only measuring realized strategy.

This research furthermore does not fully take into account the weight of the RI-system incentives relative to total compensation. Although I explicitly selected only those companies for which RI is the primary performance measure, the proportion of RI incentives to total compensation isn't taken into account. One might argue any consideration (including strategy), when adopting a RI-based incentive system, is more critically assessed when larger proportions of executives' compensations depend on the measure. The main motive behind the choice not to include RI incentive's proportions of total compensation into account is that total compensation is difficult to extract from firms' external reports. Especially the part of the compensation package that is paid in stock options is hard to express in dollar amounts.

6.4 Directions for future research

My research gives rise to a number of directions for future research. The low explanatory power of the models indicate either endogenous factors are missing, or RI adoption is not endogenous at all. Future research can be conducted to see whether RI adoption is an endogenous choice and sequentially which are the factors that affect the decision to adopt RI. My suggestion would be to conduct exploratory research on firms' motives behind RI adoption. Potential imitational behavior should not be ignored in these studies.

Following the line of reasoning in the concluding paragraph of this chapter, I have formed a new (and improved) hypothesis concerning the endogenous character of RI adoption. I argue firms that switch from ROI to RI are more likely to be identifiable as following a prospector strategy than as following a defender strategy. Unfortunately the process of writing a master thesis does not allow me to actually conduct this research. Nonetheless, I believe my research has contributed to existing RI adoption literature in that it forms a part of the 'academic circle', hoping my results will open doors for future research to refine this research.

In the process of identifying RI adopters I experienced that only a remarkably small number of firms have adopted RI in the recent years. The list of adopters I identified furthermore suggests a negative trend of RI adoption can be noticed. Future studies can try to concretize this preliminary observation and find an explanation for this apparent decreasing practical interest in RI-based compensation systems. This can, again, be linked with possible behavior of imitation.

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Management control in joint ventures: an analysis based on transaction cost economics and game theory

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Executive summary

This paper addresses the question what determines management control in joint ventures. The model developed for this purpose draws on two existing frameworks. The first, by Dekker (2004), shows how control in strategic alliances can be structured around two control problems, coordination of tasks and appropriation concerns, the latter stemming from transaction cost economics theory. Dekker thereby differentiates between formal controls and the role of trust. The second framework, by Zeng (2003), describes what drives the cooperative dilemma in joint ventures and is based on game theory. The model developed in this paper substitutes Zeng's cooperative dilemma for one of the control problems in Dekker's framework. The model is tested in a case study; it appears that the extension with game theory helps explain the control mechanisms in the joint venture in more detail.

1. Introduction

Joint ventures (JVs) make for an interesting paradox: whereas the popularity of JVs is very high, the percentage of JVs that fail is very high too. In a world of rapidly increasing global competition most multinational enterprises (MNEs) will have to participate in (international) joint ventures in order to remain competitive and strategically flexible. However, many joint ventures do not deliver the hoped-for results and fail. The literature quotes a number of reasons why failure rates are high (e.g. Franko 1971; Gomes-Casseres 1987; Pearce 1997). One of these reasons is management control problems (Sherman 1992; Groot and Merchant 2000; Chalos and O'Connor 2004; Porporato 2006). The parent firms in a JV may well have differing interests. Insufficient control over a JV can limit the ability of the parent to coordinate its activities, efficiently utilise its resources and to effectively implement its strategy.

Interestingly, despite repeated remarks in the literature that management control is key to successful JV performance, it is an area that remains 'under-researched', (e.g. Groot and

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Merchant 2000; Kamminga 2003). Given this situation, I propose the following principal research question: What determines management control in JVs? First, a literature review (chapter 2) demonstrates that whereas joint ventures have been looked at from many different theoretical perspectives, a holistic framework for analysis is still largely missing. Most studies only consider a certain aspect, such as justification for formation of JVs or performance of JVs, and findings are often contradictory. Recently, various authors (Dekker 2004; Kamminga 2003; Kamminga and Van der Meer-Kooistra 2007) have presented analysis frameworks that combine transaction cost economics (TCE) theory with a number of elements borrowed from organisational (relational) theories. Another, much more limited group of authors have used game theory to investigate joint ventures (Parkhe 1993a; Zeng 2003). Game theory, with its well-known prisoner's dilemma, is especially suited to shed light on the continuous struggle of balancing cooperative and competitive behaviours of the partners in a joint venture. In chapter 3 I will argue that combining two existing frameworks, one based on TCE and organizational theory and the other based on game theory, leads to a more detailed model to explain management control in joint ventures. I test the theoretical framework, in chapter 4, on a case study to see whether it can explain the observed phenomena. It appears that the model can be used as a diagnostic tool to see whether the design of the management control system is adequate given the particularities of a joint venture. Finally, chapter 5 contains my conclusions as well as some recommendations for further research.

2. Prior literature

2.1 Introduction to joint venture research

In the literature on joint ventures a plethora of theoretical perspectives have been employed. Perhaps the most used theoretical perspective to explain formation and development of an IJV is transaction cost economics (TCE) (Williamson 1985). This theory focuses on governance structures for transactions. It maintains that a transaction can be governed by one of three structural mechanisms: a market form with price mechanism, a hierarchical form with bureaucratic governance mechanisms, or a hybrid form. The governance structure for a certain type of transaction will be the one with the lowest transaction costs (assuming equal production costs); transaction costs are, for example, costs of negotiation, of preparing and writing contracts, and of monitoring and enforcing those. The actual choice for a specific governance structure depends on certain characteristics of the transaction taking place (asset specificity, the frequency and size, and the uncertainty of the transaction) and certain characteristics of human nature (bounded rationality and opportunism). There are a large number of hybrid governance structures, which consist of a mixture of market and hierarchical characteristics; examples include long-term supply arrangements or joint ventures. According to this theory, joint ventures occur because the sum of production and transaction costs associated with joint ownership is lower than that of sole ownership (in the case of a wholly owned subsidiary) or of market transactions. The joint venture structure offers advantages in terms of avoidance of high uncertainty caused by market failure and avoidance of high overhead costs of establishing hierarchies (Child et al. 2005). TCE

theory emphasises the rational aspects of a transaction. It does not take into consideration any relational aspects: for example, how developing trust between partner firms may reduce opportunism and lead to more information sharing.

Apart from TCE theory, many other theories have been applied to the study of joint ventures. These theories can be broadly classified into economic theories and managerial or organizational theories, and aspects investigated can be divided into organization, operation and performance of JVs (Child et al. 2005; Robson et al. 2002). A comprehensive overview is provided in table 1. In a meta-analysis of JV literature Robson et al. (2002) focused on the aspect of JV performance. They concluded that findings from different studies on determinants of JV performance were often contradictory, and attributed this to the absence of an overall framework of analysis. Some authors have turned to developing such overall framework and in the following sections I will discuss one of them.

Table 1: Alternative theoretical perspectives to investigate IJVs - economic theories (adapted from Robson et al. 2002; Das and Teng 2000; Child et al. 2005)

Economic theories			
Theory	Underlying logic	Focal aspects	Areas of concern
Transaction cost economics (TCE)	The sum of production and transaction costs associated with joint ownership is lower than that for sole ownership of the venture or for market transaction	The size and division of exchange and production costs incurred, mitigation of the hazards of partner opportunism, the use of administrative procedures for control, and the alignment of financial incentives	No account is taken of the fact that IJVs are intrinsically strategic and can embody many different parental motives. Lack of attention to relational aspects of IJV partnership
Agency theory	IJVs act as agents through which parent organizations (the principals) aim to increase their business activities and success. The principals act to control costs they attribute to the agency relationship	Governance mechanisms that limit the agent's self-serving behaviour: principal and agent agendas may differ, leading to future conflict; this is exacerbated by cultural distance and avoided via parent-initiated control mechanisms	Agency hazards constitute just one difficulty amidst the many facing IJV managers. The assumption that IJV managers serve their own purposes before those of the parent firm may not be pragmatic

Resource-dependency theory	IJVs form to create bundles of strategic and social resources that serve as a source of competitive advantage and, in turn, superior performance	Achieving positional advantages on the basis of inter-firm resource complementarity, the scarcity of valuable firm resources, the coalitional nature of organizations, and the resource interface in IJVs	A comprehensive set of sources of advantage has not yet been isolated in the general management literature; little has been determined in the case of collaborative strategy. Difficulty in testing an IJV performance model for this dynamic perspective using cross-sectional data
Market power theory	Firms can improve competitive success by securing stronger positions in their markets through cooperative strategy	Distinction of cooperative strategies: offensive vs. defensive, scale vs. link; link between cooperative strategy and national and industrial context	Static perspective that does not take into account how the relationship may develop over time (e.g. development of trust, overruling rational choices)
Transaction value theory	Combination of transaction cost theory and resource-based theory: focus on joint value maximization for the collaborative transaction (not pure cost minimization or revenue maximization)	Aspects that TCE theory cannot explain because of its pure cost focus: e.g. situations where greater joint value is derived from less cost-efficient structures; increasing transaction specificity can raise transaction value and lower risk of alliance break-up (whereas TCE points to more safeguards needed to avoid break-up)	Largely the same as for TCE

Real options theory	Treatment of IJVs as real call options on the opportunity to invest in a foreign market: the buyer of the option holds the right to make a larger investment at a fixed price at a later date (when uncertainties are expected to be clarified)	Explanation for fact that many alliances do end up in acquisitions	Theory was developed for equity joint ventures; whether other cooperative strategies (contractual arrangements, non-equity partnerships) have option value remains unaddressed
Increasing returns theory	By acquiring a large market share early on, firms can lock in their customers and dominate the market without decreasing returns setting in (e.g. Microsoft)	Rationale for developing technological networks, research consortia etc.	Especially relevant for knowledge-based industries, much more so than for e.g. natural resource-based industries

Managerial/organizational theories			
Theory	Underlying logic	Focal aspects	Areas of concern
Behavioural perspective (relational contracting)	The development and successful evolution of IJVs depends largely on behavioural interactions and the presence of goodwill among the parties involved	Relational and interactional characteristics - such as trust, commitment, cooperation, and forbearance - and processes within the inter-firm partnership	Softer aspects should not always be placed before structural factors in developing IJV businesses, let alone be treated as an 'end' rather than a 'means'. Problems exist in the quantification of relational variables, the extant research is too general and diffuse

Game theory	Alliances can be viewed as games whereby the outcome depends on what each player involved chooses to do; pay-offs from cheating may be greater than those from cooperating, and thus, partners may not cooperate fully	Iteration of transactions can improve the prospects for cooperation by encouraging strategies of reciprocity. Recognition of duality between cooperation and competition. Distinction between situations in which cooperative strategy may be rewarding and in which it may be undermined	Simplifying assumptions are made that distance game theory somewhat from reality: e.g. personalities of the players, their social ties, communication between the players etc.
Bargaining power (political economy)	A sponsoring firm's level of control and performance in an IJV business is contingent on bargaining power it accrues from resources and capabilities	The interplay of power between the partners, their resources, goals, decision making control, and perceptions of equality, and the concept of productive exchange	Firms recognize that power play does not increase the size of the pie for each partner and enable the most to be made from the joint opportunity. Problems with the quantification of power/dependence
Organizational learning/knowledge	IJVs represent a conduit through which firms can obtain tacit organizational knowledge embedded in others. Firms form partnerships to capitalize on opportunities to acquire particular new skills	How organizational knowledge possessed by the partners and IJV is used and managed; procedures for information transfer, transformation and harvesting	Learning is not a key factor for many firms engaged in IJVs; hence, learning outcomes may have little effect on IJV business performance. Quantitative study on the topic has not been able to elucidate how learning processes unfold over time. Perspective of 'learning race' stresses competitive aspects, but neglects cooperative aspects

Strategic management	IJVs are motivated by strategic behaviour in response to environmental conditions, and their performance hinges on whether a mutual co-alignment/fit between parent strategy and venture structure is achieved	Formative and structural aspects of the IJV are attributable to a focal parent's competitive position/strategy along with important traits of its industry	Lack of attention to the interactive relationship existing between partner firms. Firm homogeneity is unrealistically assumed
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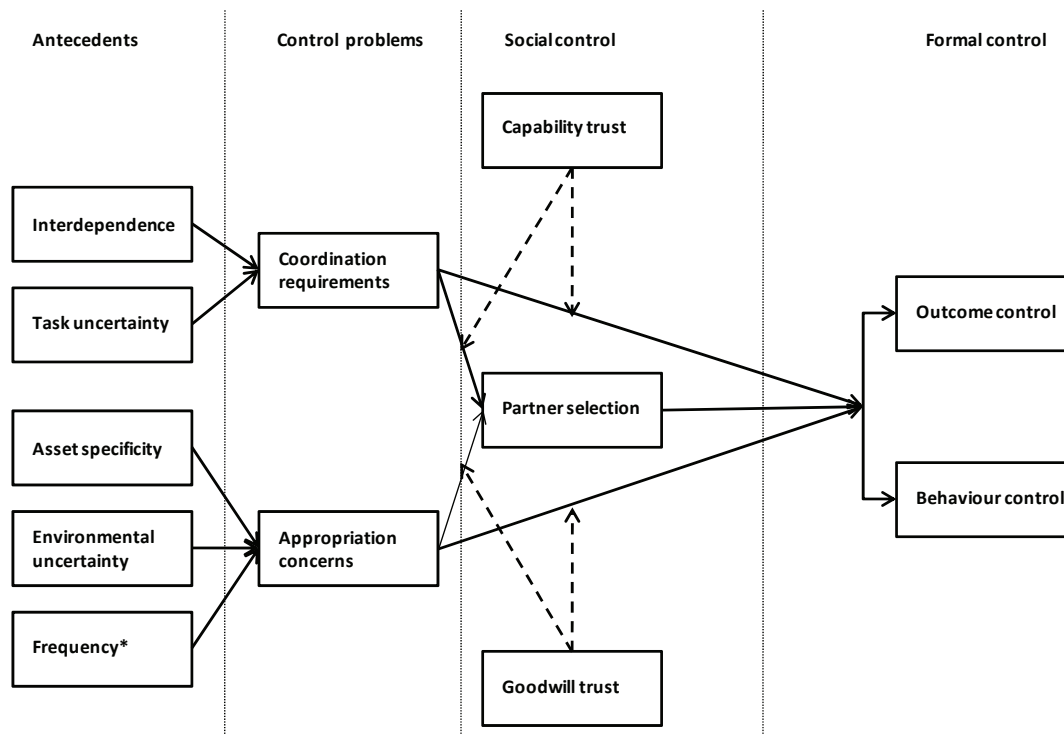
2.2 Management control in JVs

Merchant (1998) defined management control as “all the devices managers use to ensure that the behaviours and decisions of people in the organization are consistent with the organization’s objectives and strategies”. In the following sections I will first present a model that provides an overall framework of analysis of a joint venture and thereby links management control mechanisms to JV characteristics. Then I turn to an alternative way of looking at a joint venture, viz. as a balance between cooperation and competition; that again will provide insights into what management control mechanisms should be in place.

2.2.1 Dekker (2004): framework based on TCE and relational aspects

Dekker (2003, 2004) has developed a theoretical framework for the analysis of control structures in inter-organizational relationships, such as alliances or joint ventures, based on a combination of transaction cost economics and relational aspects. The framework is shown graphically in figure 1. Dekker’s framework is structured around two control problems, ‘appropriation concerns’ and ‘coordination requirements’. In ‘appropriation concerns’ one directly recognizes TCE theory, with its three determinants of governance structure, viz. asset specificity, uncertainty and frequency. Note that in joint ventures the frequency of transactions must be sufficiently high to justify the formation of a JV, and therefore this dimension can be omitted in the further discussion. Dekker states that a second purpose of control in inter-organizational relationships is the coordination of tasks between the partners: “Different logics of value creation, as determined by the strategic rationale of an alliance, result in different levels of interdependence, requiring different degrees of mutual adaptation and adjustment” (Borys and Jemison 1989). Coordination and joint decision-making will become more important the more interdependent and the more uncertain the tasks of the inter-organizational relationship. Other authors have also reported on the importance of interdependence and task uncertainty as determinants of governance structure (e.g. Kumar and Seth 1998; Casciaro 2003).

The control problems can be addressed by different types of control. Here, one recognizes the three types of controls developed by Ouchi (1979): the formal control mechanisms of outcome and behaviour control, and social or informal control. Dekker’s framework suggests how control problems influence the need of partner firms not only to design and implement formal control mechanisms, but also to invest effort in selecting a good partner.



* Frequency is always high In joint ventures, and as such, this variable can be omitted in their analysis

Figure 1: Framework for analysis of control problems in inter-organizational relationships such as alliances and joint ventures (Dekker 2004).

Selection of a good partner is a means to mitigate potential control problems *upfront*; design and implementation of formal controls is a means to manage the problems *once the problems appear*. Dekker argues that investing more efforts in finding a good partner reduces the need for formal control mechanisms.

An important aspect of this model is the role of trust, presented as an element of social control. Figure 1 shows two types of trust, capability and goodwill trust. This distinction was first proposed by Sako (1992), who in fact differentiated between three types of trust: contractual trust, capability trust and goodwill trust. Contractual trust, the lowest, most basic level of trust, relates to the expectation that the other party will fulfil its contractual duties. Contractual trust must be present in any joint venture relationship. Capability trust relates to the expectation that the other party will be competent and able to fulfil its promises satisfactorily. Goodwill trust, the highest level of trust, relates to the expectation that the other party will perform in the interest of the relationship (the JV), even if it is not directly in the interest of the other party - in other words, in case of goodwill trust the other party will abstain from behaving opportunistically. In Dekker's model, capability trust influences the control mechanisms that govern the problem of coordination of tasks; goodwill trust, on the other hand, influences the mechanisms that govern the problem of appropriation concerns (opportunism).

The relationship between formal controls and trust in JVs is the subject of a substantial body of literature (for example, Zaheer and Venkatraman 1995; Das and Teng 1998; Parkhe 1998; Tomkins 2001; Poppo and Zenger 2002; Poppo et al. 2007; Dekker 2004; Van der Meer-Kooistra and Vosselman 2006), representing a variety of views. Van der Meer-Kooistra and Vosselman (2006) summarize this literature neatly. They conclude that there are four different views. The first is that trust might be a *necessary condition* for control structures and practices to become socially constructed. A second position is that control structures and practices are themselves *sources* of trust. Management control technologies perform a function similar to the legal system: as with legal systems, management control mechanisms are put in place to reduce the risk of opportunistic behaviour. A third alternative is that (formal) control mechanisms can *help build* trust. The information exchange that is facilitated by the use of (formal) controls could create positive expectations about future contributions to the relationship and in this way build trust (Tomkins 2001; Poppo et al. 2007). Finally, the last view is that trust is an *alternative* to control structures and practices; in other words, trust can replace the design and implementation of control structures and practices. The building of trust might be an efficient solution for control problems where the costs of market-based or hierarchy-based controls are high, for example in transactions with high asset specificity and uncertainty (Vosselman and Van der Meer-Kooistra 2006; Dekker 2004; Das and Teng 2001). Dekker (2004) takes this last position that trust is an alternative to control structures and practices. He further argues that a higher level of trust has two consequences (see also figure 1): trust in a partner may have a *direct* effect on the need for formal control mechanisms (i.e. the higher the level of trust, the lower the need for formal controls), and it may have a *moderating* effect on the relationship between control problems and the use of formal control mechanisms.

Dekker confirmed his theoretical framework with case study research. I will come back to this in chapter 4 of this paper.

2.2.2 Zeng (2003): framework based on game theory and its 'cooperative dilemma'

An aspect that has thus far received little attention in the joint venture literature is the fundamental challenge for JV management to balance *cooperation* and *competition* among the partners. In a joint venture the partners should cooperate to achieve the JV objectives and hence achieve the desired value creation ('growing the pie'). On the other hand, partners will - almost naturally - compete to divide the anticipated benefits ('getting the largest slice of the pie'). Much of the literature has emphasized either the cooperative or the competitive side. Many authors have argued that JV management is about creating good relationships between partners and building trust (see for example the previous section (Dekker 2004), or Killing (1983)). On the other end of the spectrum are those who have focused on the competitive side, often in the context of organizational learning, whereby one partner attempts to absorb capabilities of the other partner(s) (Hamel 1991). Once that objective is fulfilled, it often means the end of the JV. Zeng (2003) argues that these two perspectives - cooperation and competition - should be combined, as each perspective on its own emphasizes only one side of what he calls the 'cooperative dilemma' of joint ventures. The cooperative perspective stresses the role of

cooperation and trust to ensure the desired value creation, but neglects, for example, the hidden cost of cooperative behaviour. The competitive perspective, on the other hand, overlooks the fact that a joint venture is a positive sum game, rather than a zero-sum game, as well as the fact that if all partners would behave in order to learn from the other partners this would have a detrimental impact on JV performance.

Game theory offers a theoretical ground to further investigate the tension between cooperation and competition in joint ventures. It provides a means to assess the likely consequences of competitive and cooperative behaviours in conditions where the benefits to one player depend on what the other players do. A central theme in game theory is the prisoner's dilemma: a situation where the optimal joint outcome can only be achieved through trusting cooperation. A joint venture can be regarded as an iterated prisoner's dilemma (Phelan et al. 2005; Parkhe 1993a, 1993b). JV partners will generally be concerned not to lose, and hence reluctant to reveal information; cooperation may therefore seem unlikely. However there is also an incentive to cooperate since the game is generally a non-zero-sum game (e.g. because of economies of scale), and it is known that the game will be played not once but over an extended period of time, so that a firm that does not cooperate (i.e. 'cheats') can be punished for its behaviour in the next round. Therefore, partner firms have an incentive to act opportunistically in the short term, but may learn to cooperate in repeated encounters. The immediate gain of the strategy of cheating is weighed against the sacrifice of future gains as a result of violating the agreement. The longer the time horizon of a joint venture, the closer it gets to a repeated game.

As indicated, only few authors have used game theory for analysis of JVs. I will present the framework of Zeng (2003) as it contains most detail. The starting point for his model is formed by the two most robust solutions for the prisoner's dilemma: changing the pay-off matrix and extending the shadow of the future. The pay-off matrix shows the potential rewards for cooperative and competitive behaviour. The higher the pay-off for cooperation relative to competition, the more likely it is that the partners will cooperate; in contrast, spill-overs will lead to a smaller difference in pay-off between cooperation and competition. The shadow of the future refers to the time frame for decision making in a game. As described earlier, if a prisoner's dilemma is played indefinitely, cooperation between the players will emerge. This is because the players have the possibility - in future interactions - to reward or punish each other for previous behaviour (in contrast to a single game). Thus, the longer this shadow of the future, the higher the pay-off will be from future cooperation and the more likely it is that partners will cooperate in the present. Zeng developed a number of hypotheses about factors that might promote cooperation among joint venture partners. These are listed in figure 2. Zeng confirmed his hypotheses by means of statistical analysis on a large sample of joint ventures.

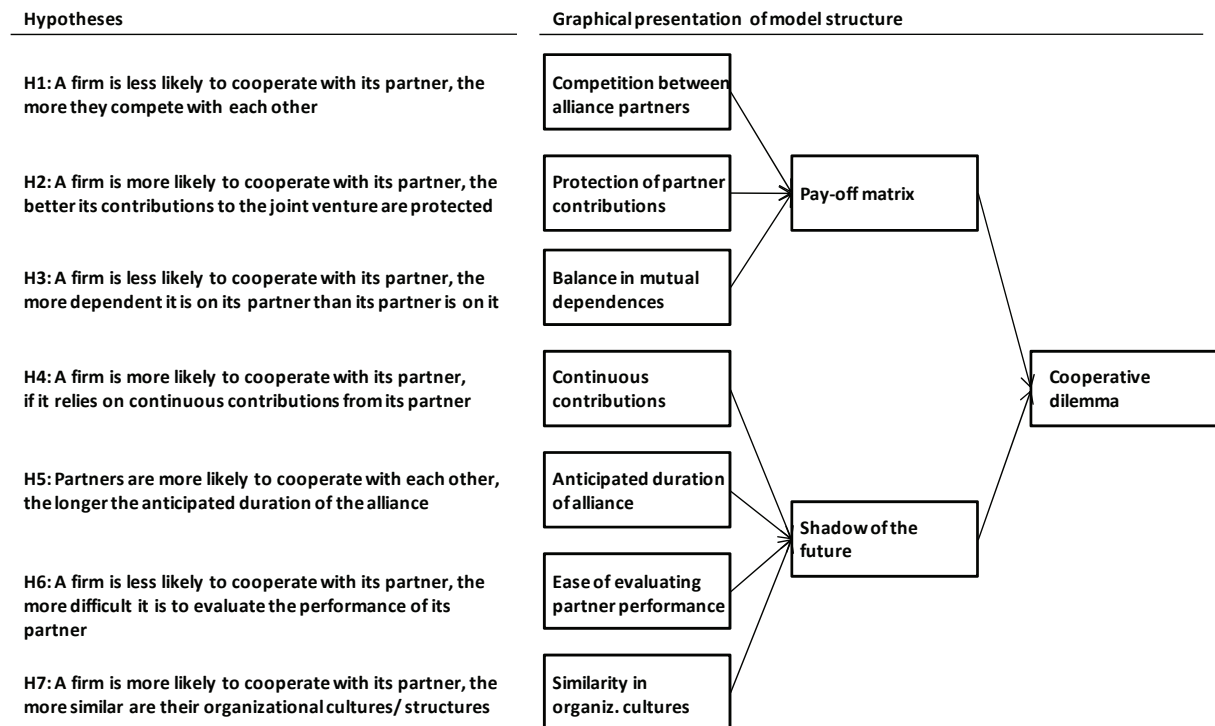


Figure 2: Hypotheses about the cooperative dilemma based on game theory (left) and a graphical representation of the model structure (right), based on Zeng (2003)

3. Hypothesis development

In this chapter I will argue that the framework developed by Dekker (2004) can be extended by using game theory. The hypotheses about factors influencing the cooperative dilemma, as developed by Zeng (2003), in fact present a different way of looking at the control problem of appropriation concerns from TCE theory.

Although in the previous chapter TCE theory was classified as an economic theory and game theory as an organizational/relational theory (table 1), the logic behind both theories has certain similarities. First, it should be noted that both theories are based on similar assumptions on human behaviour, i.e. bounded rationality and opportunistic behaviour. Second, in table 2 I demonstrate how the hypotheses from game theory, as developed by Zeng (2003), can be explained in terms of elements of TCE theory. It appears that all hypotheses either link back to asset specificity or to (various aspects of) uncertainty. Finally, two specific problems known from the prisoner's dilemma in game theory - the problems of hold-up and spill-overs - can also be explained in TCE terms. To maximize a partner firm's share of the JV benefits, a firm can use bargaining power. However, the use of bargaining power is constrained by the 'hold-up' problem: if the firm becomes (too) dependent on the other partners in the JV, it will lose its bargaining power and fall victim to potentially opportunistic behaviour by the other partners (Zeng 2003).

Table 2: Hypotheses from game theory explained in terms of transaction characteristics from transaction cost economics

Hypotheses from Zeng (2003)*	Comments
Changing the pay-off matrix	
H1: A firm is more likely to cooperate with its partner, if they compete less with each other	If the parent firms compete little, <i>uncertainty</i> from concerns about opportunistic behaviour is small
H2: A firm is more likely to cooperate with its partner, the better its contributions to the joint venture are protected	If contributions from parents are well-protected, <i>uncertainty</i> stemming from concerns about opportunistic behaviour of the other parents will be small or negligible
H3: A firm is more likely to cooperate with its partner, the less dependent it is on its partner than its partner is on it	If there is a good balance between contributions from the partners in a JV, <i>asset specificity</i> concerns become small (or rather: such concerns are balanced/equal for all partners)
Extending the ‘shadow of the future’	
H4: A firm is more likely to cooperate with its partner, if it relies on continuous contributions from its partner	If continuous contributions from the parents are required, <i>asset specificity</i> concerns become small
H5: Partners are more likely to cooperate with each other, the longer the anticipated duration of the alliance	If the intended duration of the alliance is long, this reduces <i>uncertainty</i> stemming from not knowing what the partner is up to
H6: A firm is more likely to cooperate with its partner, the easier it is to evaluate the performance of its partner	If it is easy to evaluate the performance of the partner(s), information asymmetries are small or negligible, which means in turn that <i>uncertainty</i> resulting from information asymmetries is small or negligible
H7: A firm is more likely to cooperate with its partner, the more similar are their organizational cultures/structures	If partners have similar organizational cultures and structures, <i>uncertainty</i> stemming from such differences will be small

* Some of the original hypotheses of Zeng have been modified so that now they are all formulated in the positive sense, i.e. starting with “A firm is *more* likely to...”

This can happen, for example, if one of the partners has invested in specific assets for the joint venture and cannot exit the JV without an important loss. In other words: the ‘hold-up’ problem relates to the problem of asset specificity in TCE theory. The other way to maximize a firm’s benefits from the JV is by using the knowledge acquired through the JV in other activities: this is the so-called ‘spill-over’ problem. Spill-overs can be considered as one of the components of uncertainty in TCE theory (uncertainty about the - opportunistic - behaviour of the other partner firm(s)). Thus a partner in a JV has various

options to take actions that undermine cooperation, for example withholding information or refraining from JV investments. In general, it can be stated that a partner firm in a JV is less likely to cooperate with the other partner(s) the larger the asset specificity and the larger the uncertainty.

Summarizing, Zeng's cooperative dilemma provides a refinement of Dekker's control problem of appropriation concerns. The hypotheses as formulated by Zeng - when turned into statements - can be used to investigate the potential for a cooperative dilemma in a joint venture. This 'extended framework', combining Dekker and Zeng, is presented in figure 3. Dekker's control problem of appropriation concerns has been replaced by the cooperative dilemma. Rather than three variables (or even only two, since frequency is not a variable in the case of JVs), it now has seven variables. Especially when appropriation concerns are high for a given JV, this extension with game theory can provide more granularity when investigating potential control issues. The larger the dilemma, the more or more stringent control mechanisms are required to address the problem. In addition, the larger the dilemma, the higher the need for formal control mechanisms (as opposed to social controls), since social mechanisms will not be able to address the problem.

As far as trust is concerned, in the combined model, I shall assume that trust and formal controls are partly substitutes and partly complements. In case of high capability trust, fewer formal controls will be required to manage the problem of coordination of tasks (trust as substitute); but in case of high capability trust (but low goodwill trust), appropriation concerns still need to be covered by formal controls (trust as complement).

It should be noted that in the research of Dekker, the focus is purely on explaining patterns of management control in JVs, given the organizational and environmental context in which the JV operates. This also holds for other authors who have published research in this area, such as Groot and Merchant (2000) and Kamminga (2003). Dekker does mention however that "underlying the theoretical framework is the assumption that aligning the alliance's governance structure with its transaction and task characteristics will result in higher performance". In a later study of supplier-buyer relationships, Dekker tested this hypothesis (Anderson and Dekker 2005), and found, by means of statistical analysis, that the data indeed lent support to the hypothesis that alignment between the anticipated transaction hazards (i.e. control problems) and the management control structure corresponded with better performance compared to a situation of misalignment. Thus, the mentioned hypothesis that alignment between JV characteristics and management control mechanisms leads to better performance is plausible.

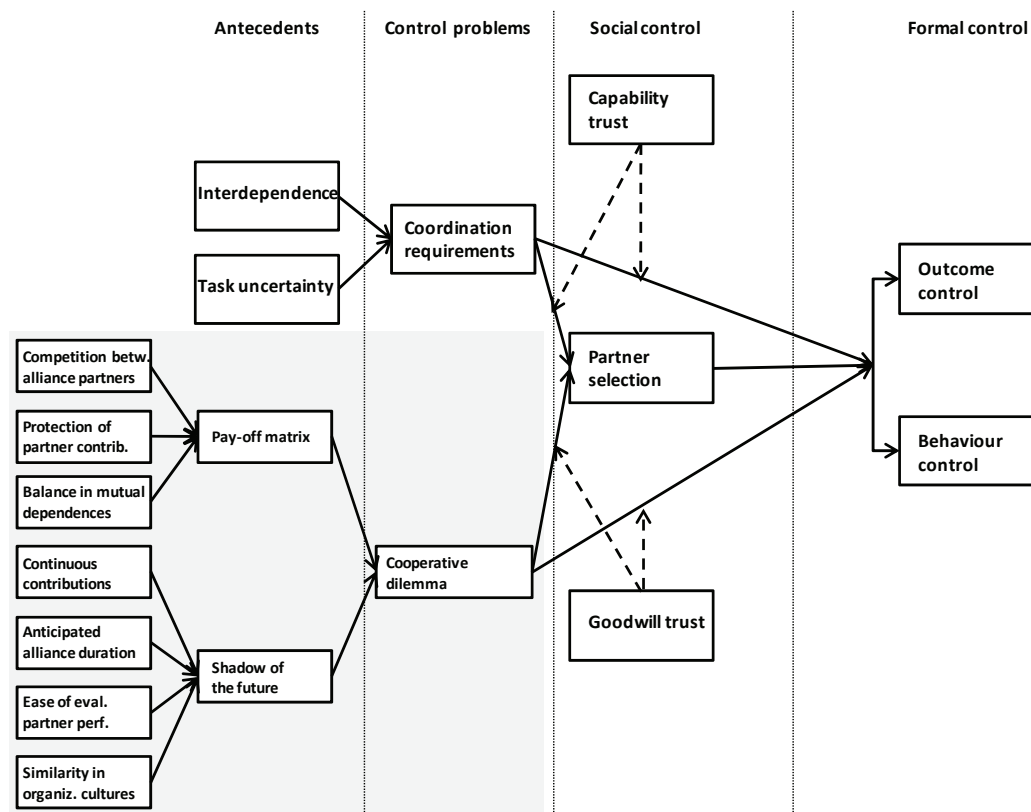


Figure 3: Framework developed in this paper, extending the framework from Dekker (2004) with hypothesis derived from game theory by Zeng (2003)

4. Case study

I will test the extended framework in a case study. The research design is that of an explanatory case study (Yin 1989), i.e. the theoretical model described in the previous chapter is used to understand and explain the reasons for management control practices in joint ventures. I will explore the same case study that Dekker used to illustrate his model and will thereby rely fully on the information provided by Dekker (2004)⁴⁰. I first provide a brief introduction to this case study, based on Dekker's paper, followed by a description of findings from analysis with Dekker's framework. Finally I show how the model developed in this paper enhances the level of detail of Dekker's original analysis.

⁴⁰ In my Master's thesis I explore three different cases, of three international joint ventures - two manufacturing joint ventures and one in financial services. The findings from these three cases confirm the extended framework and show that adding the perspective of game theory is beneficial to understanding management control in JVs. However, because of confidentiality reasons, I cannot present these cases in this paper.

I therefore illustrate the extended model by exploring the example provided by Dekker (2004). Although Dekker's case study concerns a supplier-buyer alliance, he indicates that "the structure of the alliance has much in common with a joint venture. Joint financial investments are made, a separate organizational structure with a joint board and joint task groups is installed, specific tasks and resources are dedicated to it, and separate rules, regulations and costing and non-market pricing are used."

4.1 Background

Dekker's case concerns a strategic alliance between two companies, NMA and RIB. NMA is a Dutch company supplying components for railway safety. RIB is an organisation responsible for construction, installation and maintenance of the Dutch rail infrastructure, and was formed when the Dutch Railways were privatized in 1995. NMA is monopolist in The Netherlands. RIB is its largest domestic customer and accounts for a significant share of NMA's total turnover. When RIB was formed, the new management recognized that many of its supply chains were inefficient, and an important goal for RIB became better control of purchasing costs. As a test case, RIB initiated an alliance with NMA for half-barrier installations. NMA was chosen for several reasons. First, significant cost reductions were expected by reorganizing the supply chain. Second, because of the delivery risks for this type of product (monopolistic supply situation and serious consequences of inadequate delivery) a long-term supply relationship was deemed a good option. Third, the alliance seemed a good route towards more market orientation and cost consciousness within the RIB organization. And finally, RIB expected that NMA would be a good cultural fit given their long history of cooperation.

The contract that was set up covered the various aspects of the cooperation in detail. It included e.g. scope, goals, plans for achieving those goals, organizational structure, responsibilities of both parties, exchange of information, distribution and protection of intellectual property rights and a financial incentive system. Several appendices to the contract covered very specific items such as product descriptions and prices, a quality plan and a programme of improvement for coordination of innovation activities. These appendices were revised annually. The goal of the alliance was defined as the joint innovation of half-barrier installation systems to realize additional cost savings and to enhance its quality and safety. Some of the key elements of the management control structure were the following:

- Organizational structure: the alliance was set up as a separate organizational entity, with an alliance board (two members of each firm) and alliance staff. The board set out an alliance strategy and was responsible for turning strategy into action by agreeing short-term goals and an improvement programme (see below).
- Programme of improvement: for each innovation proposal, the programme of improvement prescribed a planning and progress scheme (specifying steps such as definition of functional requirements, attainability study, development etc.), a budget scheme, an estimation of the expected cost reduction, and a quality plan.
- Financial incentive system: an 'alliance fund' was set up to ensure mutual collaborative behaviour in the innovation process, in other words, to ensure that the partners' individual financial objectives were aligned with the alliance's objectives. This was done by setting up a scheme such that all planned innovations were financed from a central fund, financial results were accrued and the residual was divided following a pre-set schedule.
- Protection of proprietary knowledge: NMA's knowledge of the half-barrier installations was regarded a key factor for the success of the alliance. Therefore the contract specified that NMA would place its knowledge and experience at the disposal of the alliance. NMA was also assigned all intellectual property rights on the installations and

developments generated by the alliance. In return RIB received a non-transferable license for the use of the technology.

4.2 Analysis with Dekker's framework

Dekker showed that the control mechanisms in place can be explained on the basis of the two control problems, coordination of tasks and of appropriation concerns. Table 3 contains the various control elements present in the NMA-RIB case. Below I discuss them briefly.

Coordination of tasks was needed for the two alliance activities of supply of half-barrier systems to RIB and innovation. The supply task required controls such as standard ordering procedures and demand forecasts. The innovation task was more complex and characterized by higher uncertainty. Control instruments to address this problem included a separate hierarchical organizational structure with a joint alliance board and joint task groups, with decision rights and responsibilities; short-term goals for these task groups set by the board; task planning, budgeting and progress evaluation of the programme of improvement; and quality plans with annual auditing of their use. Management of appropriation concerns was done among others via the alliance fund. Although there was strong mutual dependency - RIB could not switch to alternative systems without incurring considerable cost and NMA could not switch to other buyers -, thus aligning the partners' interests, RIB was concerned NMA would have little incentive to work actively on innovation of the half-barrier systems and would simply use the alliance to secure turnover. NMA, in turn, was concerned it would not receive a fair share of the realized cost benefits. Therefore the alliance fund was set up such that it provided benefits to both parties. Furthermore the joint supervision of the alliance activities, with joint decision making and problem solving helped manage appropriation concerns. Finally, the clear specification in the contract of intellectual property rights and how to handle them, contributed to minimizing NMA's concerns about information spill-over to the alliance.

As far as trust is concerned, the NMA-RIB case is not fully conclusive. Dekker's framework is built on the assumption that trust can be a substitute for formal controls. However, the case shows that trust is certainly not fully exchangeable with control. Even though the level of trust was very high (supported by facts such as RIB obtaining full insight into the cost structure of the half-barrier installations), there were many formal controls in place (e.g. a very complete contract). In other words, a high level of trust does not necessarily lead to fewer formal controls. On the other hand, a high number of formal controls does not need to be detrimental to the level of trust. This lends support to the statement that trust is at least partially a complement to formal controls, rather than a substitute.

Table 3: Formal and informal control mechanisms in the NMA-RIB alliance (Dekker 2004)*

Outcome control	Behaviour control	Social control
<p>Ex ante mechanisms</p> <p>Goal setting:</p> <ul style="list-style-type: none"> - Strategic goals (CT) - Short-term goals (e.g. for cost reductions) (CT) <p>Incentive systems:</p> <ul style="list-style-type: none"> - Alliance fund (AC) 	<p>Structural specifications:</p> <ul style="list-style-type: none"> - Ordering and supply procedures (CT) - Demand forecasts (CT) - Functional specifications (CT) - Programme of innovations (CT) - Quality plans (CT) - Specification and division of intellectual property rights (AC) <p>Organizational structuring:</p> <ul style="list-style-type: none"> - Alliance board (CT) - Task groups (CT) 	<p>Partner selection:</p> <ul style="list-style-type: none"> - Long joint history and cultural ‘fit’ <p>Interactive goal setting (AC):</p> <ul style="list-style-type: none"> - Joint governance design - Short-term goals <p>Reputation:</p> <ul style="list-style-type: none"> - Trustworthiness for other alliances <p>Trust:</p> <ul style="list-style-type: none"> - Long-lasting relationship - Reputation RIB - Open book agreement - Intentional incomplete contracting
<p>Ex post mechanisms</p> <p>Performance monitoring</p> <ul style="list-style-type: none"> - Open book accounting (AC) <p>Rewarding:</p> <ul style="list-style-type: none"> - Benefit sharing 	<p>Behaviour monitoring:</p> <ul style="list-style-type: none"> - Pre-action review of innovation ideas (AC) - Board monitoring (AC) - Auditing use of quality plans (CT) 	<p>Shared decision making & goal setting</p> <ul style="list-style-type: none"> - Joint alliance board (CT) - Joint task groups (CT)

* CT indicates that the mechanism governs primarily the control problem of ‘coordination of tasks’, and AC the control problem of appropriation concerns

4.3 Analysis with the extended framework developed in this paper

I now analyse Dekker’s case based on the framework developed by Zeng (2003). Table 4 explains the seven parameters derived from game theory for the case of the NMA-RIB alliance. The table shows clearly that the control mechanisms in the NMA-RIB alliance were designed such those areas where potential control problems could arise, were covered adequately. Two potentially problematic areas were ensuring continuous contributions from both partners, and being capable to evaluate partner performance in the alliance. These were addressed with additional control measures. An alliance fund

was set up to ensure that both partners would contribute to (and benefit from) the primary objective of the alliance, i.e. cost reduction; a programme of innovation was set up with a specific, tight governance structure to ensure the other objective of the alliance was being worked by both partners. Furthermore, both parties gave insight into their work practices (e.g. product specifications) and cost figures (e.g. open book accounting), and several issues were worked together in the joint venture; this enabled both parties to evaluate each other's performance.

Extending Dekker's framework with game theory - the hypotheses developed by Zeng (2003) - thus helps in explaining in more detail the control mechanisms in place, and matching them to underlying control problems. In the case of the NMA-RIB alliance, Dekker found that the control mechanisms could be explained based on the control problems of coordination of tasks and appropriation concerns and their underlying antecedents. The extended model shows that replacing the problem of appropriation concerns by the cooperative dilemma and its determining factors can explain the control mechanisms in place better and in more detail. It also confirms that the control mechanisms match the control problems and therefore it is likely that this alliance functions successfully. This link between a match of control mechanisms with alliance characteristics and alliance performance could, however, not be substantiated in this case due to the lack of sufficient data.

Table 4: Hypotheses from game theory applied to the NMA-RIB alliance

Changing the pay-off matrix	
H1: A firm is more likely to cooperate with its partner, if they compete less with each other	NMA and RIB were not competing at all, they operated in different (product) markets → positive impact on cooperation
H2: A firm is more likely to cooperate with its partner, the better its contributions to the joint venture are protected	In setting up the JV (and the JV contract), specific attention was paid to aspects of intellectual property so that NMA did not need to be concerned about information spill-over → positive impact on cooperation
H3: A firm is more likely to cooperate with its partner, the less dependent it is on its partner than its partner is on it	There was a mutual dependency between NMA and RIB: NMA was the only supplier to RIB, whereas RIB was the most important customer of NMA. In other words, NMA did not depend more on RIB than RIB depended on NMA → positive impact on cooperation
Extending the ‘shadow of the future’	
H4: A firm is more likely to cooperate with its partner, if it relies on continuous contributions from its partner	RIB was concerned NMA would use the alliance to simply secure turnover, and NMA was concerned to earn a fair share of the cost savings and to realize sufficient turnover. Therefore, specific measures were taken, i.e. the programme of innovation and the alliance fund → positive impact on cooperation
H5: Partners are more likely to cooperate with each other, the longer the anticipated duration of the alliance	When setting up the alliance, the partners had a long time horizon in mind → positive impact on cooperation
H6: A firm is more likely to cooperate with its partner, the easier it is to evaluate the performance of its partner	Specific measures taken by the alliance included intensive exchange of data as well as personnel, and ‘open book accounting’, enabling each partner to evaluate the performance of the alliance and of the other partner → positive impact on cooperation
H7: A firm is more likely to cooperate with its partner, the more similar are their organizational cultures/structures	One of the reasons of RIB for selecting NMA was the long history of cooperation and a good cultural fit between the organizations → positive impact on cooperation

5. Conclusions

From a confrontation of an actual case with the theoretical framework, it has become clear that the extended model has proven adequate in explaining the observed control patterns as well as the observed control problems. Whereas the two original control

problems, coordination of tasks and appropriation concerns, appear sufficient to explain the observed (formal and social) control mechanisms, replacing the problem of appropriation concerns by the cooperative dilemma from game theory adds further to the analysis - it provides an additional layer of granularity. The hypotheses derived from game theory are useful to further investigate the situation in terms of potential opportunism, and at the same time they provide indications of how potential concerns can be addressed: how to change the pay-off matrix and how to extend the shadow of the future in favour of more cooperation at the expense of competition. As such, the extended model can serve as a diagnostic tool to assess the joint venture management control mechanisms in place and provides more detail and clearer indications of how to close control gaps than the original model by Dekker.

The work presented in this paper also has some shortcomings. Dekker (2004) already mentioned that the role of trust and especially the relationship between trust and formal controls needs further attention; the extended model presented in this paper does not add any further insights on this point. Further work could take the form of a longitudinal study, to look at the development of trust and how it impacts other control mechanisms. Furthermore, the link from a good match between management control pattern and joint venture characteristics to joint venture performance remains to be substantiated further. Again, further work could consist of a longitudinal study or a statistical analysis of a sample of different joint ventures.

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Fast growth in control

Designing Management control systems for fast growth

Zulay Rico

Executive summary

The focus of this paper is on the influence of the fast growth of organizations on the design process of management control systems. What are the management accounting and control problems that a fast growth organization encounters that can be ascribed to this growth. What are the circumstances arising from the fast growth of the organization that directly influence (re)design of the management control systems for the organization, and how can control help organizations with absorbing the negative effects of fast growth. The following paper outlines an explorative study into the subject.

1. Introduction

Growing organizations, especially fast growing organizations, are important for the economy of a country. A growing organization has a need for human resources, encouraging employment. According to a survey by the government of the Netherlands fast growing organizations are also interesting due to their innovative character and they contribute to economic growth. Growing organizations all encounter problems caused by this growth. Increased borrowings; increased staff; increasing clientele; reduction in cash flow; more bureaucracy and naturally the added stress caused by all these problems (Albo 2006). There are a lot of fast growing organizations where management simply isn't prepared for the task of managing a fast growing organization facing all these problems (Blom 2007). The role of a manager is different in an organization with 50 employees than in an organization with 200 employees. New organizational structures will arise to support management in its tasks, but these new structures also bring complications with them and the need for adjustments.

In 1965 Anthony defined Management Control as "the process by which managers ensure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives: management control is the process by which managers influence other members of the organization to implement the organization's strategies". Even though extensive research on the subject of management control through the years changed the definition of control in organizations, Anthony is a good starting point for explaining the objectives of management control in organizations. One of the tensions that Simons describes is the tension of balancing profit, growth and control (Simons 1999): 'Managers of high-performance companies constantly seek profitable growth. To do so, they are continually innovating. Innovation may take on many forms. It may be developing new products or services, or it may appear as new ways of doing internal tasks related to

order-processing and manufacturing. Over time, successful innovation finds its way into sustained profitability and growth.' However, according to Simons an excessive emphasis on profit and growth can lead to danger, for instance employees may engage in behaviours that put the business at risk. And a rigid structure and control system will limit the future of company.

1.1 Outline of the paper

The following paper is an explorative study into the subject of fast growth and the design process of management control systems in an organization. The first part of the paper, the introduction, will provide a short insight into the origin of the paper and a short outline of the paper. The second chapter will provide more insight into the theoretical framework of the paper, research on organizational growth and management control systems is reviewed for this chapter. The third chapter will provide more insight into the formulated research hypothesis and the methodology used to explore the subject. In the fourth chapter the theoretical framework and the hypothesis are combined into a conceptual framework used for the analysis in the fifth chapter. At the end of the paper in Chapter 6 the answer to the research hypothesis will be formulated.

2. Theoretical framework

For the theoretical framework the subject of the paper is divided in two categories: organizational growth and management control. The subject of organizational growth is extended with research of fast growth organizations and the subject of management control includes the design process of the management control systems (MCS) in an organization.

2.1 Organizational growth

There are four aspects of organizational growth that have an impact on the growth and the organization: the type of growth; the growth phase; the organizations structure and its development; and the growth rate of the organization. Organizational growth can be typed as internal or external. And we can further classify internal growth as being organic or intentional, through product or market development. External growth is obtained through mergers and acquisitions. The Greiner growth phases framework describes how growing organizations move through five distinguishable phases of development, each of which contains a relatively calm period of growth that ends with a management crisis. Organizational research has presented a specific group of characteristics that make it possible to "define" the structure of these different organizational types; this is presented through Mintzberg's basic structures and the structure development framework. For this paper we focus on organizations that grow fast, this can be measured through an increase in employees of revenue.

2.2 Fast growth organizations and control

Fast growth organizations are more innovative, experience more market- and product development, are more aggressive in their transformation strategies, and invest more profit in research and development of new products than other organizations. The type of

growth is part of the strategy, an intentional growth that is pursued from inside the organization. Fast growth organizations all grow in size and age, but most of them are relatively new in the business and small in size. The fast growth organization will find itself in the first two growth phases of the Greiner growth phase framework, growth through creativity and direction. But fast growth organizations tend to go through these phases a lot quicker than normal growth organizations. The structure is defined by the parts of the organization that are important in the decision making process and crucial for the organization. Fast growth of the organization will result in certain bottlenecks that an organization will have to overcome to continue growing. The bottlenecks are: employment; management and organization; processes and systems; capital and subsidization; market and competition; and law and regulation. The organizational growth aspects and bottlenecks will have an effect on the control in the organization.

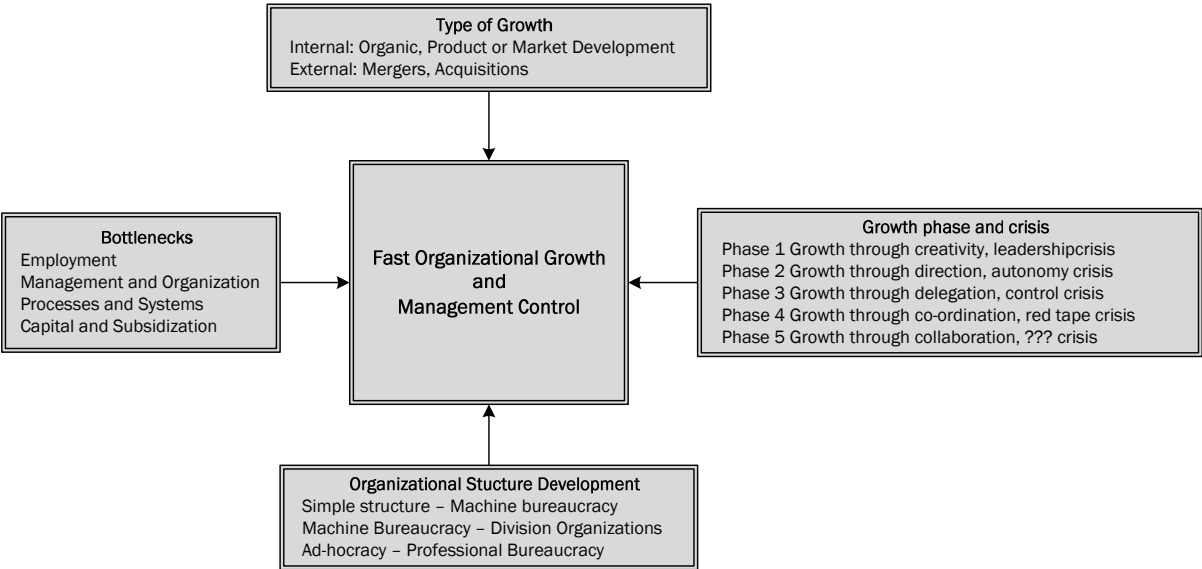


Figure 2-1 Organizational growth aspects influencing management control

2.3 Management control systems

The definition of management control used in this paper is: *management control is the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives'* Machin, 1983. Simons and Merchant both list controls in the organization, however having a different opinion regarding the need for control. Where Merchant makes a distinction between strategic and management control; Simons defines control as a means for implementing business strategy. This contrast in opinion translates its way to their classification of controls in an organization. Merchant's classification is directed towards personnel actions and Simons classifies controls by the type of strategy. Reviewing the Rabbit-Hill framework and the McKinsey 7s structure it can be concluded that not only organizational aspects, but also environmental aspects influence the design process of MCS. The Rabbit-Hill framework puts organization engineering at the core of the framework, influenced by the organizational

components and the strategy formulation process. McKinsey’s framework describes the factors of the organization that together determine how the organization works.

2.4 Influencing the control process

The organizational aspects that will influence the MCS design process are further discussed in light of organizational growth and are classified in four categories:

- Organizational components: the environment, handled theories and nature and experience.
- Structure and Size: the structure and its development and the size of the organization.
- McKinsey’s soft Ss: staff, style, skills and shared values.
- Strategy formulation: informal and formal procedures resulting from the strategy formulation process.

Reviewing research on the influence of growth on the aspects of the organization influencing the MCS design process confirms that the use and role of control systems may change following the growth of the organization. Previous research has given us some possible consequences of growth on these organizational aspects influencing the MCS design in the organization.

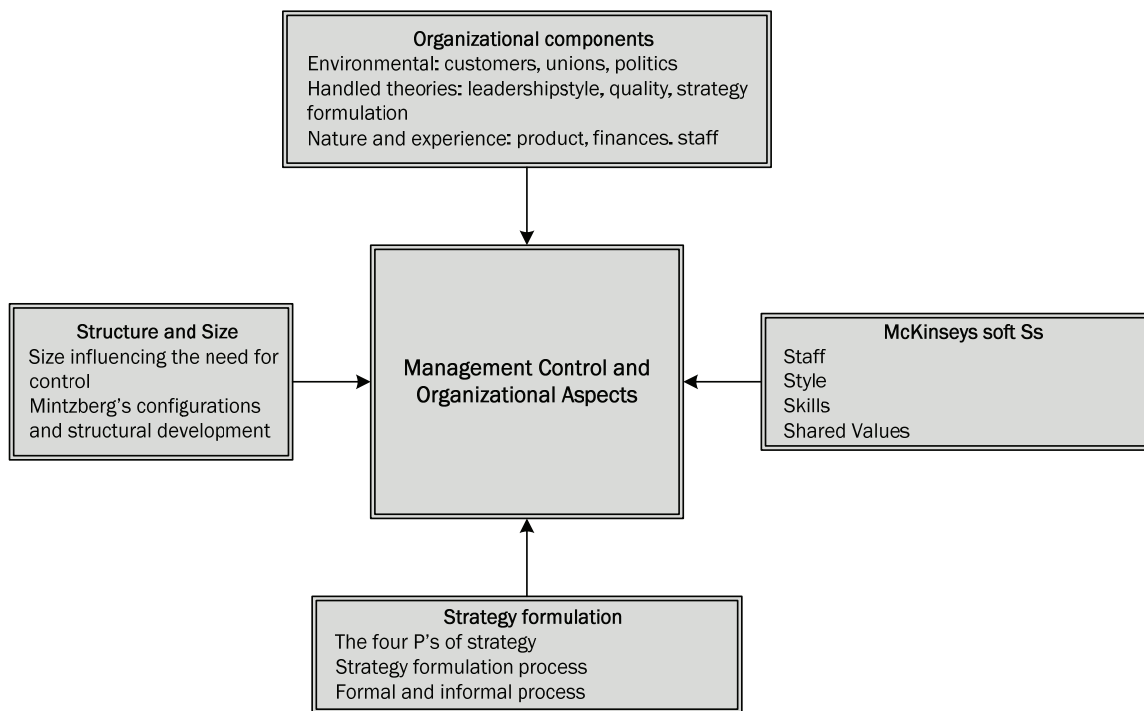


Figure 2-2 Organizational aspects influencing management control

3. Hypothesis development and research design

Growth of the organization, in particular fast growth, can have a great influence in the design of MCS for that organization. The following research hypothesis is researched for this paper:

To what extent and in which way is fast organizational growth a significant factor in designing the organization's management control systems.

Not only the direct effect of growth will have an effect on the control process, but growth will most likely also influence the other factors playing a role in the design process. For this paper I will try to filter out the influence of fast growth on its own.

▪ **Research methodology**

For this paper the research methodology is that of the explorative study. Exploratory research comprises the exploration of a topic, or the start of the researcher to familiarize with that topic. This approach typically occurs when a researcher examines a new interest or when the subject of study itself is relatively new (Babbie 2001).

Exploratory research is most typically done for three purposes (Babbi 2001):

1. to satisfy the researcher's curiosity and desire for better understanding
2. to test the feasibility of undertaking a more extensive study
3. to develop the methods to be employed in any subsequent study

The purpose of the exploratory research is to provide more insight into a topic that is not really substantiated by rigorous theories or precise expectations.

By researching previous research the theoretical framework is developed for further analysis of the research hypothesis in the paper. The second part of the paper will consist of creating an outline of the theoretical framework for the research conducted. The main focus of the research is on Organizational Growth and Management Control; and this is the foundation of the theoretical framework for the paper. The function of the theoretical framework is to create a conceptual framework for analysis of the empirical research. This conceptual framework is used for the analysis of the case study. Focussing on fast growth and MCS the analysis will give us an insight in the main theme of the paper: the influence of fast growth in the management control process of designing the MCS.

▪ **Research boundaries**

One of the boundaries of the exploratory research is that it will only go as far as exploring the subject of the research. There is no specific solution to a problem formulated. The outcome of the exploration can only go as far as a recommendation for future research. Without extensive field research it will be hard to filter the effects of growth from other environmental characteristics that influence the strategy and design of MCS in organizations. Other environmental influences can be the innovative character of the industry that the organization is operating in, or the normal growth factor of the industry. Political and social opinions may also influence the strategy of an organization and its implementation. To still be able to formulate enough statements about the influence of fast growth in an organization other research of the fast growth organization is introduced in the paper to support its theoretical framework.

4. Conceptual research framework

The aspects of growth and control presented in the theoretical framework are combined and presented in a conceptual research framework. The focus of the conceptual research framework is the influence of fast organizational growth on the aspects of the planning and control cycle in the organization and the combined responsibility and process structure and the implemented means and measures. The conceptual research framework presents how the aspects of fast growth will most likely influence the control process of the organization by influencing the control aspects. The translation of the management control inputs to the process of designing the responsibility and process structure and combined the means and measures implemented to assure control are highly influenced by the type of growth the organization wants to achieve. The conceptual framework for research classifies fast growth for each type of growth: organic growth, product or market development, or mergers and acquisitions. The bottlenecks facing the fast growth organization are included in the framework since these are expected to influence not only the need for management control in the organization but also the design process of the MCS.

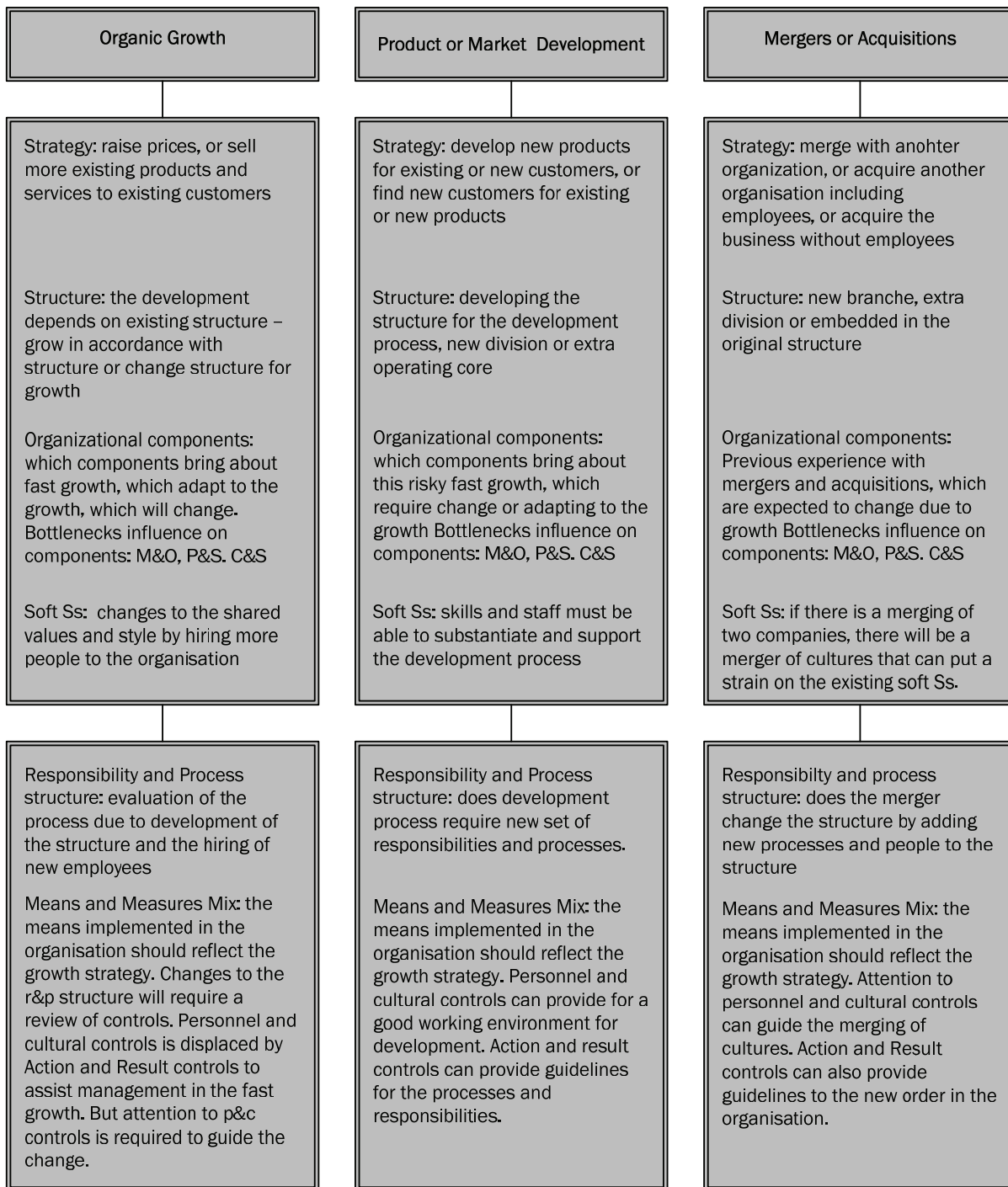


Figure 4-1 Conceptual research framework

How the different elements of this framework are brought about is illustrated in the following paragraphs.

4.1 Organic growth

One of the influences of organic growth on the strategy formulation of the organization is the type of growth strategy: should the organization raise its prices, reduce the costs, or sell existing products and services to existing customers. The growth strategy will have an

impact on the organizational structure, by instigating a need for a structure or a change in the existing structure or by the natural development of the existing structure through the growth of the organization. Fast organic growth does not necessarily imply a change in the organization, just a goal for the organization and the employees already working there. But when organic growth picks up the workload can put a strain on existing employees and there is a need for new skills and staff, the organization should be aware that this puts a strain on the shared values and style of the organization. The organizational components in an organization that grows organically are very dependent on the type of organization, but growth will definitely have an influence to the characteristics of the growth phase of the organization.

- Changes in the R&P structure: when an organization chooses for organic growth the changes are expected to come from the increase in workload, changes in the attention span of management, changes due to the hiring of new employees. And the structure of the organization will eventually develop if the organization keeps on growing in size. These developments are also expected to change the R&P structure of the organization.
- The means implemented to accompany the strategy of organic growth don't necessarily have to change due the organizational growth. These can stay the same if the organization is already relying on good means, but they will have to change if they prove to be insufficient. The means that are implemented by the organization depend on the strategy and other organizational components; they can for instance help management to detect changes in the organization by analyzing information in the organization.
- Changes in the implementation of measures: a small organization can easily rely on personnel and cultural controls to achieve control. However as the organization starts to grow and wants to keep growing in control, the organization will most likely also have to rely on action and result controls. New employees, a change in attention span by management, these can all add to the pressures of trusting that everyone is going in the right direction based on cultural control or rely on action controls.

4.2 Product or Market Development

Product or market development is a very high risk strategy and can be originate from a few different growth strategies: sell new products and services to existing customers, sell existing products and services to new customers, and sell new products and services to new customers. The last strategy being the highest risk since it involves implementing two new dimensions in the organization. The strategy of product and market development will most likely have an influence on the structure of the organization by requiring an expansion of the organizational structure to accommodate the new business dimension. The organizational components are most likely to be influenced when the development requires the organization to expand the structure. To assure that the development is going as planned in the strategy the organization should have the right skills and these skills have to be treated well to create a creative environment to nourish the growth of the organization.

The expected implications for the management control design process as a result of product or market development are:

- Changes in the R&P structure: if the development process in the organization is a new process, implemented to achieve growth and part of a strategy this new part will most likely affect the R&P structure of the organization. The organization will definitely have to determine the responsibilities and processes for this new structure.
- Changes to the implementation of means: the means in the organization should reflect what the organization expects to gain from the product or market development. The means should reflect the type of strategy chosen by the organization.
- Changes in the implementation of measures: especially if the product or market development process is not something that is accomplished by the strategic apex of the organization should they have measures in place to assure that the organization's strategy is implemented and the goals for development are being met.

4.3 Mergers and acquisitions

Merge with another organization, or acquire an organization including employees, or acquire the business without the employees are most likely not the main strategy but these are a result of the strategy of having a bigger market share, or going into a new line of products, to broaden product offerings, enter new geographic markets, access emerging technology or intellectual property, and expand into new distribution channels. The structure development as a result of merging is largely dependent on the reason of the merger, the strategy of the organization and the merger as a result of this strategy will have an impact on the structure of the organization changing after the merger. The influence on the organizational structure as a result of the acquisition is largely dependant on the type of acquisition, just acquiring the assets of the organization or the entire organization including personnel. The effect to the soft Ss of the organization is also present, especially when the merger or acquisition brings new employees and a different organizational culture in the mix. Merging with another organization will have an effect on the soft Ss, if there is a merging of employees this will most likely have an impact on the shared values, style, staff and skills of the organization. The organizational components of the organization will change if the merger or acquisition results in the organizations after merging being different than before merging.

The expected implications of fast growth for the management control design process as a result of mergers or acquisitions are:

- Changes in the R&P structure: depending on the reason for the merger or acquisition, and the type of merger or acquisition, the R&P structure of the organization will change. The influence of fast growth on this process is most likely to result from the decision of merging or acquiring. Changes in the structure are most likely expected to change the R&P structure. And changes in the soft Ss will put a strain on the existing r&p structure.
- Changes in the implementation of means: implications of mergers and acquisition for the means depend on the strategy of the organization. If the strategy for growth is determined the organization can address the type of means to be implemented in the organization.

- Changes in the implementation of measures: the type of merger or acquisition can require a different approach of the R&P structure.

5. Analysis

The following chapter of the paper will combine the conceptual research framework with a case study of a fast growth organization (Panelsix) and other examples of fast growth organizations in order to analyze the research hypothesis. The case study consists of an interview with a managing partner of a fast growth organization and is executed in light of the research hypothesis.

5.1 To what extent will growth have an influence on control

The extent of the influence of fast growth on the design process of MCS in the organization in this paper is translated to the influence of growth on the different aspects of the control design process. The different aspects of the management control process are described in light of the conceptual research framework, and these changes are, where possible, described through the implementation of control. This implementation, evaluation and maybe even modifying of controls, is the way in which organizational growth is expected to influence the control process. To complement this analysis the findings of the case study are included where they can provide more insight.

5.1.1 Strategy formulation and implementation process

The strategy of an organization is an important part of the design process of the MCS. The influence of fast growth on the strategy formulation process will have an impact in different ways:

- Determining the strategy of the organization: there is no specific strategy that will result in fast growth and fast growth organizations do not have the same strategy. What is however very common amongst fast growth organizations is that they have a strategy that focuses on the growth of the organization. If someone goes into business because he doesn't want to work for a boss but wants to freelance this will not result in a growing organization. When this person wants to build an organization it will have to adapt the entrepreneurial spirit. An organization can only grow fast if the will is there and if it has the potential to grow fast. However this doesn't mean that all organizations with the potential to grow fast will automatically do so, since there are other challenges to the growth than the challenge of not knowing how to grow.
- Translating the strategy of the organization into goals: it is one thing to say we are going to be the biggest by next year, or we want to sell a lot of products by the end of a certain period. This description however can be translated to the actual business in a number of different ways and could result in an organization under performing when it comes to the management's expectations. To prevent an unclear vision the strategy has to be translated into measurable goals, and these goals have to be translated into short-term and long-term goals. The MCS are implemented in the organization to assure that the goals of the organization are being met. Therefore it is important that if an organization wants to grow fast that it is able to formulate exactly how it wants to achieve this growth.

- **Communicating:** communicating the strategy of the organization to the employees and getting everyone excited about the strategy of the organization is important in reaching the goals of the organization. In the growth literature management and organization can be seen as a bottleneck when they are not able to communicate the goals of the organization to employment. And when they are able to communicate the strategy and develop it into goals for the organization this is seen as a success factor in the fast growth. Thus we can conclude that making sure that you communicate your strategy to the rest of the organization is very crucial for the leaders of any organization.
- **Dealing with emerging strategies:** it is important that an organization is aware of the emergent strategies that arise during everyday business. These emergent strategies have to be managed as they will influence the deliberate strategy of the organization.

5.1.2 Organizational Components

The organizational components definitely have an influence in the design process of the MCS of the organization. However the influence of growth on the organizational components is not something to necessarily ensue once the organizational growth is reached, at least not on all components. Some components are expected to be drivers of this organizational growth; these components are part of the characteristics of fast growth organizations. And some components are not actually affected by fast growth:

- **Organizational components not naturally influenced by fast growth:** the environmental components and the nature of the organization are not specific drivers for fast growth and these components are not naturally affected by the fast growth of the organization. Even though these components are a very important influence in the control process, it is not pointed out that they are in any way different or specific for the fast growth organization.
- **Organizational components driving fast growth:** some of the organizational components are embedded in the characteristics of the fast growth organizations presented in chapter four. These characteristics are part of the drivers of the fast growth organization, for instance the type of strategy in the organization.
- **Organizational components affected by fast growth:** the experience of the organization is definitely a component that is affected by fast growth. The more phases of growth the organization passes the more this will have an impact on the experience of the organization, and this is a direct result of the growth of the organization.

5.1.3 Size and Structure Development

A major issue in fast growth organizations is the change of the structure as a result of the organizational development and in some organizations the failure of determining the organization structure results in uncertainty.

- **Determining the structure:** For an organization to have control over its responsibilities and processes it first has to determine the structure of the organization. Unfortunately even though the structure of the organization is of great importance in the design process of the MCS there are many fast growth organizations that don't have the time or feel the need to determine the right structure for their organization.
- **Communicating the structure:** it is very important to communicate the structure of the organization to new employees. When fast growth results in a great number of new

employees in a short period it is important that it is communicated in the organization where these new employees will fit in the structure of the organization.

- Developing the structure: An organization no matter how small will have an organizational structure, whether this is documented or not. But the fast growth of the organization can result in an unclear structure with little or no possibilities to delegate. When it is unsure who is responsible for what in the organization it is simply not possible to determine the measures that have to be implemented in the organization.
- Adapting to change: The difficulty in the structure determining process for the fast growth organization is that this structure is susceptible to change. Therefore determining the structure should include the growth aspiration to make it easier for the organization to adapt to the change as a result of this fast growth.

The conceptual research framework doesn't really detail into the size of the fast growth organization. In the research conducted by the Ministry of Economic Affairs the fast growth organizations are classified as small and middle-sized organization and this is included in the description of the characteristics of the fast growth organizations. But an organization like Yahoo is not exactly a small organization since Yahoo had approximately 14.000 employees at the beginning of 2008. And a potential fast growth organization like Panelsix has only eight fulltime employees. Needless to say that the ambition of fast growth is not just reserved for the small to middle-sized organizations.

5.1.4 McKinsey's Soft Ss

The employees of an organization are affected by fast growth no matter what the type of growth, and adjusting to the changes in the organization is a process that everyone experiences in their own way. However one thing is sure and that is that employment is an important issue in a fast growth organization. As one of the founders of Innocent Drinks puts it so nicely the trouble with employment is having to make a choice: take risks and hire or hold out for the 'right' employees and compromise on growth (Reed 2007).

- Awareness of the impact of the soft Ss: when it comes to the influence on the soft Ss aspects of control the organization should be aware of the impact the growth has on them. Not only management, but everyone in the organization should be aware of the staff and skills that are present in the organization. The culture is very much determined by the people working for the organization; this is expressed through the shared values and style of the organization and is one of the identities of the organization to outsiders. If the fast growth organization wants to attract new employees it has to be aware of the organizational culture and image it portrays to the possible new employees.
- Communicating the desired position of the soft Ss: an organization that has a set of Soft Ss in place that wants to grow fast has to communicate the status quo of the soft Ss to new employees that are hired into the organization. And the changes to the status of the Soft Ss that are a result of fast growth should be subject of communication since it could be the cause of dissatisfaction with people that have been working for the organization since the beginning.

5.2 Which way will growth influence control

The first part of the analysis shows that the strategy formulation, the development of the structure and the size of the organization, the organizational components and the soft Ss are all affected by fast growth. These organizational aspects of control are the input for the MCS design process, and therefore the influence of growth on these aspects is bound to have consequences for the design process. These control aspects will have an influence on the outcome of the design process by affecting the responsibility and process structure in the organization and the implemented means and measures mix in the organization. The following paragraph will describe how this influence is manifested in the process of designing the MCS for the organization.

5.2.1 Responsibility and process structure

When it comes to how fast growth will influence the R&P structure of the organization there are two elements that can be affected, the design and the evaluation. The R&P structure has to be designed to assure the right implementation of the strategy and initial structure of the organization and support the organizational components combined with the soft Ss. The second element of the responsibility and process structure is that the development of the structure and the strain of the fast growth on the soft Ss are to be taken into account when evaluating the process.

- **Strategy:** The influence of the fast growth strategy should be taken into account when designing the R&P structure and the organization should be aware of the specific consequences for the R&P structure of the type of growth that will result from the strategy. At the beginning of this paragraph it described how the type of growth will have an influence when it comes to the strategy formulated and how this is reflected in the present responsibility and process structure.
- **Organizational components:** the fast growth organization should be aware of how the type of growth changes the organizational components by adding new processes and people to the structure. And if this change requires an evaluation of the R&P structure of the organization. In addition to monitoring the effects of the type of growth the fast growth bottlenecks M&O and P&S, which are related to the nature and experience of the organization, should as well be taken into account when designing the R&P structure.
- **Size and Structure development:** the most direct effect of growth on the R&P structure would be the result of the structure development the organization is expected to go through as a result of growth. The R&P structure is largely determined by the primary process of the organization and this is most likely not to change due to fast growth. However when growth changes the internal structure of the organization this is when growth is also expected to have an effect on the responsibility and process structure of the organization. The Greiner growth framework illustrates how organizations go through different stages of evolution and revolution, and change and develop, as they grow in size and age.
- **Soft Ss:** the hiring of new employees has an effect on the shared values, staff, skills and style of the organization. In light of this effect the R&P structure has to be evaluated to assure that the right structure is implemented to satisfy the needs of the soft Ss. The growth of the organization can also be the cause of a change in the soft Ss.

These changes could affect the R&P structure and should be regularly evaluated to assure that the implemented R&P structure is still sufficient enough to support the growth of the organization and assure that the realization of the soft Ss are satisfactory for the organization.

5.2.2 Means and measures mix

Means can help a fast growth organization by assuring that the strategy of the organization and its goals are being reached. The strategy, the organizational components, the development of the structure and the soft Ss will all have an influence on the implementation of means and on the success of the means implemented. The formulation of the strategy will be the biggest factor in this design process, since the means are implemented to accompany this organizational strategy. The decision of implementing a budget, or a balanced scored card or any other means is not a guarantee for fast growth, but it can help the organization with the process of performance measurement and strategy implementation. The levers of control by Simons are an example of means for the organization to assure strategy implementation and fast growth is expected to pull its weight on all four of these levers.

- Boundary systems are explicit statements embedded in formal information systems that define and communicate specific risks to be avoided. An organization like Panelsix can for instance apply the boundary systems to educate new employees on the organization and to structure the responsibilities in the organization. Managers can use these systems to underline the desired state of the soft Ss. In times of fast growth this can help the awareness of employment when it comes to the culture.
- Belief systems are an explicit set of organizational definitions that senior managers communicate formally and reinforce systematically to provide basic values, purpose, and direction for the organization. Managers can use these systems to communicate the desired state of the soft Ss to the organization. In times of fast growth this can help the awareness of employment when it comes to the culture of the organization.
- Interactive control systems are formal information systems that managers use to personally and frequently involve themselves in the decision activities of subordinates and to focus on strategic uncertainties. These interactive control systems can be very valuable for a fast growth organization. Management can use these formal systems to guide the emergent strategies and ensure continuing competitive advantage to assure fast growth.
- Diagnostic control systems are formal information systems that managers use to monitor organizational outcomes and correct deviations from preset standards of performance. When a managers time becomes limited as a result of the fast growth of the organization diagnostic control systems can help management to delegate some of its responsibilities to others in the organization.

Measures address how and with what means the planning and control function in the organization is implemented. The controls described by Merchant are used to avoid three issues in the organization: lack of direction, lack of motivation and personal limitations. The characteristics of fast growth organizations combined with the organizational components are all very much the same: entrepreneurial organization, simple structure,

big on trust and shared values. In the first phase of growth management can very much rely on personnel and cultural controls. But if an organization wants to achieve high growth it will have to monitor this growth, implement the strategy and stay on top of it. An organization that wants to achieve fast growth has to implement some type of result and action controls to stay on the right course and keep on monitoring fast growth.

- Personnel and cultural controls: the organization takes steps to ensure that employees will control their own behaviours or that the employees will control each others' behaviour. Selection and placement, training, provision of necessary resources, creation of a strong organizational, group based rewards. The personnel and cultural controls are the initial consideration in an organization. The starting points for implementing measures in the organization are the personnel and cultural controls introduced by Merchant.
- Result controls: results accountability, influence the employee's actions because they cause employees to be concerned about the consequences of the actions they take. The combination of rewards linked to results informs or remind employees what result areas are important and motivate them to produce the results the organization rewards.
- Action controls: the most direct form of control involves ensuring that employees perform (or do not perform) certain actions known to be beneficial (or harmful) to the organization. Behavioural constraints, pre-action reviews, action accountability, and redundancy are all action control that an organization can put into place to assure control.

6. Summary and conclusion

In the analysis the conceptual research framework is compared with real life examples of fast growth organizations in order to examine the influence of fast growth in the management control systems design process. To examine the hypothesis it is divided in two segments:

- The extent of the influence of fast growth on the management control systems design process.
- The way growth will influence the design process of the management controls systems in the organization.

The hypotheses questions if fast growth is a significant factor in the design process of the MCS in an organization. A significant difference is described as a difference that is not just an outcome of the choice of respondents in this analysis, but the difference would also occur when chosen a different group of respondents. One of the boundaries of this paper is that it is not possible to formulate a statistically representative conclusion of the research conducted; this will result in a difficulty in proving if the outcome of the analysis is significant for the fast growth organization. However when comparing the conducted research with previous research of management control systems and organizational growth research I can definitely conclude that fast growth will have an impact on the control situation of the organization. Future research will determine the significance of this impact.

The extent of the influence of fast growth on the management control systems design process goes as far as the influence on the different organizational aspects that affect the need for controls in the organization.

- **Strategy:** there are different aspects of the strategy that are affected by fast growth of the organization. The strategy of the organization and fast organizational growth are related when it comes to determining the strategy and translating the strategy in goals for the fast growth. Communicating this desire to grow fast by defining the goals for the rest of the organization and dealing with emergent strategies is an important factor when aspiring fast growth.
- **Organizational components:** the characteristics of the fast growth organization are directly related to the organizational components. One way fast growth will influence these aspects is through the bottlenecks of management&organization and processes&systems. The fast growth bottlenecks could require an organization to research and re-evaluate the organizational components.
- **Size and structure development:** determining and developing the structure of the organization will be a large influence on the evaluation of the responsibility and process structure. It is of great importance that this structure be communicated to the organization and adapted for the right fit in the organization. As the organization grows it should be aware of the stages of revolution and evolution since these could point out possible control issues.
- **McKinsey's soft Ss:** the shared values, style, staff and skills of the organization will change in a fast growth environment. Adding new people to the structure will require an organization to re-evaluate the state of the soft Ss. The fast growth organization should be aware that fast growth could change the soft Ss of the organization if the desired state of soft Ss is not communicated to the rest of the organization.

The way fast growth will influence the design process of MCS in the organization is explained through the possible changes and need for adaptation in the responsibility and process structure of the organization, accompanied by the implemented means and measures mix. The responsibility and process structure of the organization is accompanied by the means and measures mix of the organization to assure the control. Different types of growth may require a different approach of the means and measures mix in the organization.

- **Responsibilities and processes structure:** the influence of fast growth on the aspects of control is directly reflected in the need to design, implement, and evaluate the R&P structure of the organization. The types of growth are expected to each have their own set of implications for the R&P structure and the organization aspiring fast growth should frequently evaluate the effects of growth on the R&P structure. If the R&P structure is not sufficient enough to support the growth of the organization it requires adapting to the process.
- **Means and measures mix:** Means are very dependent on the type of organization and its strategy. The most important part of implementing means and measures in the organization is the communication and formulation of the strategy of the organization. A well formulated strategy should describe the goals for the organization and how these goals are to be achieved. The most important part of implementing measures in

the organization is the translation of the strategy into goals for the organization combined with the other control aspects of the organization.

If the organization knows what type of growth it wants to achieve and how it wants to achieve it can design the process of management control best suited for the organization. If the management of the organization will implement controls in the organization to assure the implementation of the strategy is largely dependent on the type of organization and of the management and owners of the organization combined with the need for controls. But one thing that is sure is that if the organization is aware of the changes in the organization as a result of the fast growth and if the organization is aware of the need for control it will definitely benefit from implementing management control systems. A good realization of the responsibility and process structure and the combined means and measures mix will provide a certain amount of assurance that the organization is in control. And the awareness of the changes in the control requirements due to the fast growth effect on the control aspects can help with the decision what means and measure are the best fit for the organization.

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http://www.growingbusiness.co.uk	business news and strategy for entrepreneurs
http://www.gazelles.com	growing leaders, growing companies
http://www.fgba.co.uk	fast growth business awards in the UK
http://www.fd.nl/ondernemen/fdgazellen	FD Gazelle Awards in the Netherlands
http://www.merriam-webster.com	Merriam-Webster: dictionary and thesaurus
http://www.interglot.com	translation dictionary
http://www.thefreedictionary.com	free financial dictionary

The Implications of Integrating Governance, Risk and Compliance in Business Intelligence Systems on Corporate Performance Management

J.J. (Jos) Madlener ⁴¹

Executive Summary

The last decade organizations have understood more and more the importance of enforcing achievement of the goals defined by their strategy through metrics-driven management. The data warehousing process in Business Intelligence Systems, though supporting bottom-up extraction of information from data, currently fails in the top-down enforcing of the organization strategy. Corporate Performance Management includes the data warehousing process, but it also requires a component capable of monitoring the time-critical operational processes to allow tactical and operational decision-makers to tune their actions according to the organization strategy. Integrated Governance, Risk and Compliance is proposed one of these components by providing an organization new capabilities of risk management and creating enterprise value by utilizing technology to efficiently and effectively manage risk across the organization.

1. Introduction

1.1 Context

Lately the business climate is putting organizations under different stress than they have experienced for a long time. Today's ever-changing business climate is complex and difficult to predict. At the same time the current economic state is forcing board and executives to look for profit and eradicate losses in the organization, make hard decisions about where to allocate resources and dealing with an increasing demand for their accountability. Also new legal and regulatory mandates have organizations scrambling for faster and more detailed information about the results and performance of the organization so that they can report financials with confidence (Kopcke 2003).

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In the ever-changing climate of business the capability to adapt is a worthy asset (Thierauf 2001). Intelligence is the ability to understand the relationships of presented information in such a way to guide actions to adapt an organization strategy (Thierauf 2001; Vriens and Philips 1999). Business Intelligence (BI) then encompasses the whole process of collecting, processing and interpreting information for an organization strategy (March and Hevner 2007; Vriens and Philips 1999). Business Intelligence Systems (BIS) give organizations the ability to take data from multiple data sources and transform it to singular and definitive information (Loshin 2003; Moss and Atre 2003). This information lets decision-makers show data, gain context, understand trends and anomalies to answer to performance management questions (Cognos 2007).

A growing number of organizations have recognized that the management reports generated with BIS by themselves are no longer sufficient. The generated management reports must be tightly coupled with their strategic and operational planning processes to let managers set and share the strategy of the organization. This can be achieved with fully integrated Corporate Performance Management (CPM) systems that bring together enterprise planning and financial management applications with comprehensive BI functionality. CPM is called the second era in BI (Kopcke 2005; Golfarelli et al. 2004).

1.2 Research problem and questions

As organizations use their ability to adapt to cope with the ever-changing business environment, they require unprecedented visibility into the dials and levers that affect their performance. Only through these insights can organizations achieve the level of individual and group accountability that is at the heart of improving the previously mentioned results and meeting the reporting requirements. One of the currently new levers driving organizational performance is the Governance, Risk and Compliance (GRC) concept (OCEG 2007).

Initial interest in GRC was driven by the Sarbanes-Oxley (SOX) act, but currently the perspectives of organizations in all industries on the components of governance, risk and compliance are maturing. These components are linked and aligned, and together provide a possibility to improve the quality of information, necessary for risk and compliance management. Resulting risk intelligent organizations evolve from managing risk as a transaction or compliance activity to adding business value by improving the operational decision-making and strategic planning.

Although lately there has been a lot of research in the area of the subjects BI, CPM and GRC, the knowledge of the relations and the implications of integrated GRC is insufficient. With the arrival of the second era of BI and with GRC presumably providing the component to allow decision-makers to improve operational decision-making and strategic planning it is of common interest to do research on the implications of integrating GRC in BIS and on the resulting added value for CPM.

This leads to the following research question that is addressed in the study:

RQ: What are the implications of integrating Governance, Risk and Compliance in Business Intelligence Systems on Corporate Performance Management?

1.3 Outline

This article consists of six sections and an appendix as illustrated in figure 1-1.

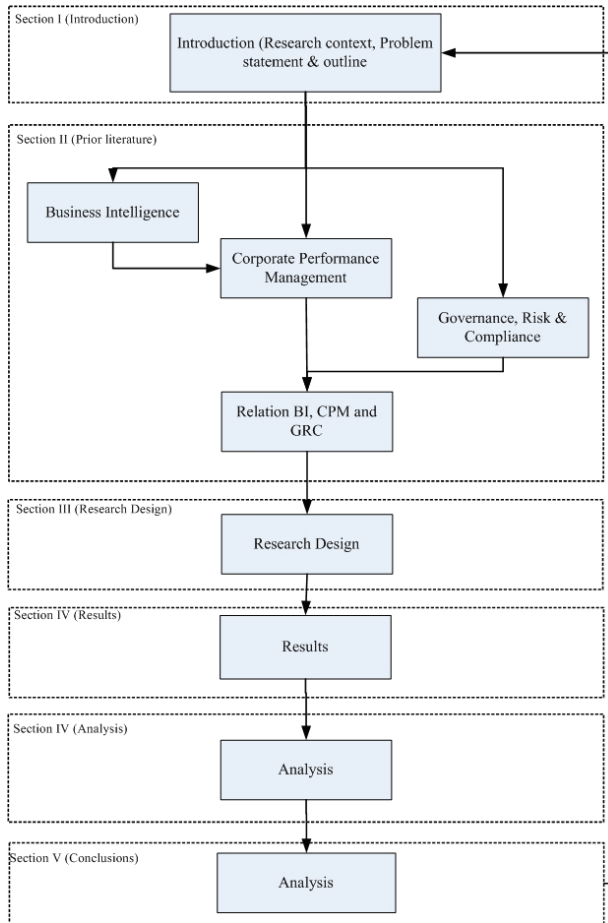


Figure 1-1: Outline article

The first section gives a brief outline of the research context, problem statement and outline of this article. The second section contains the prior literature. It provides an introduction in BIS, CPM, GRC and the relations between these concepts. The third section contains the research design, section four provides the results of the research and section five the analysis of the results. The last section, section six, contains the conclusions based on the research.

2. Prior Literature

2.1 Business Intelligence

Nylund (1999) traces back the developments associated with BIS to Proctor & Gamble's effort to build a Decision Support System (DSS) that linked sales information and retail scanner data and to the discipline that Gartner Group analyst Howard Dresner dubbed "business intelligence" in the late 1980's. Dresner put into the context of BI "all the technologies that help business make decisions based on fact. Using fact rather than intuition was key to intelligence". In this context intelligence is the ability to understand the interrelationships of presented facts in such a way to guide action to one or more

desired goals to develop and maintain a organizational strategy (Thierauf 2001; Vriens and Philips 1999). BI then encompasses the whole process of systematically collecting, processing and interpreting information with respect to a organizational strategy (March and Hevner 2007; Vriens and Philips 1999).

BIS are useful at different organizational levels within an organization. BIS are mainly used by strategic managers and executives who make decisions that guide the manner in which business is done. BIS provides managers information and helping them to make decisions from semi-structured and unstructured information, which is generated in underlying systems (see figure 2-1). Although BIS and Executive Information System (EIS) look similar, there is a big difference. BIS find answers to questions that decision-makers do not know to ask (Moss and Atre 2003). At first this seems excessive. After all, an EIS can also provide intelligence and insights by sorting out vast amounts of data. But the traditional analysis techniques rely on the analyst to know what to look for in the data. The analyst creates and runs queries based on hypotheses and the executive relies on the business views built into the EIS tool. As problems become more complex, more data-dependant and involve more variables the EIS tools fall short. BIS can support these very complex investigations (Moss and Atre 2003).

BIS are also used at the operational level to support operational decision-making. At this level BIS provide more detailed information about aspects of a process compared with information provided to the strategic level. BIS are represented as the black box in figure 2-1.

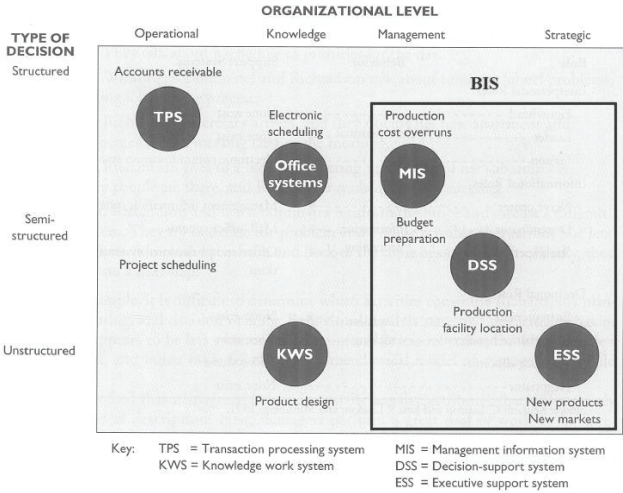


Figure 2-1: IS at the various organization levels support different types of decisions (adapted from Laudon and Laudon 2004)

2.1.1 Definition Business Intelligence

From here we assume that the utilization of BI as IS can be seen as a way that leads to better insight on the internal and external organizational environment and assists in strategic decision-making by providing valuable information. To provide better insight the organization needs to get new information by collecting data about these environments of the organization. BI is all about available information. In the context of BI a distinction for

information is made between data, information and knowledge and intelligence (Rodenberg 1999). Creating intelligence is the ultimate goal of the BI process, because it is in this context that any real value is derived. Figure 2-2 shows the distinction for information in a pyramid of abstraction.

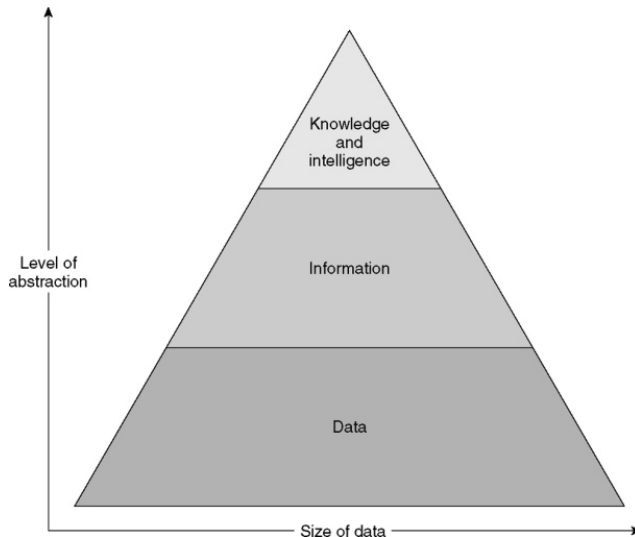


Figure 2-2: Pyramid of abstraction (Loshin 2003)

Reviewing the literature on BI gives several interesting insights and slightly different definitions on the subject (March and Hevner 2007; Hamer 2005; Thierauf 2001; Rodenberg 1999). Notable, all the definitions are based on collecting, interpreting, analyzing and disseminating information as knowledge to users, who can act upon it. A definition by Loshin (2003) covers all the relevant information on BI given in the current literature: “Business Intelligence are the processes, technologies, and tools needed to turn data into information, information into knowledge, and knowledge into plans that drive profitable business action. Business intelligence encompasses data warehousing, business analytic tools, and content/knowledge management.”

2.1.2 Business Intelligence System

Now knowing what BI includes, the time has come to discuss the technologies and tools of the system supporting BI. Figure 2-3 shows a high level architecture for implementing BIS.

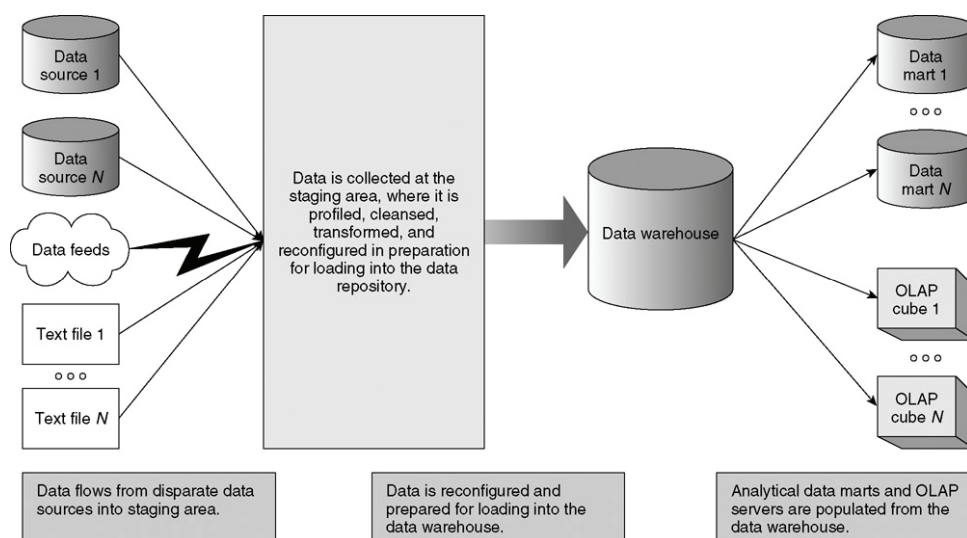


Figure 2-3: A high-level view of the information flow (Loshin 2003)

The BI-cycle starts with the collection of data from data sources, necessary to fulfill the need of information. This collected data is being interpreted and analyzed in the following step to transform it to information.

The data from data sources is loaded into a staging area. An Extract, Transform & Load (ETL) process extracts the data from the data sources, transforms the data from the heterogeneous platforms into a standard format for the Data Warehouse (DW) and loads this data into the DW (Moss and Atre 2003). This process involves the extraction of information from data.

The DW is a “subject-orientated, integrated, time-variant, non-up-datable collection of data used to support management decision-making processes and business intelligence” (Inmon 2002). The purpose of a DW is to establish a primary source of data that feeds the analytical environment within an organization (Kimball et al. 1998). Providing one source of data helps creating one version of the truth within its context that can be accessed in real-time.

From the DW the data is loaded into the analytical environment to populate analytical data marts and Online Analytical Processing (OLAP) servers. By loading the data into the analytical environment, the information can be analyzed and transformed to knowledge. Data marts are subject-orientated subsets of the data warehouse along with the analytical interfaces and tools that provide interface to the user (Loshin 2003). The data mart is fed with small amounts of subject-oriented data from the DW for a specific department or group within an organization.

OLAP presents data sources loaded from the DW (or data mart) in a way that allows an employee to view comparative indicators across multiple dimensions of the data. These indicators are summarized in a way that allows an employee to drill-down on any particular value or dimension (Loshin 2003). By drilling down on the data greater detail can be exposed. The reporting of information can be in the form of dials and charts,

spreadsheets and other interfaces depending on vendor and design choices of the organization (Cognos 2007). This information is used to support decision-making.

2.2 Corporate Performance Management

It is recognized that performance itself doesn't come with a simple definition. From an organizational view it is generally assumed that an organization that is performing well is one that actually will fulfill its objectives or will effectively implement an appropriate strategy (Otley 1999; Lebas 1995). Performance is looking for future potential, but based on knowledge created from data accumulated about the past. An overview of organizational performance is provided in figure 2-4. At the highest level all organizations are in business to achieve objectives. The activities to drive toward the objectives are guided by boundaries. These can be mandated or voluntary.

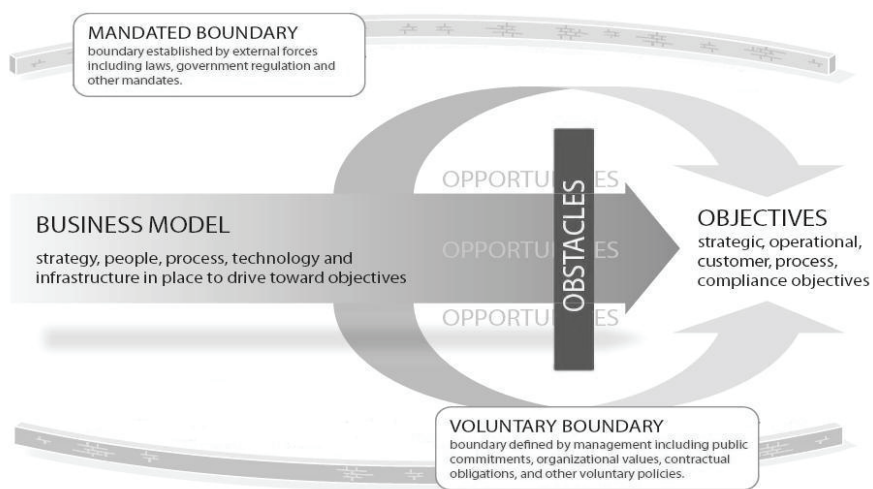


Figure 2-4: The big picture of organizational performance (adapted from Mitchell and Switzer 2007)

2.2.1 Performance Measurement

In the context of the article a quote by Lord Kelvin, “if you cannot measure it, it does not exist” (Lebas 1995), can be read as ‘you cannot manage what you cannot measure’. In order to manage a strategy an organization needs to use indicators to measure the achievement of objectives. These achievements are adversely impacted by obstacles (risks). Risk-taking is fundamental to an organization’s creation of value. Bernstein (1998) describes the place of risk in the system of performance as “the capacity to manage risk, and with it the appetite to take risk and make forward-looking choices, are key elements of the energy that drives the economic system forward”.

Traditional performance measurement systems have concentrated on the development of indicators mostly related to financial dimensions, excluding the non-financial dimensions due to the limited ability to measure these dimensions. Kloot and Martin (2000) show that the success of organizations is based on multiple dimensions, which change both over time and stakeholders. Dimensions are often differentiated as the results of a strategy or the

determinants of the success of the strategy. These dimensions suggest that there should be a strong linkage between the strategic plans and the performance measures.

In order to have a meaningful performance measurement process, an organization has to have clear objectives, formulated from the strategy. For any type of organization strategy, setting clear objectives is vital since objectives provide a mechanism for control. That is, they provide direction and ensure adjustments can be made if objectives are not met. Two widely used techniques for objective setting are CSF (Rockart 1982) and the Balanced Score Card (BSC) (Kaplan and Norton 1992).

2.2.2 Definition Corporate Performance Management

The introduction of laws such as SOX and Basel II which require organizations to increase the transparency for managing financial and customer information and focus on good governance have greatly increased the significance of performance management systems in organizations the last decade. The second reason is the trend to improve control and profitability by the creation of approaches like the BSC. Organizations have understood the importance of enforcing achievement of the objectives defined by their strategy through metrics-driven management.

The current DW process within BIS supports bottom-up extraction of information from data necessary for decision-making, but lacks a capability for top-down enforcing of the organization strategy (Kopcke 2005; Golfarelli et al. 2004). A growing number of organizations have recognized that the management reports generated with BIS by themselves are no longer sufficient. The generated management reports must be tightly coupled with their strategic and operational planning processes to let managers set and share the strategy of the organization. This can be achieved by CPM (Kopcke 2005). The definition of CPM has been consistent since Gartner Research introduced the term in 2001 (Viaene and Willems 2007; Cognos 2005):

“CPM is an umbrella term that describes all of the processes, methodologies, metrics and systems needed to measure and manage the performance of an organization.”

CPM emerges from the current BI framework. CPM includes DW, multidimensional analysis and OLAP, but it also requires a reactive component capable of monitoring the operational processes to allow tactical and operational decision-makers to adjust their decisions and following actions according to the strategy of the organization (Kopcke 2005; Golfarelli et al. 2004). The aim of CPM is to integrate a number of applications into a single environment that includes all the necessary elements of performance management.

2.3 Governance, Risk and Compliance

Initial interest in Governance, Risk and Compliance (GRC) was driven by the SOX act, but currently the perspectives of organizations in all industries on the components of governance, risk and compliance are maturing. Organizations are expanding their initiatives to embrace an integrated view on risk and compliance (Deloitte 2007; SAP 2006). The reason is that today's ever-changing business climate is complex and difficult to predict. At the same time organizations face unprecedented numbers of legal and

regulatory mandates, and increasing demand for board and executive accountability. Through these, obstacles and boundaries are created which have an adverse impact on achieving the objectives of the strategy.

The purpose of GRC is to provide sustainability, consistency, efficiency and transparency for the multiple governance, risk and compliance processes in the organization. This can be achieved by the cooperation among the roles responsible for GRC as well as leveraging a common framework and technology infrastructure. This involves the movement to an integrated organizational structure where GRC can be centrally overseen, but accountability is distributed to the organizational levels where it belongs (McClean and Rasmussen 2007). By becoming involved in an integrated strategy and employing an all-embracing GRC solution organizations can leverage common information, processes and systems to help them integrate governance, risk and compliance processes with performance management. McClean and Rasmussen (2007) name integrated GRC as the upcoming governance platform for defining, maintaining and monitoring risk. Without an integrated GRC strategy an organization is more vulnerable as the complexities and interdependencies of risk increase.

2.3.1 Definition Governance, Risk and Compliance

To effectively support decision-making and manage an organization all three components within GRC are needed, the components are linked and aligned (Rasmussen 2007; SAP 2006). For example good governance is achieved by proper risk and compliance management. GRC is not just about one role in the organization that is responsible for everything related to governance, risk, and compliance. The following definition of GRC as a whole is adapted from Forrester Research (Rasmussen 2007) and approved by Deloitte:

GRC is multiple processes working together in a common framework, collaboration or architecture to provide an organization overview of the information, processes, controls and evidence needed to effectively govern, manage risks and adhering to prevailing laws throughout the organization.

Next to governance, risk and compliance there are more processes playing critical roles in GRC. To understand the complete portfolio of processes related to GRC a summary is shown in figure 2-5.

SPELLING IT OUT

There are more processes than governance, risk and compliance playing critical roles in GRC, but 13-letter acronyms rarely catch on. To understand the complete portfolio of processes related to GRC, consider the following areas:

1. **Governance.** Processes typically executed by the board, corporate secretary and governance professionals including board management, stakeholder relations, evaluating performance against enterprise objectives, vetting strategy, risk oversight and so forth.
2. **Strategy.** Processes typically executed by the chief executive officer, c-suite as a whole and strategy professionals including setting strategy, designing balanced scorecards, managing corporate performance and the like.
3. **Risk Management.** Processes typically executed by the chief risk officer, business line and other executives including: identifying, assessing and managing all types of risk (e.g. strategic risk, financial risk, operational risk, compliance risk).
4. **Audit.** Processes typically executed by the chief audit executive, internal audit, audit committee and external auditors including managing internal audits, facilitating external audits, executing financial reporting, evaluating internal controls over financial reporting and other risks, and conducting investigations.
5. **Legal.** Processes typically executed by the general counsel and legal staff such as defining legal strategy, investigations, litigation and assisting with due diligence for mergers and acquisitions.
6. **Compliance.** Processes typically executed by the general counsel, chief compliance and ethics officer, compliance and legal professionals including compliance in areas such as: employment, environmental, government contracts, global trade, anti-fraud, anti-corruption, information privacy and security, sales practices, advertising and marketing.
7. **Information Technology.** Processes typically executed by the chief information officer, privacy officer and/or security officer including automating controls, managing electronic records, facilitating internal and external reporting, delivering electronic filings, securing information and ensuring privacy.
8. **Ethics and Corporate Social Responsibility.** Processes typically executed by the chief ethics officer and chief responsibility officer including managing the code of conduct, developing ethical leaders, promoting adopted principles and values, crafting public communications and reports and aligning incentives and human behavior.
9. **Quality Management.** Processes typically executed by quality professionals throughout the organization such as integrating "lean" thinking, Six Sigma or other techniques into all enterprise processes and conducting root cause analysis and process improvement projects.
10. **Human Capital and Culture.** Processes typically executed by human resource professionals and organizational design and development professionals including enhancing workforce capabilities, appraising individual and team performance, developing culture of performance, integrity, openness and accountability.

Figure 2-5: Spelling out GRC (Mitchell 2007a)

2.3.2 Maturity integrated GRC

Technology is assuming a key and enabling role in the process of integrating GRC and IT projects, priorities and processes are being increasingly driven by GRC considerations. This movement to an integrated organizational structure brings along uncertainty. IT strategies, architecture decisions and applications have not approached governance, risk and compliance considerations in an integrated manner yet. Organizations have typically dealt with governance, risk and compliance needs in a fragmented and isolated fashion, manual and not sufficiently integrated with performance management (Dittmar 2007; Mitchell 2007b). The technology is not adequately used to support governance, risk management or compliance, but is critical to GRC because IT can be the enabler of high quality information necessary for decision-making. The fragmented state of an infrastructure without integrated GRC is shown in figure 2-6.

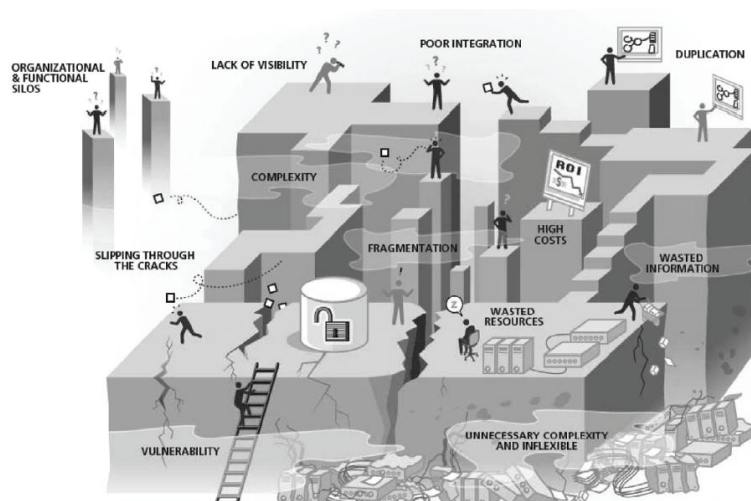


Figure 2-6: Fragmented state without integrated GRC (Deloitte 2007)

In this fragmented state information, processes and systems all live separate, silos-based lives within the organization. The result is a tangle of controls and practices buried inside

functional or geographic silos with numerous isolated activities. Silos within operations often create complexity and duplication of efforts and it leaves major gaps uncovered (Mitchell 2007b; SAP 2006). By the effective use of IT and architected solutions to embed GRC in mainstream processes and decision-making, organizations can create an enterprise wide, program based approach instead of a silos, project based approach. This possible future approach is visualized in figure 2-7.

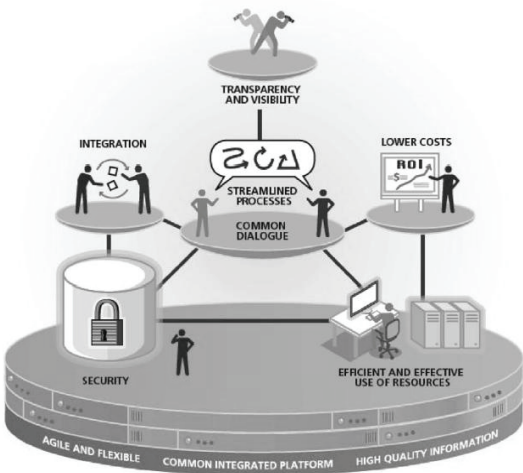


Figure 2-7: Future comprehensive state with integrated GRC (Deloitte 2007)

Figure 2-7 shows that a common integrated platform for GRC can offer organizations a framework for high quality information necessary for performance, compliance and risk management. This makes an organization more agile and flexible. Aligning the IT assets to support proactive risk management and compliance can offer much more direct and cost-effective means for an organization. But strategic adoption of IT for GRC takes time, as the integrated GRC Maturity Model in figure 2-8 makes clear.

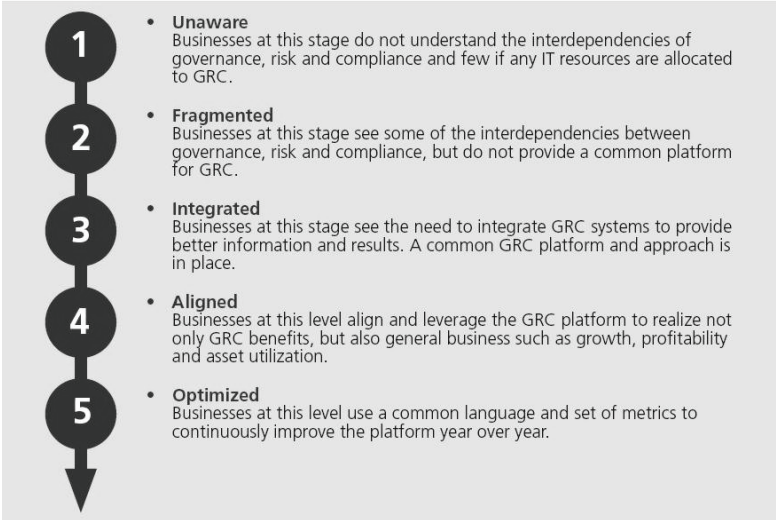


Figure 2-8: Integrated GRC maturity model (Deloitte 2007)

2.4 Relation BI, CPM and GRC

Despite investments in technology (to name BIS) to provide valuable information for decision-making some organizations still are not able to meet the information requirements to monitor risk, make informed decisions, drive strategic planning and ultimately drive future performance. Improved Information Quality (IQ) would allow managers to make better decisions (Dittmar and Vogel 2008; Lattner 2006).

Risk is a function of the complexity of doing business and the business environment. The complexities increase as the business or environment becomes more dynamic. It is important for organizations to look how they respond to these changes. Risk can be closely related to organizational performance, while these changes in complexity change or create new obstacles having an adverse impact on achieving objectives (Azvine et al. 2007).

Enterprise Risk Management (ERM) are actions undertaken based on the measurement of the achievement of business objectives. ERM can provide reasonable assurance of the extent to which objectives are achieved (COSO 2004). GRC extends traditional ERM by the integration of risk management in processes for better internal control (Buith 2008).

By utilizing technology to efficiently and effectively manage risk across the organization managers can become more intelligent about risks (Laurent 2006). This means embracing a broader and central overview of risk. Attaining this higher level of risk management is called Risk Intelligence (RI) (Dittmar and Kobel 2008). Resulting RI organizations move from managing risk as a transaction or compliance activity to adding business value by improving operational and tactical decision-making and strategic planning according to the organization strategy (Stiffler 2006). This capability of monitoring time-critical operational processes to allow decision-makers to tune their actions according to the strategy is required by CPM.

Figure 2-9 visualizes the relation between the GRC, IQ and the link to enterprise value. This figure is an adaptation of figure 2-4, visualizing the big picture of organizational performance.



Figure 2-9: GRC and enterprise value are linked

The overall relation of BI, CPM and GRC as explained in this chapter is summarized in figure 2-10.

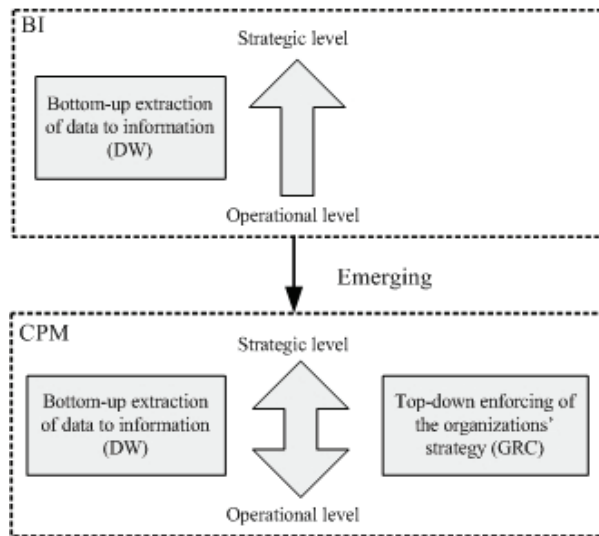


Figure 2-10: CPM emerging from BI

3. Research Design

3.1 Research Method

GRC is a relatively new concept in practice; therefore it turned out to be difficult to conduct a research to validate the prior literature empirically and propose the added value of integrated GRC on CPM. Hardly any organizations have started integrating GRC yet in their current infrastructure. The majority of the organizations are still in their orientating phase or just discovered the importance of GRC. Due to these maturity levels of integrated GRC in BIS it is hard to collect existing statistic or analytical evidence about the implications of integrated GRC. In order to validate the theory and propose the added value of integrated GRC on CPM an adapted application of the Delphi research method is used.

The Delphi method in general may be characterized as a “method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem” (Linstone and Turoff 2002). But according to Linstone and Turoff (2002) there are many different perspectives on the Delphi method and there is a diverse range of applications. For this article the application of the Delphi method as a systematic interactive forecasting method for obtaining forecasts from a panel of independent experts is good applicable due to the fact that GRC is a relatively new concept. The research question does not lend itself to precise analytical techniques, but can benefit from subjective judgments on a collective basis during a workshop. Next to that the time schedules of the experts necessary for the workshop and the costs make frequent group meetings infeasible.

The technique can be adapted for use in face-to-face meetings, and is then called mini-Delphi or Estimate-Talk-Estimate (ETE). The Delphi method has been widely used for business forecasting.

3.2 Research Design

The technique is adapted to an ETE for use in a workshop. During this workshop the Delphi method is used for forecasting the implications of integrated GRC on the organizational processes. The workshop is conducted during a yearly kickoff meeting of GRC as integrated service offering for Deloitte on the 27th of June 2008 in Amstelveen, the Netherlands. The workshop is composed of statements which are based on the prior literature. The prior literature explained the background of BIS, CPM, integrated GRC and summarized the relations. The statements are a summarization of points of interest within the prior literature giving an implication of the impacts on the internal organizational processes. The statements, classified by groups of interest, are shown in figure 3-1.

No.	Statement
Integrated approach	
1	An integrated approach for governance, risk and compliance processes results in better information quality.
2	An integrated approach for governance, risk and compliance processes is of more added value for organizations in dynamic environments than in static environments.
3	An integrated approach for risk management improves the quality of performed activities by employees more than a fragmented (silos) approach.
4	The benefits of an integrated approach will exceed the costs.
5	Only top management has the influence to realize an integrated approach.
6	Silos within operations often create complexity and duplication of efforts and it leaves major gaps uncovered.
7	An integrated approach emphasizes a central overview, but accountability is distributed to the organizational level where it belongs.
Automated internal controls	
8	Automated internal controls for governance, risk and compliance processes result in better information quality.
9	Automated internal controls are of more added value for organizations in dynamic environments than in static environments.
10	Automated internal controls improve the quality of performed activities by employees more than manual controls.
11	The benefits of automated internal controls will exceed the costs.
12	Only top management has the influence to realize automated internal controls.
Added value	
13	GRC moves an organization from managing risk as a risk or compliance activity to a business value adding activity.
14	GRC makes organizations more flexible.
15	GRC results in organizations that can react to risks and opportunities more alert (timely).
16	Implementing integrated GRC requires good change management.
17	Legal en regulatory mandates are the most important motives behind GRC programs.
Global	
18	Information Technology is having a key and enabling role across GRC processes.
19	BI/ERP implementations require knowledge and skills of a combination of: <ul style="list-style-type: none"> • Program and change management; • Internal controls; • Automated internal controls; • BI/ERP configuration; • Process improvements.
20	BI/ERP implementations require functionality to address: <ul style="list-style-type: none"> • KPI; • KRI.

Figure 3-1: Statements workshop

Usually a research based on the Delphi method undergoes four distinct phases (Linstone and Turoff 2002). The first phase is characterized by exploration of the subject under discussion, wherein each individual can contribute additional information. The subject under discussion, integrated GRC, has already been explored by the group of experts due to their daily practices.

The second phase involves the process of reaching an understanding of how the group views the issue, meaning where the experts agree or disagree. For this the experts were asked to anonymously give a rating on their agreement on the statements by the use of CLiCKAPAD, a radio frequency voting keypad. The rating outcome for each statement illustrates the level of agreement on a statement based on an expert's function and job title. The ratings to be chosen from are:

- Strongly Disagree;
- Somewhat Disagree;
- Neither Agree or Disagree;
- Somewhat Agree;
- Strongly Agree.

Thirdly each statement is discussed after all the statements have been rated. This way a lot of additional information is gathered from the point of view of the experts. During this phase the underlying reasons for the differences are evaluated. For this the experts with deviated answers are asked to share their explanation. This offers the possibility of a discussion.

The last phase, phase four, is the final evaluation. During this phase the experts can anonymously rerate a statement based on all previously gathered information. It is believed that during this process the range of the answers decreases and the group converges towards the "correct" answer. This brings along another benefit, it increases the integrity of the answer (Babbie 2004).

3.2.1 Respondents

The original research design had three different respondent groups: academics with a scientific understanding of the GRC concept, end-users of BIS with integrated GRC and business experts on GRC. A consequence of GRC being a relatively new concept was to find people who were available and willing to participate in the workshop.

The original setup had to be adopted in such a way that just the business experts on GRC were able to validate the prior literature by the statements put up in the workshop. In order to prevent answers with a narrow point of view, the visions of a mixture of twelve business experts on GRC were used during the workshop. The functions present within Deloitte were Consulting, ERS and TAX. Due to this their vision and the implications of integrated GRC for their clients is different.

4. Results

Figure 4-1 presents the results of the conducted workshop. The figure shows the frequency of provided ratings per statement. The rating outcome for each statement illustrates the level of agreement assigned by the experts to the specific statement. A rating of:

1. Stands for "Strongly Disagree";
2. Stands for "Somewhat Disagree";
3. Stands for "Neither Agree or Disagree";
4. Stands for "Somewhat Agree";
5. Stands for "Strongly Disagree".

No.	Statement		1	2	3	4	5	Mean	SD
Integrated approach									
1	An integrated approach for governance, risk and compliance processes results in better information quality.	Total	-	2	1	5	4	3,92	1,08
		ERS	-	-	-	4	-		
		TAX	-	-	-	-	3		
		CONS	-	2	1	1	1		
2	An integrated approach for governance, risk and compliance processes is of more added value for organizations in dynamic environments than in static environments.	Total	-	5	1	5	1	3,17	1,11
		ERS	-	4	-	-	-		
		TAX	-	1	-	1	1		
		CONS	-	-	1	4	-		
3	An integrated approach for risk management improves the quality of performed activities by employees more than a fragmented (silos) approach.	Total	1	1	3	4	3	3,58	1,24
		ERS	-	-	-	1	3		
		TAX	-	-	1	2	-		
		CONS	1	1	2	1	-		
4	The benefits of an integrated approach will exceed the costs.	Total	-	1	4	6	1	3,58	0,79
		ERS	-	-	-	3	1		
		TAX	-	-	2	2	-		
		CONS	-	1	2	1	-		
5	Only top management has the influence to realize an integrated approach.	Total	2	4	2	1	3	2,92	1,51
		ERS	1	-	-	1	2		
		TAX	-	3	-	-	-		
		CONS	1	1	2	-	1		
6	Silos within operations often create complexity and duplication of efforts and it leaves major gaps uncovered.	Total	-	-	-	8	4	4,33	0,49
		ERS	-	-	-	3	1		
		TAX	-	-	-	1	2		
		CONS	-	-	-	4	1		
7	An integrated approach emphasizes a central overview, but accountability is distributed to the organizational level where it belongs.	Total	-	-	2	9	1	3,92	0,51
		ERS	-	-	1	2	1		
		TAX	-	-	-	3	-		
		CONS	-	-	1	4	-		
Automated internal controls									
8	Automated internal controls for governance, risk and compliance processes result in better information quality.	Total	-	-	2	9	1	3,92	0,51
		ERS	-	-	-	3	1		
		TAX	-	-	-	3	-		
		CONS	-	-	2	3	-		
9	Automated internal controls are of more added value for organizations in dynamic environments than in static environments.	Total	-	3	6	3	-	3,00	0,74
		ERS	-	2	1	1	-		
		TAX	-	1	1	1	-		
		CONS	-	-	4	1	-		
10	Automated internal controls improve the quality of performed activities by employees more than manual controls.	Total	-	2	4	3	3	3,58	1,08
		ERS	-	-	-	1	3		
		TAX	-	1	2	-	-		
		CONS	-	1	2	2	-		
11	The benefits of automated internal controls will exceed the costs.	Total	-	-	5	6	1	3,67	0,65
		ERS	-	-	-	3	1		
		TAX	-	-	3	-	-		
		CONS	-	-	2	3	-		
12	Only top management has the influence to realize automated internal controls.	Total	5	4	1	2	-	2,00	1,13
		ERS	3	1	-	-	-		
		TAX	1	-	1	1	-		
		CONS	1	3	-	1	-		

Added value									
13	GRC moves an organization from managing risk as a risk or compliance activity to a business value adding activity.	Total	1	1	2	5	3		
		ERS	-	-	-	1	3	3,67	1,23
		TAX	-	-	-	3	-		
		CONS	1	1	2	1	-		
14	GRC makes organizations more flexible.	Total	1	3	6	2	-	2,75	0,87
		ERS	-	2	1	1	-		
		TAX	-	1	2	-	-		
		CONS	1	-	3	1	-		
15	GRC results in organizations that can react to risks and opportunities more alert (timely).	Total	-	-	-	3	9	4,75	0,45
		ERS	-	-	-	1	3		
		TAX	-	-	-	1	2		
		CONS	-	-	-	1	4		
16	Implementing integrated GRC requires good change management.	Total	-	1	1	5	5	4,17	0,94
		ERS	-	-	-	3	1		
		TAX	-	-	-	1	2		
		CONS	-	1	1	1	2		
17	Legal en regulatory mandates are the most important motives behind GRC programs.	Total	1	2	3	5	1	3,25	1,14
		ERS	1	2	-	1	-		
		TAX	-	-	1	1	1		
		CONS	-	-	2	3	-		
Global									
18	Information Technology is having a key and enabling role across GRC processes.	Total	-	-	2	5	5	4,25	0,75
		ERS	-	-	1	1	3		
		TAX	-	-	1	2	-		
		CONS	-	-	-	2	2		
19	BI/ERP implementations require knowledge and skills of a combination of: <ul style="list-style-type: none"> • Program and change management; • Internal controls; • Automated internal controls; • BI/ERP configuration; • Process improvements. 	Total	-	-	1	6	5	4,33	0,65
		ERS	-	-	1	1	2		
		TAX	-	-	-	1	2		
		CONS	-	-	-	4	1		
20	BI/ERP implementations require functionality to address: <ul style="list-style-type: none"> • KPI; • KRI. 	Total	-	2	2	7	1	3,58	0,90
		ERS	-	-	-	3	1		
		TAX	-	-	1	2	-		
		CONS	-	2	1	2	-		

Figure 4-1: Workshop results

Next to the frequency of provided ratings the mean and Standard Deviation (SD) of the total results are included per statement. Especially while the Delphi method is focused on achieving a consensus, it requires a measure of the amount of dispersion of the data. Figure 4-2 shows a scatter chart with the mean of every statement. This figure provides insight in the average rating of agreement of a statement by the experts compared to the other statements.

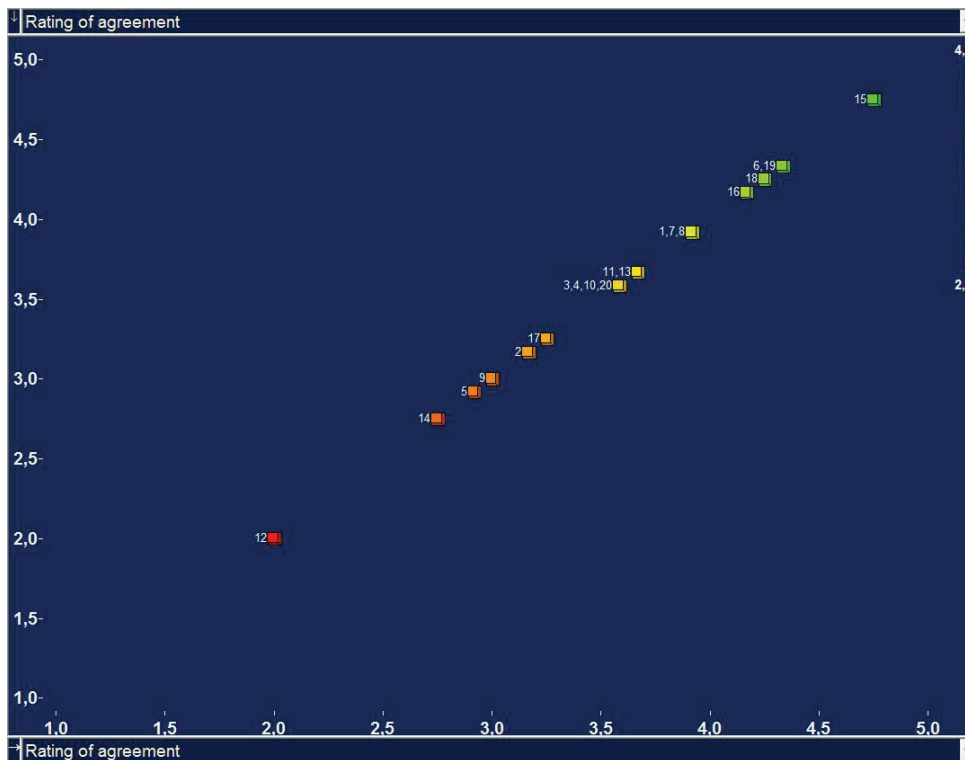


Figure 4-2: Scatter chart means rating of agreement

5. Analysis

5.1 Integrated approach

The results of this group show an interesting trend. At the start of the workshop the SD's of the ratings are quite big, but during the workshop the SD's mitigate. This can be explained by the fact that the understanding of the concept 'integrated approach' by the different experts was different. After the first round of voting some extreme ratings came up and a discussion resulted in three different views on an integrated approach:

- Overcoming a fragmented, silod approach;
- Embed GRC processes in day-to-day activities;
- Integrated approach by the functions ERS, Consulting and TAX on the subject of GRC.

According to the current literature the first two are valid views, but the last one was a complete misunderstanding. After explaining the core of the research this view was removed for further use in the workshop. The other two were both named as being part of an integrated approach. The overall trend of the SD's show that the understanding of an integrated approach grew during the workshop by the help of the explanations of the facilitator and the discussions between the experts.

To give an example of how these different views on an integrated approach would work out the discussion on statement five proves very useful. The experts who see an integrated approach as overcoming a fragmented, silod approach voted on the left side of the distribution. Every manager is able to realize an integrated approach in his own silo. The experts who combined the concept of an integrated approach with the second view would

vote on the right side of the distribution. To embed GRC in day-to-day activities a central overview would be necessary to avoid redundancy or duplication of efforts. Only top management has these capabilities.

5.1.1 Automated internal controls

As discussed above the concept 'integrated approach' was subject to different views by the experts. The concept of 'automated internal controls' on the other hand was generally understood and accepted by the expert group and not subject to any different view. This had a positive effect on the ratings by the experts, noticing the smaller SD's. Another reason for the smaller SD's is the more unambiguous agreement on the implications of automated internal controls.

By comparing the results from this group with the first group a lot of consensus shows on the ratings of agreement. The implications of both an integrated approach and automated internal controls are generally somewhat agreed on as there is hardly any difference between the means, but due to a more unambiguous rating the SD's for this group are generally smaller.

Statement five already provided an interesting discussion based on the understanding of the previous concept, statement twelve provides one on the rating of agreement compared to the rating of agreement on statement five. These are the only two statements in the first two groups where the ratings are on the negative, disagreement, side of the distribution and where the difference between the two means is significant. The expert group mostly somewhat disagrees on the statement five and mostly somewhat or strongly disagrees on statement twelve. It can be concluded that to realize core parts of GRC the influence of top management is not unique.

5.1.2 Added value

The SD's of statement fourteen until sixteen show a good consensus on the rating of agreement. Especially the SD of statement fifteen provides good insight on an important added value of GRC according to all the experts. It is more interesting to look at the differences in the ratings of statements thirteen and seventeen. These statements have more deviated ratings resulting in larger SD's. The overall trend of the ratings in this group is comparable to the trend in the first two groups.

The voting on statement seventeen results in a discussion about what is the most important motive behind GRC programs. Experts who voted on the negative, disagreement, side of the distribution state that not legal and regulatory mandates the most important motives are, but the ability to add value to the organization by doing business more effective and efficient. During the discussion it became clear that the different functions are still often focused at the boundaries established by external forces. These compliance requirements drove the initial interest in GRC according to the literature, but include only one part of figure 2-9 as opportunity to create enterprise value. Using this information on the maturity model in figure 2-8 the focus of these experts is at the first two levels, the same state as the current market operates in. Only a couple of experts point to the

opportunities to reward risk by becoming more risk intelligent. These experts are focused at maturity level three and four of the maturity model, providing an valuable integrated approach with better RI, compliance and performance management.

5.1.3 Summarization

These statements are a summarization and combination of the previous presented statements in the first three groups. Taking the mean and SD's in notice the group of experts mostly agree on the statements. This shows a better understanding of the concepts and the positive learning curve during the workshop. The consensus, as compelled by the Delphi research method, is reached.

After explaining the concept of an integrated approach during the voting on the first group of statements the experts mostly somewhat or strongly agree to the need of improving the IT infrastructure to support the integrated approach. By improving the IT infrastructure the need for high quality information necessary for decision-making can be fulfilled. Next, by the effective use of IT and embedded GRC processes organizations can overcome a fragmented, silod approach.

Statement nineteen lines up a summarization of considered aspects during the previous statements. Looking at the ratings of agreement in the previous groups, the mean and SD of this statement join in well. The experts generally agree on the required knowledge and skills and they do this unambiguously.

5.2 Recommendations for further research

This research provides insights in the implications of integrated GRC in BIS on CPM. These implications have been validated by the use of a workshop with only experts in the field of GRC. This due to the lack of knowledge outside the initiating organizations. But the market is rapidly becoming aware of GRC. During the research at least three books on GRC are published in April and May 2008 for the public market and the first results of an integrated approach on GRC are expected. A recommendation for further research could be to test and validate the statements by the use of academics having an interface with the field of GRC and end-users of BIS with integrated GRC. One of the questions that need to be addressed then is if the statements prove to be complete.

Another recommendation for further research could be investigating on how to accomplish the integration of GRC in BIS. To read and write about possible future implications of integrated GRC is one thing, but to manage how to integrate GRC in BIS and how to take care of the implications also requires a technical point of view. The integration of GRC requires time and technical improvements due to the complexity of the systems. For example systems communicate by different means of communication and interfaces. Furthermore an integrated approach also brings along the challenge of the alignment of the GRC strategy and implementation between these various systems. Another point of interest for this extended research could be the security of an integrated approach.

6. Conclusions

The prior literature on BI, CPM and GRC showed the basics and relations between these concepts and proposed possible, future implications of integrated GRC in BIS for organizations. The results from the empirical research show a certain degree of agreement on these proposed implications.

The first two groups of statements, mainly focused at an integrated approach and on automated internal controls, show a lot of consensus on the rating of agreement. The implications of both an integrated approach and automated internal controls are generally somewhat agreed on as there is hardly any difference between the means, but due to a better understanding of the concept the SD's for the second group are generally smaller. These two groups embrace the first twelve statements. According to the scatter chart in figure 4-2 all these statements are placed between a somewhat disagreement rating and a somewhat agreement rating, with the latter containing the major group of ratings. The third group of statements, mainly focused at the added value of integrated GRC, shows that the experts generally agree on the added value of GRC, but during discussions it became clear that the opportunities of added value are not carried by all the experts yet. They are not all looking at the possible steps in maturity for clients, for example rewarding risk by creating RI organizations. The scatter chart in figure 4-2 show that the statements embraced by the third group are placed between a neutral rating and a strongly agreement rating. Especially the added value of GRC making organizations more alert to risks and opportunities is one of the statements overall strongly agreed on.

The fourth group of statements, mainly focused at summarizing the global needs and implications of integrated GRC in BIS presented by the first three groups, shows the general agreement of the need and added value of integrated GRC and provides insight in the agreement of the required knowledge and skills when integrating GRC. This conclusion is visualized by the scatter chart in figure 4-2 where all the statements from the fourth group are placed between a somewhat agreement rating en strongly agreement rating.

It can be concluded that the present experts generally agree on the implications put forward by the current literature. The implications of an integrated approach and automated internal controls provide an organization possibilities to improve the performance of the organization by creating added value. This is mostly the result of possible improved IQ, improved quality of performed activities and more alert reactions to risks and opportunities. An integrated approach and automated internal controls are important due to the overlap in activities, controls and responsibilities, created complexity and duplication of efforts. The breadth and extent of the implementations are still under discussion.

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