Accountability:

Papers from master theses 2009

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ERASMUS UNIVERSITEIT ROTTERDAM
ERASMUS SCHOOL OF ECONOMICS

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Preface

Last year, we presented the book "Accountability 2008: papers from master theses". The book contained eleven papers. Each paper was 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.

We intended this book to be the beginning of an annual book series. The fact that you are now reading the preface of a second volume shows that this intention seems to become reality. In fact, we are confident that these two volumes are really the beginning of a series of books with papers of master theses in accounting. We have at least three reasons to be this confident.

First, we believe that the two purposes of starting this book series will remain as important in the future as they are now. These two purposes are 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" from earlier theses.

Second, as last year, the students who were invited to submit a paper for this year's edition, without any exception, were all very enthusiastic to contribute to this book. Even though they had already finished their master theses and received their master's degree, they were still willing to put in additional effort to turn their thesis into a paper that should not exceed 7.000 words. The fact that (almost) all contributors succeeded to not only do that but also before the deadline, shows that this book is seen as a good opportunity for students to disseminate the results of their master theses to a wider audience.

Third, despite the economic crisis, we found some sponsors for this book, which is promising for the future!

This year's edition contains thirteen papers, two more than last year. The majority of these papers deal with Financial Accounting, some with Management Accounting, and one paper deals with ICT aspects around management information systems. As such, the book reflects the diversity of topics and fields covered by the Accounting, Auditing & Control section of the Erasmus School of Economics. Additionally, this book also reflects the diversity in approaches to empirical research. But the common factor in all these papers is that they all serve as "good practices". We hope you enjoy reading them.

We thank the following organisations for their support which made this project possible (in alphabetical order):

- Ahold
- Deloitte
- Erasmus School of Accounting & Assurance (ESAA)
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Chris Knoops
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Accounting Conservatism and Earnings Management in the Banking Industry

The effect of discretionary loan loss provisions on conditional accounting conservatism in the United States banking industry for the period of 2002 to 2007

John Molenaar[1]

Executive summary

Previous studies have examined the relation between accounting conservatism and earnings management. Those studies conclude that accounting conservatism reflected in earnings is explained mostly by the accrual component of earnings instead of the cash flow component (Roychowdhury and Watts, 2006 and Pae, 2007). To measure earnings management, the accrual component of earnings is often used. Because of the different nature of accruals at financial firms, in prior research, financial firms were not included into the samples (Pae, 2007, p. 688). This research introduces an approach to examine this relation for banks. The findings indicate that US bank managers use their discretion over loan loss provisions (large accruals for banks) to manage earnings and influence conditional accounting conservatism into the managements' desired direction.

For a full text copy of this master thesis refer to the following webpage: http://hdl.handle.net/2105/5447.

1. Introduction

This research will introduce an approach to examine the relation between accounting conservatism and earnings management for banks. It provides empirical evidence about the contribution of bank managers' discretionary accounting practices to conditional accounting conservatism. This research should answer to the question whether earnings management in the banking industry is counterbalanced by accounting conservatism. Therefore, the research question is:

What is the association between conditional accounting conservatism and earnings management for the banking industry?

Moreover, this is an attempt to shed additional light on the accounting choices of bank managers related to accounting conservatism and earnings management. This could be an issue of empirical interest for this particular moment. The research could provide new insights into the period towards the economic crisis and the role of banks in this particular situation.

This article starts in section 2.1 with the content of the term accounting conservatism in general and in the banking industry. Section 2.2 explains the theory behind earnings management. Section 2.3 presents an explanation of the relation between accounting conservatism and earnings management. Finally section 2 ends with prior research designs to measure conservatism and earnings management (section 2.4). The hypotheses are presented in section 3. The research design and methodology is presented in section 4. In order to answer the main research question, section 5 will provide empirical result and the research analysis. Finally, in section 6, the conclusions will be presented and the limitations and suggestions for further research will be commented.

2. Prior literature

2.1 Accounting conservatism

Accounting conservatism is defined by Watts (2003, p. 208) as;"the differential verifiability required for recognition of profits versus losses. Its extreme form is the traditional conservatism adage: 'anticipate no profit, but anticipate losses'". This means that earnings are recognized when they are realized while losses are recognized immediately.

Accounting conservatism could be divided into unconditional accounting conservatism and conditional accounting conservatism (Beaver and Ryan, 2005, p. 269-270). Unconditional accounting conservatism is referred to as ex-ante or news-independent. In this case, the book value of net assets is understated due to predetermined aspects (adopted accounting methods and policies) of the accounting process; this is why unconditional conservatism is also called balance-sheets conservatism. Conditional accounting conservatism is ex-post or news-dependent or also referred to as earnings conservatism. Conditional accounting conservatism refers to the application of accounting methods and policies that recognize bad news in earnings on a timelier basis that good news. Pae (2007, p. 684) explains the difference with two examples:
 "Unconditional accounting conservatism include the immediate expensing of advertising and research and development expenditures, and the historical cost accounting for positive net present value projects (…) conditional accounting conservatism include the application of the lower of cost or market rule for inventory, the impairment test of long-lived assets, and the asymmetric treatment of contingent losses versus contingent gains".

To investigate the use of conservatism empirically, the theoretical three-links framework (Ohlson, 1995; Feltham and Ohlson, 1995 and Nichols and Wahlen, 2004) of linking accounting earnings to share prices could be used. The theory assumes that current accounting earnings provide information to develop expectations about future accounting

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earnings. These current and expected future accounting earnings determine expected future dividends. Finally, the share price consists of the present value of all expected future dividends. This framework links theoretically, accounting earnings to firm value.

Basu (1997, p. 3) uses this framework to link accounting earnings with share prices in order to measure conditional accounting conservatism. He interprets conservatism as accounting earnings reflecting 'bad news' (measured by negative stock returns) more quickly than 'good news' (measured by positive stock returns). Consequently, he documents that bad news in earnings are recognized on a timelier basis than good news. Pope and Walker (1999, p. 54) extend Basu's observations by developing new measures of conservatism by examining both earnings before extraordinary items and after extraordinary items.

Nichols et al (2008) investigate the subject of implications of conditional conservatism in bank accounting. Consistent with Liu and Ryan (1995, p. 78), Nichols et al. (2008, p. 90-91) use loan loss provisions relative to changes in non-performing loans as a measure for conservatism at banks. Several dimensions of loan loss accounting at banks reflect banks' credit risk management, which is an important element for the profitability. Moreover, loan loss accounting has a material effect on income statement items and on the balance sheet and captures a substantial degree of management estimations. Consequently, looking at loan loss accounting should be the way to investigate preferences for conservatism, according to Nichols (2008, p. 91).

2.2 Earnings management

Ronen and Yaari (2008, p. 26) present a formal definition[2] of earnings management: *"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".*

In previous literature, earnings management is also referred to as accounts manipulation. Accounts manipulation is mainly due to the desire of management to influence the wealth transfers between the various stakeholders (Stolowy and Breton, 2004, p. 6). Stolowy and Breton describe a model (2004, p. 7-8) in which possibilities of wealth transfers between several stakeholders are outlined. The stakeholders involved in this model are the company itself, society, fund providers and managers. Depending on the actions of the manager, the firm or the manager benefits from the wealth transfer.

Previous studies regarding earnings management at banks measure earnings management, consistent with conservatism, via loan loss provisions (single accounting item approach) because these are relatively large accruals for commercial banks[3] (Ahmed et al., 1999, p. 2). Beaver and Engel (1996, p. 178) divide loan loss accounting in a discretionary and

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[2] Derived from Healy and Wahlen (1999, p. 368).

[3] Accruals are a measure for earnings management.

nondiscretionary part. They find that the discretionary part of loan loss provisions is positively related to earnings, which means that banks do use loan loss provisions to manage earnings. Cornett et al. (2006, p. 10-11) conclude that, as the level of bad loans increases (= non-discretionary), managers do not record discretionary loan losses because it would decrease the bank's income even more, which implies bank managers to use discretionary loan loss provisions to manage earnings. Another implication for earnings management is that the use of discretionary loan loss provisions to increase earnings is significantly related to the fraction of shares owned by the banks managers.

2.3 General relation between accounting conservatism and earnings management

According to Watts (2003), opportunistic financial reporting is counterbalanced by accounting conservatism. Regarding information asymmetry, there is a need for verifiable accounting reports. Given the asymmetric information and payoffs between several parties involved, conservatism should, in theory, aid in efficient contracting between the firm and its stakeholders. Pae (2007, p. 685) explains that due to higher litigation costs, managers have incentives to understate earnings by expediting the recognition of bad news rather than good news. Management's discretion over accruals in that case leads to an increase in the level of accounting conservatism. On the other hand, the bonus incentive for managers leads to postponing or hiding bad news to achieve their bonus-plan goals. This will decrease the level of earnings conservatism. Consequently, in theory, the relation between earnings management and accounting conservatism is that opportunistic financial reporting is counterbalanced by accounting conservatism.

García Lara et al. (2005) investigate empirically the effects of earnings management on accounting conservatism directly. This relation is measured using the Basu (1997) model to measure conservatism and the Jones (1991) model to measure earnings management by partitioning total accruals in discretionary and non-discretionary accruals. Ball and Shivakumar (2006) study the relation between conditional accounting conservatism and earnings management also by investigating the role of accruals on the asymmetric timeliness of the recognition of gains and losses. They conclude that there is a major role for accounting accruals in recognizing gains and losses more timely, so before actual cash flow is realized and that, consistent with Basu (1997), accrued loss recognition is more prevalent than accrued gain recognition.

Pae (2007, p. 685) explains that, on one hand, managers have incentives to understate earnings by expediting the recognition of bad news and on the other hand, the bonus incentive is to postpone or hide bad news that will decrease the level of conditional conservatism. He tests empirically the impact of earnings management on conservatism. Pae (2007, p. 685) decomposes total accruals into non-discretionary (expected) and discretionary (unexpected) components and examines the relative contribution of expected and unexpected accruals to conditional accounting conservatism. Pae's results suggest that conditional accounting conservatism is primarily linked to the discretionary (managed) part of accruals rather than non-discretionary (unmanaged) accruals.

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2.4 Prior research designs

2.4.1 Measuring accounting conservatism

Basu (1997, p. 290) measures conditional accounting conservatism by using the asymmetric standards for the verification of losses and gains which causes bad news (negative stock returns) to be more reflected in current earnings than good news (positive stock returns).

Nichols et al. (2008, p. 110-111) examines conservatism in the banking industry using loan loss provisions. Loan loss provisions are accrued expenses that are estimates of changes in expected future losses in the loan portfolio due to credit risk. Loan loss provisions reduce the net loans on the balance sheet and these loan loss provisions consequently increases loan loss allowances (which reflect the total amount of expected future loan losses).

Nichols et al. (2008, p. 111) state that the asymmetric timeliness of news reflected in earnings changes is traced to conservatism in several earnings components. Change in net income is decomposed in two parts: (1) change in earnings before loan loss provisions and (2) change in loan loss provisions. The focus of the regression analysis is on the persistence of change in loan loss provisions. An indication for conditional conservatism is that bad news about credit losses is assumed to have lower persistence and good news should have higher persistence.

2.4.2 Measuring earnings management

Because accruals are relatively large items that are subject to management's discretion, according to Healy (1985), and McNichols (2000), accruals are often used as a measure of earnings management. To measure earnings management, the development of accruals over a particular period is investigated. If management uses its discretion over accruals, for example, by overstating its accruals in the first period, the second period should, due to the nature of accruals, present a correction on this by a significant decrease in accruals.

A generally used approach in earnings management literature is the Jones model. Conceptually, total accruals ($TACC$) are decomposed into non-discretionary ($NDACC$) and discretionary accruals ($DACC$). The difference between total accruals and non-discretionary accruals is the discretionary component. In other words, discretionary accruals are the prediction error in the Jones (1991) accruals model.

Jones uses a two-step approach. First, a cross-sectional regression is performed for total accruals ($TACC$). Total accruals ($TACC$) are measured as the change in non-cash working capital plus depreciation and amortization[4]. Jones then regress total accruals on the change in sales and property, plant and equipment.

$$(1) \quad TACC_t/TA_{t-1} = B_0 \, (1/TA_{t-1}) + B_0 \, (\Delta REV_t/TA_{t-1}) + B_2 \, (PPE_t/TA_{t-1}) + \varepsilon_t$$

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[4] TACC = Δ(CA-CASH) - Δ(CL-CBORR) – (DEP+INT). CA is total current assets, CASH is total cash and equivalents, CL is current liabilities, CBORR is borrowings repayable within 1 year, DEP is depreciation, and INT is amounts written off intangibles.

Where *TA* is total assets, *ΔREV* is the change in revenue and *PPE* is property, plant and equipment. *ΔREV* and PPE control for the non-discretionary part of total accruals since those items are associated with changes in operating activity and level of depreciation.

The second step is to use these industry-year parameter estimates from the previous equation (1) to divide the total accruals into a discretionary part (*DACC*) and a non-discretionary part (*NDACC*). Non-discretionary accruals (*NDACC*) are the predicted part of total accruals and discretionary accruals (*DACC*) are the residual resulting from this regression.

(2) $DACC_t = TACC_t / TA_{t-1} - NDACC_t$

(3) $DACC_t = TACC_t / TA_{t-1} - [B_0 (1/ TA_{t-1}) + B_1 (\Delta REV_t / TA_{t-1}) + B_2 (PPE_t / TA_{t-1})]$

B_0, B_1 and B_2 are the industry-year parameter estimated in regression (1).

According to prior literature, bank's earnings changes could be decomposed into changes in earnings before loan loss provisions and changes in loan loss provisions. Since loan loss provisions have a relatively large discretionary impact on earnings, loan loss provisions is used to measure earnings management (Nichols et al., 2008, p. 111).

Ahmed et al. (1999, p. 11-12) regress loan loss provisions, amongst others, on changes in non-performing loans divided by average loans outstanding and earnings before taxes and loan provisions divided by average total asset, because these are relatively nondiscretionary components, following the approach of Nichols et al. (2006, p. 113). By doing this, the discretionary components of loan loss provisions can be distilled. Because loan loss provisions have a discretionary part, which is subject to management's estimations and judgments (Liu and Ryan, 1995, p. 80), earnings management can be measured by examining the relation between earnings and loan loss provisions.

2.4.3 Measuring the relation between accounting conservatism and earnings management

Pae (2007, p. 686), Garia Lara et al. (2005, p. 704) and Roychowdhury and Watts (2007, p. 10) expect, according to Basu (1997), the asymmetric standards for the verification of losses and gains to cause bad news (negative stock returns) to be more reflected in current earnings than good news (positive stock returns). This principle is expressed in the following regression (Basu, 1997):

(4) $E_t / P_{t-1} = a + \beta R_t + \eta D + \gamma R_t D + \varepsilon_t$

E_t is annual earnings per share, P_{t-1} is the beginning-of-fiscal-year market value of equity, R_t is concurrent stock returns, and $R_t D$ is an indicator variable that equals one if R_t is negative and zero if R_t is positive. According to the Basu (1997) model, *β* measures the response of earnings to positive returns, while *(β + γ)* measures the response when returns are negative. As stated before, conservatism means that earnings reflect 'bad news' more

quickly than 'good news' implying that *(β + γ) > β,* which means that *γ > 0.* Basu (1997) calls *γ* the asymmetric timeliness coefficient.

Pae (2007, p. 686-687) and García Lara et al. (2005, p. 706-708) state that the relative contribution of earnings components or the relative contribution of expected (non-discretionary) and unexpected (discretionary) accruals to conditional accounting conservatism, reflected in earnings, could be inferred by substituting earnings components for E_t in regression (4). In this case, respectively CF_t for cash flows, ACC_t for accruals, or non-discretionary and discretionary accruals. By doing this, the effect of earnings management can be determined since accruals is the measure for earnings management, in particular discretionary accruals. These non-discretionary and discretionary accruals are estimated from the Jones (1991) model.

The differential timeliness of earnings and earnings components is estimated by a regression of earnings and its components, cash flows and its accruals (expected and unexpected), on concurrent stock returns (Pea, 2007, p. 691). The level of conditional accounting is measured by the coefficient estimate *γ,* which indicates the timeliness of earnings and its components, between bad news and good news. Earnings management is measured by the ratio of *γ* for accruals and discretionary accruals to earnings.

3. Hypotheses

After the previously enumerated and explained theory and empirical literature, hypothesis regarding the relation between conditional accounting conservatism and earnings management can be developed.

As commented in the previous section, Basu (1997) uses the rate of stock returns to find evidence of the existence of accounting conservatism reflected in earnings at non-financial US firms. He documents that bad news in earnings are recognized on a timelier basis than good news. Extending this conclusion to the banking industry results in the expectation of existence of earnings conservatism in the banking industry as well. Moreover, Nichols et al. (2008) concludes that banks use conditional conservatism as well. This hypothesis is strengthened by the conclusion of Nichols at al. (2008) that publicly traded banks exhibit a greater degree of conditional accounting conservatism. This implies a greater chance of concluding existence of conservatism at publicly traded banks.

> *H_1:*
> *Conditional accounting conservatism does exist in the banking industry.*

Beatty et al. (1995, p. 249) finds that the discretionary part of loan loss provisions is positively related to earnings, which means that banks do use loan loss provisions to manage earnings. On the other hand, Watts (2003) states that, to achieve efficient contracting a demand exists for verifiable accounting reports. Based on the asymmetric information and payoffs between several contracting parties, the use of accounting conservatism should aid in efficient contracting between the firm and its stakeholders. Consequently, there is a need to limit opportunistic (biased) reporting by firms.

Pae (2007, p. 685) explains that due to higher litigation costs, managers have incentives to understate earnings by expediting the recognition of bad news than good news which leads to an increase of the level of accounting conservatism. The bonus incentive for managers leads on the other hand to postponing or hiding bad news to achieve their bonus-plan targets that decrease the level of earnings conservatism.

Since earnings management is measured via discretionary loan loss provisions, the hypothesis regarding the relation between earnings management and earnings conservatism is that opportunistic financial reporting using loan loss provisions is counterbalanced by accounting conservatism.

H_2:
Discretionary loan loss provisions do not contribute to conditional accounting conservatism reflected in earnings.

4. Research design

In this section, the methodology used for the empirical part of this research is presented and explained. The first part will introduce the type of research. Then the research model is explained. Finally, the data sample used for this research is presented.

4.1 Type of research

According to Baarda and de Goede (2001, p. 90) an examination-based, or also as referred to evaluative research, should be performed to research with the previously described objective. Because, to investigate expectations and relations between different concepts, the expectations should be tested by comparing related theory and empirical data. This means that, to begin with, expectations should be expressed in one or more hypotheses. These hypotheses are based on related theory and previous (empirical) literature (Baarda and de Goede. 2001, p. 91). During the research, the hypotheses are tested with empirical data. The aim is to investigate whether the hypothesis are true or false. Based on the comparison of the hypothesis with empirical data conclusions can be drawn. Verschuren en Doorewaard (2007, p. 292) state that examination-based research is often used for empirical investigation. According to them, this kind research is quantitative because particular numerical relations are being investigated, also referred to as statistical research. Therefore, statistical methods should be used in order to conclude whether the hypotheses are empirically significant[5].

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[5] Statistical significant means that the probability that your conclusions are based on coincidence is lower that 1%, 5% or 10% (Baarda and de Goede, 2001, p. 371).

4.2 Research model

4.2.1 Conditional accounting conservatism

To determine the existence of the conditional conservatism reflected in earnings, the Basu (1997) model is used, consistent with García Lara et al. (2005) and Pae (2007). Conditional accounting conservatism (according to Basu 1997) is the timeliness of earnings with respect to stock returns and is inferred based on the regression in the previous sections:

(1) $E_t / P_{t-1} = a + BR_t + \eta D + \gamma R_t D + \varepsilon_t$

As explained before, the B parameter measures the response of earnings to positive returns, while $(B + \gamma)$ measures the response when returns are negative. Conditional conservatism, consistent with García Lara et al. (2005) and Pae (2007), is interpreted as earnings reflecting 'bad news' on a timelier basis than 'good news'. This means that the coefficient estimates for bad news $(B + \gamma)$ should be higher than the coefficient for good news B. This implies that if earnings conservatism exists, γ should be greater than zero[6]. Consequently, γ is the asymmetric timeliness coefficient.

To measure the association between conditional conservatism and earnings management the Basu (1997) model will be used again (García Lara et al., 2005 and Pae, 2007) but loan loss provisions (*LLP*) is distilled as a separate earnings component (Nichols et al., 2008, p. 111). In order to measure the association between that earnings component which is expected to be managed, the disentangling loan loss provisions are necessary. This component is, according to previously described literature, the loan loss provisions. The regression to measure the contribution of the loan loss provisions component to level of conditional accounting conservatism is the following.

(2) $LLP_t / P_{t-1} = a + BR_t + \eta D + \gamma R_t D + \varepsilon_t$

Consistent with Pae (2007, p. 691-692) and the content of the previous paragraph, the degree of conditional earnings conservatism is measured by γ, the difference in timeliness of earnings, or its components, between bad news and good news.

4.2.2. Earnings management

According to the Jones model (1991), to disentangle the effect of earnings management a cross-sectional regression on the total loan loss provisions (*LLP*) will be executed. In the first step, total loan loss provisions (*LLP*) are estimated, consistent with Nichols et al. (2008, p. 113-114), by the following regression model:

(3) $LLP_t = B_0 + B_1 NPL_t + B_2 NCO_t + B_3 LLA_t + B_4 HOMP_t + B_5 CAPRAT_t + \varepsilon_t$

NPL are the non-performing loans and *NCO* is the net charge-offs. *LLA* is loan loss allowances, *HOMP* is the homogeneous loans (family loans plus consumer loans), and

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[6] If $(B + \gamma) > B$, then $\gamma > 0$.

CAPRAT is the tier one risk based capital ratio[7]. According to Nichols et al., (2008, p. 114) managers' expectations of loan losses (which are reflected in loan loss provisions) are based on delinquent loans (*NPL*). Loan loss provisions are also related to loan charge-offs (*NCO*), which are realized loan losses.

According to Ryan (2007), it is expected that high LLA_t imply lower loan loss provisions because of over-reservation. Liu and Ryan (2006) state that banks with higher $HOMP_t$ have lower loan loss provisions because; "*banks recognize provisions for these types of loans in the first year using statistical methods to estimate future loan losses, resulting in lower provisions later in the lives of these loans*". In order to absorb potential loan losses, banks with greater credit risk in the loan portfolio maintain higher capitalization levels, implying a positive relation between $CAPRAT_t$ and LLP_t. These last three variables (LLA_t $HOMP_t$, and $CAPRAT_t$) are included to control for differences in expected loan loss provisions across banks (Nichols, 2008, p. 114).

Because it is assumed that, on average, there is no earnings management in the industry as a whole, for the second step following the Jones (1991) model, these industry-year parameter estimates from equation (3) are used to divide the *LLP* into a discretionary part (*DLLP*) and a non-discretionary part (*NDLLP*). *NDLLP* is the predicted[8] part of *LLP* and *DLLP* is the residual resulting in this regression:

(4) $NDLLP_t = B_0 + B_1 NPL_t + B_2 NCO_t + B_3 LLA_t + B_4 HOMP_t + B_5 CAPRAT_t$

(5) $DLLP_t = LLP_t - NDLLP_t$

$DLLP_t = LLP_t - [B_0 + B_1 NPL_t + B_2 NCO_t + B_3 LLA_t + B_4 HOMP_t + B_5 CAPRAT_t]$

B_0, B_1, B_2, B_3, B_4 and B_5 are the estimated parameters in the regression (3).

4.2.3 Conditional accounting conservatism and earnings management

To determine the ratio of the part of the conditional accounting conservatism that is explained by the discretionary component of the loan loss provisions (*DLLP*) and the part explained by the non-discretionary part of the loan loss provisions (*NDLLP*), an analysis will performed on the differential timeliness parameter *NDLLP* and on *DLLP* (regression 6 and 7).

(6) $NDLLP_t = a + BR_t + \eta D + \gamma R_t D + \varepsilon_t$

(7) $DLLP_t = a + BR_t + \eta D + \gamma R_t D + \varepsilon_t$

This last step is to measure the contribution of earnings management to conditional accounting conservatism. On the next page, in the figure an overview is presented of the structure of this research.

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[7] The capital ratio is the percentage of a bank's capital to its risk-weighted assets.

[8] Predicted by regression (3).

Figure 4.1

Overview of research model

$$E_t / P_{t-1} = a + BR_t + \eta D + \gamma R_t D + \varepsilon_t$$

UNMANAGED
Earnings before loan loss provisions

POSSIBLY MANAGED (LLP_t)

$$LLP_t / P_{t-1} = a + BR_t + \eta D + \gamma R_t D + \varepsilon_t$$

$$LLP_t = B_0 + B_1 NPL_t + B_2 NCO_t + B_3 LLA_t + B_4 HOMP_t + B_5 CAPRAT_t + \varepsilon_t$$

$$NDLLP_t / P_{t-1} = a + BR_t + \eta D + \gamma R_t D + \varepsilon_t$$
$$NDLLP_t / P_{t-1} = B_0 + B_1 NPL_t + B_2 NCO_t + B_3 LLA_t + B_4 HOMP_t + B_5 CAPRAT_t$$

$$DLLP_t / P_{t-1} = a + BR_t + \eta D + \gamma R_t D + \varepsilon_t$$
$$DLLP_t / P_{t-1} = LLP_t / P_{t-1} - NDLLP_t / P_{t-1}$$
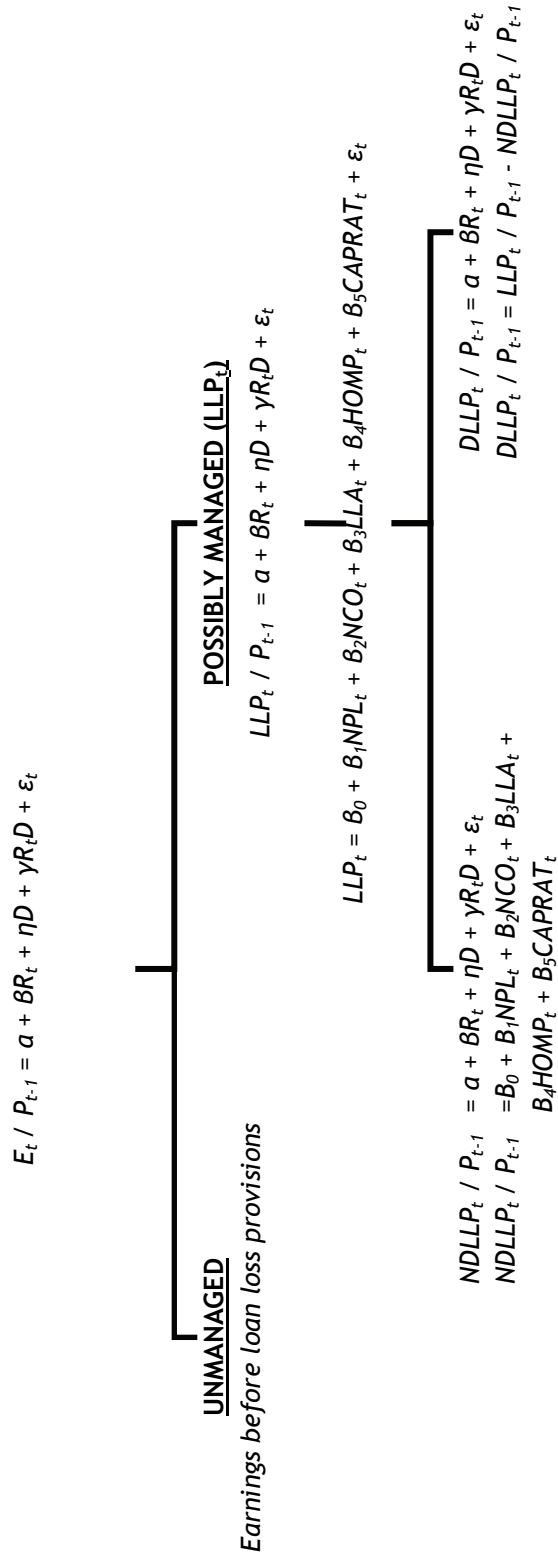
4.3 Data sample

The data used in this research will come from data of annual stock returns, accounting earnings, and loan loss provisions of 218 listed[1] banks in the United States for the period of 2000 to 2007. Datastream provides the data of annual stock prices. For the other data, the Bankscope database is used. Bankscope contains financial information of over 28,000 banks worldwide and captures balance sheet data and income and expenses as well as ratios and other annual financial data.

Table 4.1

Descriptive statistics

Panel A: Full Sample - 1.962 Observations

Variable	Mean	Standard Deviation	First Quartile	Median	Third Quartile
MV	3.486,51	20.487,14	88,35	196,34	608,41
R	0,094	0,307	-0,086	0,062	0,241
E	0,076	0,041	0,059	0,072	0,091
LLP	0,019	0,030	0,006	0,011	0,022

Notes:
MV = Market value of common equity.
R = Annual stock returns for the fiscal year.
E = Net income deflated by beginning-of-the-year market value of common equity MV.
LLP = Loan loss provisions deflated by beginning-of-the-year market value of common equity (MV).

Panel B: Full Sample - 1.962 Observations

Variable	Mean	Standard Deviation	First Quartile	Median	Third Quartile
LLP	87,42	707,94	0,80	2,28	6,88
NCO	81,82	632,06	0,43	1,48	5,80
HOMP	10.458,30	58.232,12	419,37	833,04	2.287,32
NPL	89,88	628,86	1,41	4,20	13,79
LLA	168,10	1.014,57	5,00	10,40	30,49
TL	10.292,14	57.243,53	536,72	1.033,90	2.725,93
TA	21.470,26	138.273,65	650,57	1.244,90	3.260,55
CAPRAT	12,20	3,81	10,20	11,60	13,00

Notes: All in mln. $
LLP = Loan loss provisions.
NCO = Net charge-offs.
HOMP = The amount of consumer loans.
NPL = Non-performing loans.
LLA = Loan loss allowances.
TL = Total liabilities.
TA = Total assets.
CAPRAT = The Tier 1 Capital ratio.

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[1] According to Nichols et al. (2008, p. 113) public banks use greater conditional accounting conservatism.

5. Results

5.1 Conditional accounting conservatism

Conditional accounting conservatism is measured by the difference in timeliness of earnings between bad news (negative stock returns) and good news (positive stock returns). This is expressed by the coefficient estimate on R_tD, which is y. Table 1 presents the regression results of this measure.

Table 5.1

Asymmetric timeliness of earnings

	Basu measure	
Dependent variable	*y*	*Sig.*
E	-0,124	0,000

Notes:

E =   Net income.

As presented in the table, *y* the mean differential timeliness estimate of earnings (*E*) from the regression is -0.124, which is significant at the 0.01 level. This indicates that the timeliness of bad news, represented as negative stock returns, is less than the timeliness of good news, represented in positive stock returns. Because *y* is smaller than zero, accounting earnings reflect bad news less quickly than good news, which means that bad news is recognized in earnings on a less timely basis than good news. Consequently, the conclusion would be that US banks were not conservative in the period of 2000 to 2007 and the first hypothesis should be declined. There is no conditional accounting conservatism in the banking industry in the period 2000 to 2007.

Because loan loss provisions is the earnings component that is expected to be managed, measuring the association between the conditional conservatism and earnings management, loan loss provisions are disentangled. The Basu (1997) model is re-run but accounting earnings (*E*) is substituted by its component loan loss provisions (*LLP*).

Table 5.2

Asymmetric timeliness of loan loss provisions

	Basu measure	
Dependent variable	*y*	*Sig.*
LLP	-0,020	0,068

Notes:

LLP =   Loan loss provisions.

Again, *y* is smaller than zero that means that loan loss provisions reflect bad news less quickly than good news. Consequently, the conclusion would be that in the researched period, US banks were not conservative regarding their loan loss provisions.

The non-conservative accounting policies can also be pointed out in the development of loan loss provisions in the period 2000 to 2007.

Table 5.3

Development of loan loss provisions

Year	Average LLP	Average NPL	LLP / NPL
2000	55	76	0,724
2001	95	98	0,969
2002	107	119	0,899
2003	78	97	0,804
2004	66	81	0,815
2005	84	67	1,254
2006	83	71	1,169
2007	180	148	1,216

Notes:

LLP =   Loan loss provisions.

NPL =   Non-performing loans.

Figure 5.1

Development of loan loss provisions
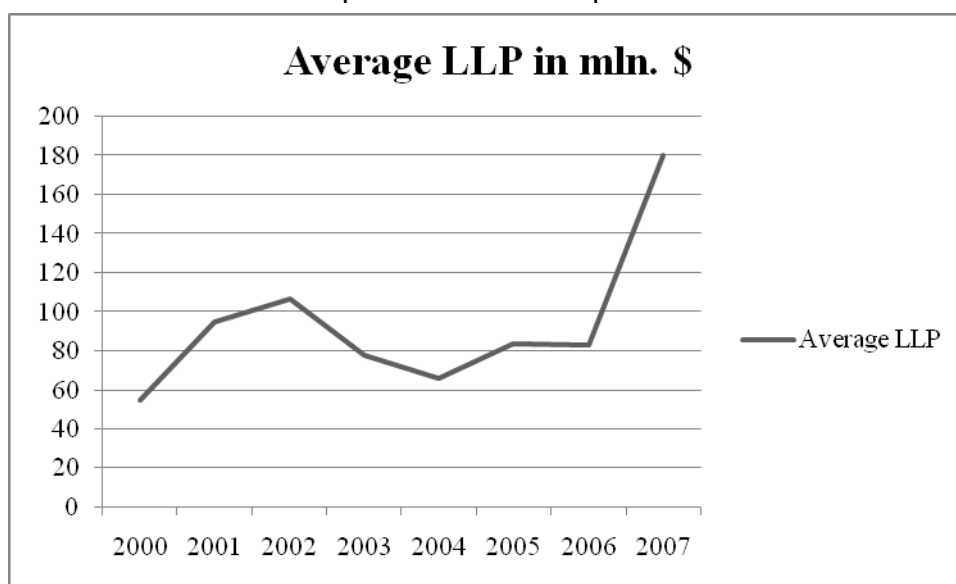
Figure 5.2

Development of loan loss provisions
related to non performing loans
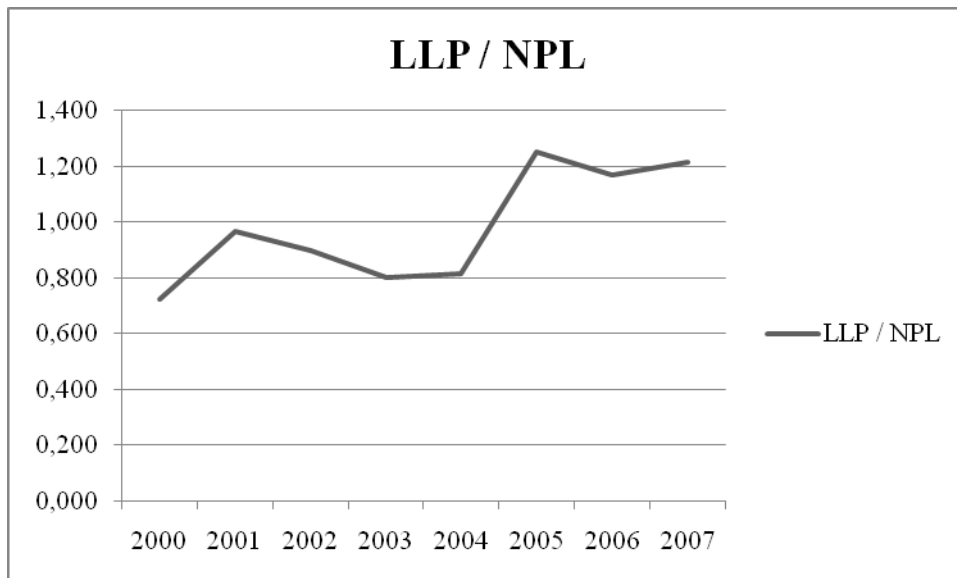
As presented in table 3 and in figure 1, in 2007 the average loan loss provisions significantly increased. This is an indication that the reported loan loss provisions in previous years were too low and that there was a need to correct for that in 2007. Another indication for earnings management, as shown in figure 2, is that in the period of 2000 to 2004, the average reported provisions where less than 100% of the average non-performing loans. This trend reversed in the period of 2005 to 2007 where the average reported loan loss provisions where more than 100% of the non-performing loans, which is again an indication for a correction on the previous period. These corrections are an indication for earnings management as referred to by McNichols (2000) and explained in section 2.

Because of using earnings management this non-conservative behaviour is expected. In the next sections, the influence of earnings management will be further investigated.

5.2 Discretionary loan loss provisions and conditional accounting conservatism

To disentangle the effect of earnings management the Jones model (1991) is used in order to determine which part of loan loss provisions is non-discretionary and which part is discretionary (managed). To recall the regression formula to estimate loan loss provisions:

$LLP_t = B_0 + B_1NPL_t + B_2NCO_t + B_3LLA_t + B_4HOMP_t + B_5CAPRAT_t + \varepsilon_t$

Table 5.4

Parameter estimates of LLP

Variable		Coefficient	Sig.
Constant	B0	-28,715	0,036
NPL	B3	0,38	0,000
NCO	B1	0,673	0,000
LLA	B4	-0,135	0,000
HOMP	B2	0,003	0,000
CAPRAT	B5	1,516	0,152

Notes:
NCO =   Net charge-offs.
HOMP =   Consumer loans.
NPL =   Non-performing loans.
LLA =   Loan loss allowances.
CAPRAT =   The Tier 1 Capital ratio.

Table 4 shows the parameter estimations of *LLP* resulting from the regression. According to the Jones (1991) model, these estimations determine what *LLP* should be, non-discretionary, not managed. This means that the discretionary, managed, part of *LLP* is the difference between the reported *LLP* and the estimated *LLP* from the regression. According to this regression and its estimated parameters, the amount of non-discretionary loan loss provisions can be expressed in the following formula:

$NDLLP_t = -28,715 + 0,38*NPL_t + 0,673*NCO_t - 0,135*LLA_t + 0,003*HOMP_t + 1,156*CAPRAT_t$

Next, an analysis will be performed on the non-discretionary loan loss provisions and the differences between the reported loan loss provisions.

In table 5, the average reported loan loss provisions (*LLP*) and the non-discretionary loan loss provisions (*NLLP*), resulting from the Jones regression, are presented.

Table 5.5

Reported and non-discretionary loan loss provisions

	Average
NDLLP	93,46
LLP	87,42
DLLP	6,04

Notes:
NDLLP =   Non-discretionary loan loss provisions.
LLP =   Loan loss provisions.
DLLP =   Discretionary Loan loss provisions.

Table 5 shows that the average reported loan loss provisions are lower than the expectation of loan loss provisions based on the regression (*NDLLP*). Consequently, because the reported loan loss provisions are lower than they should be this is an indication for not being conservative as well. Consequently, the conclusion, in accordance with the previous section, is that banks manage loan loss provisions downwards. This downward manipulation is not conservative.

5.3 Timeliness of discretionary and non-discretionary loan loss provisions

By decomposing loan loss provisions into discretionary and non-discretionary components, earnings management would be reflected in discretionary loan loss provisions. Earnings management could be understatement of expenses and overstatement of gains but unnecessary overstatement of expenses and understatement of gains as well.

An analysis is done on the differential timeliness parameter *NDLLP* and *DLLP* to determine the which part of conditional accounting conservatism is explained by the discretionary (managed) component of loan loss provisions (*DLLP*) and the part explained by the non-discretionary (unmanaged) part of loan loss provisions (*NDLLP*).

Table 5.6

Asymmetric timeliness of earnings, loan loss provisions and non-discretionary and discretionary loan loss provisions

	Basu measure	
Dependent variable	*γ*	*Sig.*
E	-0,124	0,000
LLP	-0,020	0,068
NDLLP	0,120	0,002
DLLP	-0,140	0,001

Notes:
E = Net income.
LLP = Loan loss provisions.
NDLLP = Non-discretionary loan loss provisions.
DLLP = Discretionary loan loss provisions.

Table 6 shows that 16% (-0,020/-0,124) of the differential timeliness of earnings with respect to earnings is explained by the loan loss provisions component of earnings. The rest of the table shows averages of the differential timeliness estimates of the non-discretionary (*NDLLP*) and discretionary parts of loan loss provisions (*DLLP*). Consistent with Pae (2007, p. 692), the sum of the differential timeliness of non-discretionary and discretionary loan loss provisions is the differential timeliness of loan loss provisions.

The average differential timeliness of discretionary loan loss provisions is -0,140. This indicates that discretionary loan loss provisions reflect bad news less quickly than good news, which means that bad news is recognized in discretionary loan loss provisions on a timelier basis than good news. The average differential timeliness of non-discretionary loan loss provisions is 0,120, which means that bad news is recognized in non-discretionary loan loss provisions on a timelier basis than good news. This all indicates that the part of loan loss provisions managers have discretion over, is managed into a non-conservative direction. The part of loan loss provisions managers cannot use their discretion is conservative. Consequently, the second hypothesis should be accepted; earnings management does not contribute to conservatism but is decreases conservatism.

Summarizing, when loan loss provisions are decomposed in a discretional and in a non-discretional part, the discretional part is managed non-conservative and in the non-discretionary part, conservatism is practiced. According to section 6.1.2 in 2007, the

average amount of loan loss provisions significantly increases. In the next section will be investigated what the influence of this increase is to the level of conservatism in the year 2007.

5.4 The year 2007

As presented in table 7, y the mean differential timeliness estimate of earnings (*E*) from the regression is 0.142, indicating that the timeliness of bad news for 2007 is higher than the timeliness of good news. This means that for 2007, in contrary to the average of period 2000 to 2007, bad news is recognized in earnings on a timelier basis than good news. The conclusion for 2007 would be that US banks were conservative in that particular year. This is consistent with the expectations of section 7.1.2 which presented that the amount of loan loss provisions significantly increased in 2007 in order to correct for non-conservative accounting practice in the period before.

Table 5.7

Asymmetric timeliness of earnings, loan loss provisions and
non-discretionary and discretionary loan loss provisions

	Basu measure	
Dependent variable	*y*	*Sig.*
E	0,142	0,502
LLP	0,073	0,505
NPLLP	0,033	0,828
DLLP	0,040	0,742

Notes:
E =   Net income.
LLP =   Loan loss provisions.
NDLLP =   Non-discretionary loan loss provisions.
DLLP =   Discretionary loan loss provisions.

The rest of table 7 shows the earnings component loan loss provision decomposed into discretionary and non-discretionary part. 51,4% (0.073/0.142) of the differential timeliness of earnings is explained by the differential timeliness of loan loss provisions. For *LLP*, y is now greater than zero that means that also loan loss provisions reflect bad news more quickly than good news in 2007. Consequently, for *LLP* the conclusion for 2007 would also be that US banks were conservative regarding their loan loss provisions.

The average differential timeliness of discretionary loan loss provisions for 2007 is 0,040. This means that bad news is recognized in discretionary loan loss provisions on a timelier basis than good news. The average differential timeliness of non-discretionary loan loss provisions is now 0,033, consequently in 2007 bad news is recognized in non-discretionary loan loss provisions on a timelier basis than good news.

The above results of 2007 indicates that the part of loan loss provisions managers have discretion over, is in 2007, in contrary with the period 2000 to 2007, managed into a conservative direction. The part of loan loss provisions managers cannot use their

discretion is conservative as well. Consequently, the conclusion would be that due to non-conservative behaviour, which is practiced by using earnings management regarding loan loss provisions, US bank managers had to correct for that in 2007 where the average amount of loan loss provisions increased significantly. This resulted in a conservative year 2007. These results and conclusions are consistent with the conclusions of McNichols (2000) and as explained in section 2.

6. Conclusions, limitations and recommendation for further research

6.1 Conclusions

Conditional accounting conservatism is measured by the difference in timeliness of earnings between bad news and good news. The results of previously performed research indicates that the timeliness of bad news, represented as negative stock returns, is less than the timeliness of good news, represented in positive stock returns. The conclusion was that US banks were not conservative in the period of 2000 to 2007. In other words, there was no conditional accounting conservatism in the banking industry in the period 2000 to 2007.

Loan loss provisions are the earnings component that is expected to be managed. Therefore, in order to measure the association between the conditional conservatism and earnings management, loan loss provisions are disentangled and measured in relation with conditional accounting conservatism. The results show that loan loss provisions reflect bad news less quickly than good news. This means that US banks were not conservative in the period of 2000 to 2007 regarding their loan loss provisions.

By decomposing loan loss provisions into discretionary and non-discretionary components (*NDLLP*), earnings management would be reflected in discretionary loan loss provisions (*DLLP*). The analysis on the differential timeliness parameters *NDLLP* and *DLLP* determined which part of conditional accounting conservatism is explained by the discretionary (managed) component of loan loss provisions and the part explained by the non-discretionary (unmanaged) part of loan loss provisions.

The average differential timeliness of discretionary loan loss provisions indicated that discretionary loan loss provisions reflect bad news less quickly than good news, which means that bad news is recognized in discretionary loan loss provisions on a timelier basis than good news. The average differential timeliness of non-discretionary loan loss provisions is indicated that bad news is recognized in non-discretionary loan loss provisions on a timelier basis than good news. Consequently, the conclusion is that the part of loan loss provisions managers have discretion over, is managed non-conservative direction and the part of loan loss provisions managers cannot use their discretion is conservative.

This conclusion is strengthened by the findings in the development of loan loss provisions in the period 2000 to 2007. In 2007, the average loan loss provisions significantly increased which indicated that the reported loan loss provisions in previous years were too low and

that there was a need to correct for that in 2007. Another indication for earnings management is that in the period of 2000 to 2004, the average reported provisions where less than 100% of the average non-performing loans. This trend reversed in the period of 2005 to 2007 where the average reported loan loss provisions where more than 100% of the non-performing loans, which is again an indication for a correction on the previous period. This reversion is an indication for earnings management as referred to in theory and empirical literature.

Investigating the year 2007 separately, indicates that the part of loan loss provisions managers have discretion over, is in contrary with the period 2000 to 2007, managed into a conservative direction. The part of loan loss provisions managers cannot use their discretion is conservative as well. This means that due to non-conservative behaviour, which is practiced by using earnings management regarding loan loss provisions, US bank managers had to correct for that behaviour in 2007. This resulted in a conservative year 2007.

According to the previous findings, the main research question could be answered. The main research question was, according to the introduction:

What is the association between conditional accounting conservatism and earnings management for the banking industry?

When loan loss provisions are decomposed in a discretional and in a non-discretional part, the part of loan loss provisions managers have discretion over, is managed into a non-conservative direction. The part of loan loss provisions managers cannot use their discretion is conservative. Consequently, the conclusion is that US bank managers use their discretion over loan loss provisions to manage earnings and influence conditional accounting conservatism into the managements' desired direction.

6.2 Limitations and recommendation for further research

This research examines the relation between accounting conservatism and earnings management. Consistent with prior research, loan loss provisions are used to measure earnings management because of the relatively large discretionary approach that is due to estimations of bank managers. During the recent credit crisis, banks played an important role by valuating their assets at fair value. Afterwards, it can be concluded that this fair value approach might not have been sufficient to present a true and fair view of the financial situation of the particular banks. Consequently, a limitation of this research could be the use of loan loss provisions to measure earnings management regarding banks. As seen in the results of this research, earnings components other than loan loss provisions could influence conservatism as well. The development of the credit crunch can put its light on other methods of earnings management used by bank managers. An example could be the use and valuation of special purpose vehicles. Moreover, financial instruments, in particular the qualification of these instruments, could be a method of earnings management used by bank managers as well. Nevertheless, identifying earning

management regarding the credit crunch is still very difficult. Many institutions do not have a proper explanation for what have happened and how it could have happened.

Therefore, further research can build on the possible limitation of using loan loss provisions as a measure of earnings management. New measures can be developed, maybe determined after the credit crunch is finished and it is clear what other methods bank managers used to manage earnings, causing the credit crisis.

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Earnings Management in the Banking Industry

The consequences of IFRS implementation on discretionary use of loan loss provisions

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Executive summary

Prior research suggests that banks have an incentive to smooth income through loan loss provisions (LLPs), but there has been no research on the effects of IFRS implementation on this. Using a sample of European banks and a single-stage regression that models the non-discretionary part of LLPs and tests for income smoothing I examine first whether the level of earnings management by banks through loan loss provisioning has decreased since the IFRS-adoption. And second, whether loan loss disclosure requirements are negatively related to banks' income smoothing. Results show that the level of earnings management has indeed decreased since IFRS adoption. However, evidence suggests that detailed disclosure requirements regarding loan loss accounting do not deter bank managers from using LLPs to their discretion for income smoothing.

For the full text of this master thesis refer to the following webpage:
http://hdl.handle.net/2105/5611.

1. Introduction

Banks and other financial institutions are often excluded from earnings management research because their characteristics differ fundamentally from other firms (Peasnell, Pope and Young, 2000). There have been previous empirical studies investigating earnings management by banks though. These studies have focused on loan loss provisions (LLPs) as a tool for earnings management. LLPs are a relatively large accrual for banks and therefore have a significant impact on earnings. The purpose of these provisions is to adjust banks' loan loss reserves to reflect expected future losses on their loan portfolios. Yet bank

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managers also have incentives to use these loan loss provisions to manage earnings (Ahmed et al., 1999, p. 2). To date though there have not been any studies investigating the effects of IFRS adoption on the level of earnings management by banks using loan loss provisions. IFRS was introduced in the European Union in 2005 to improve transparency and comparability of financial statements, and for banks specifically, detailed disclosures on loan losses are required under IFRS. The main research questions of this paper are derived from this:

'What is the effect of the adoption of IFRS on the level of earnings management by banks?'

And:

'What is the effect of loan loss accounting disclosure requirements on the level of earnings management by banks?'

This research contributes to accounting literature in a number of ways. First of all, to my knowledge this study is the first of its kind that investigates the effects of the adoption of IFRS on earnings management by banks in specific. Secondly, I distinguish between publicly listed and unlisted privately owned banks. Incentives to engage in earnings management through loan loss provisioning can differ between listed and unlisted banks, and unlisted banks also face less regulatory pressure (Anandarajan et al., 2007). My research controls for these differences among banks, while most other researches include only listed banks. And finally, I have constructed a measure of disclosure requirements regarding loan loss accounting. This measure ranks the required disclosures regarding loan losses of the generally accepted accounting principles (GAAP) in the various countries contained in the sample, as well as IFRS and US GAAP. Such a measure did not exist before.

This paper is structured as follows: incentives for banks to manage earnings, prior literature and consequences of IFRS for banks will be discussed in section 2. In section 3 I will present my research hypotheses and research design. The results of this study and an analysis of these results will be discussed in section 4, and finally a summary is included in section 5.

2. Earnings management incentives, IFRS for banks and prior literature

2.1 Earnings management incentives for banks

To measure earnings management a number of approaches can be taken:

❖ The first approach attempts to identify discretionary accruals based on the relation between total accruals and hypothesized explanatory factors. Models using this approach are referred to as total accrual models (for example the Healy model [1985] and Jones model [1991]).

❖ The second approach to test for earnings management is to model a specific accrual. In empirical research using specific accrual models, the focus is often on a specific industry, where a single accrual or a set of accruals is sizeable and requires substantial judgment.

❖ The third approach is to observe the behaviour of accruals around a specific benchmark. This approach examines statistical properties of earnings to identify behaviour that influences earnings.

Considering the nature of the research, the specific accrual approach is most suitable for my research. This is because I am focusing on a single industry characterized by industry-specific accruals. Banks and other financial institutions are often excluded from samples in earnings management research, since their financial reporting environments differ from those of industrial firms. They have fundamentally different accrual processes that are not likely to be captured well by total accrual models (Peasnell, Pope and Young, 2000, p. 318).

In accounting literature, the focus of empirical studies on earnings management by banks is on loan loss provisions (LLPs). Loan loss provisions (LLPs) are a relatively large accrual for commercial banks and therefore have a significant impact on earnings and regulatory capital of banks. The purpose of these provisions is to adjust banks' loan loss reserves to reflect expected future losses on their loan portfolios.

However, bank managers also have incentives to use these loan loss provisions to manage earnings and regulatory capital as well as to communicate or 'signal' private information about future prospects (Ahmed, Takeda and Thomas, 1999, p. 2). In this paper I focus on loan loss provisions as a tool for managing earnings, and not as a tool for capital management or signaling future-oriented information.

In general, reduced volatility is assumed to represent lower risk. Because less volatile earnings are a fundamental predicate for stable stock prices, managers are given an incentive to use LLPs for earnings management (Anandarajan, Hasan and McCarthy, 2007, p. 362). This gives rise to the assumption that the discretionary part of LLPs is used by bank management as the main instrument for earnings management in the form of income smoothing. Low levels of non-discretionary current earnings are expected to be an incentive for managers to decrease the (discretionary part of the) loan loss provision, in order to artificially increase earnings, while high levels of non-discretionary current earnings are expected to encourage managers to increase the loan loss provision, in order to smooth these higher earnings (Collins, Shackelford and Wahlen, 1995, p. 268).

Also, since the Basel Accord (Basel I), implemented in Europe in 1992, which harmonized minimum capital adequacy regulations and changed the structure of the capital adequacy ratio, loan loss reserves are no longer part of the numerator of the capital adequacy ratio which banks have to maintain (Anandarajan, Hasan and Lozano-Vivas, 2005, p. 56). This eliminated the costs for banks associated with managing earnings through loan loss provisions[2]. This leads to the assumption that under the Basel Accord, banks are more aggressive in managing earnings through the loan loss provision.

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[2] Before, decreasing the loan loss provision to inflate earnings resulted in lower loan loss reserves, which in turn had a negative effect on the required capital adequacy ratio, resulting in costs.

From the above it can be concluded that bank management has the incentive to manage earnings through discretionary use of loan loss provisioning. Lobo and Zhou (2001, pp. 18-19) conclude in their research that firms with higher quality of disclosure[3] tend to engage less in earnings management than firms with lower disclosure quality. This leads to the assumption that disclosure quality related to LLPs (more published information on LLPs) is negatively related to earnings management by banks. In other words, the higher the disclosure quality of LLPs, the less bank management will manipulate earnings.

2.2 Prior literature

There has been quite some research on earnings management by banks using the loan loss provision. In early studies by Greenawalt and Sinkey (1988) and Ma (1988) it was concluded that banks used LLPs as long-term mechanisms to smooth earnings. In these studies total LLPs were used as the dependent variable. Greenawalt and Sinkey (1988) focused on the behaviour of LLPs as a function of banks' income and other measures of business conditions that are likely to affect the quality of loan portfolios. Ma (1988) showed that LLPs are actually not strongly related to the actual quality of loan portfolios, but that management tends to raise LLPs in periods of high operating income and vice versa.

Studies that followed divided LLPs into non-discretionary and discretionary components, and focus on the discretionary components as an instrument for earnings management. These studies do, however, not agree on the question to what extent the loan loss provision is used for earnings management.

Collins, Shackelford and Wahlen (1995) find that banks do use LLPs as a tool for earnings management. They follow a bank-by-bank approach and found that approximately two-thirds of the banks in their sample of U.S. banks used LLPs for income smoothing purposes. Hasan and Hunter (1999) examine the efficiency of LLP decisions of bank managers and explore the relationship between efficient LLP decision-making and any relevant factors that could explain any inefficiency. For their sample of Spanish banks, they find that there is considerable inefficiency in loan loss decision-making. Bhat (1996) also concludes that, for his sample of US banks, there is a strong relationship between LLPs and earnings. He finds that banks characterized by low growth, low book-to-asset ratios, high loans-to-deposit ratios, high debt-to-asset ratios, low return on assets, high loan loss provisions-to-gross loans ratios and low assets are likely to smooth earnings. Also, his analysis indicates that the stock market perceives the income smoothing behaviour of banks.

There are also studies that find evidence that banks do not use LLPs as an earnings management/income smoothing tool. These studies are Wetmore and Brick (1994), Beatty, Chamberlain and Magliolo (1995) and Ahmed, Takeda and Thomas (1999). Wetmore and Brick (1994) find that bank managers, when determining LLPs, consider past loan risk, loan

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[3] In this study a firm's disclosure score is based on a weighted average of analysts' assessments of 1) annual published information, 2) quarterly and other published information and 3) investor relations and related aspects.

quality deterioration, foreign risk and economic circumstances, and they do not consider off-balance sheet exposure or changes in loan composition. Yet they note that the absence of income smoothing may be due to the circumstances in their sample period, namely the LDC (less-developed-country) debt crisis (as loan loss provisions were high for this period due to this crisis). Beatty et al. (1995) find only a small statistic relation between earnings and LLPs, providing virtually no evidence that loan loss provisions are used to manage earnings (Beatty et al., 2009, p. 254). Ahmed et al. (1999) find that earnings management is not an important driver of loan loss provisions, but that loan loss provisions reflect meaningful changes in the expected quality of banks' loan portfolios.

Wall and Koch (2000) state that these differences in findings between studies are due to different sample selections and the use of different time periods being examined. They conclude though that the available evidence clearly suggests that banks have an incentive to use loan loss accounting to help manage reported earnings (Wall and Koch, 2000, p. 12). Anandarajan et al. (2005, p. 58) note that some of the studies mentioned here, besides checking for earnings management using just LLPs, also examined whether banks used other components of financial statements together with LLPs. Examples of these are Beatty et al. (1995) and Collins et al. (1995), which also studied whether strategic timing of realized gains and losses were used as tools for earnings management. Overall, Anandarajan et al. (2005) conclude that the results of the different studies on earnings management through manipulation of LLPs are conflicting.

More recent research by Cornett, McNutt and Tehranian (2006) concludes though that discretionary loan loss provisions are related to earnings management. They find that, for their sample of U.S. bank holding companies, first, discretionary LLPs are positively related to a bank's unmanaged cash flow returns, capital ratios, and asset size. Second, they are negatively related to a bank's non-discretionary LLPs and market-to-book ratios. And third, the use of discretionary LLPs to manage earnings is significantly related to the fraction of shares owned by the bank's CEO, the fraction of shares owned by all directors, the existence of CEO/chair duality and the CEO's pay-for-performance sensitivity (Cornett et al., 2006, pp. 20-22). This is consistent with management using discretionary LLPs to manage earnings.

Based on these studies I conclude that there is strong evidence that LLPs do function as a tool for earnings management by banks, because more (and more recent) studies seem to find evidence consistent with this. Also, the incentives for bank managers to smooth income though LLPs are clearly present.

2.3 IFRS for banks

For banks, the adoption of IFRS has introduced some new standards which are especially important to banks: IAS 30, IAS 32 and IAS 39 (and currently IFRS 7). This gives rise to the question how the introduction of IFRS in banks' financial statements affects earnings management through loan loss provisioning.

According to IAS 30.43, banks are required to provide detailed information about loan losses.[4] This information includes the manner of which the provisions and losses on uncollectible loans are determined, mutations in the course of a provision during the period covered by the financial statement (additions, write-offs of uncollectible loans and the collections on write-offs) and the aggregate amount of the provision at balance date (Moison, 2007, pp. 1333-1334). In other words, very specific information on loan losses is required under IFRS, also with regard to individual classes of loans instead of aggregate amounts.

Based on this, loan loss provisions would be a less effective tool for earnings management by a bank's management, according to Pérez, Salas and Saurina (2006), for the Spanish situation. They tested for earnings management at banks in Spain, which has a very detailed set of rules governing LLPs, and found that despite this, management has used LLPs for earnings management. They conclude that the adoption of IFRS is a step forward in the direction of a more principle-based approach, which might be the only option left for accounting standard setters to counter management using LLPs to their discretion. Detailed disclosure might be useful to achieve this (Pérez, Salas and Saurina, 2006, p. 25).

To date there has not been any empirical research on this, so this remains to be seen. In general it can nonetheless be expected that increased disclosure requirements under IFRS will lead to a decrease in earnings management. There have been empirical studies investigating the association between disclosures and earnings management. Lobo and Zhou (2001) have examined the relationship between disclosure quality for a sample of U.S. companies and found a significant negative relationship between corporate disclosure and earnings management, indicating that firms that disclose more tend to engage less in earnings management and vice versa. They find that flexibility offered by minimum disclosure requirements is used by management to exercise discretion over earnings. Lapointe, Cormier, Magnan and Gay-Angers (2005) test this relationship for a sample of Swiss firms (using a self-constructed measure of quality), and show that firms applying Swiss GAAP FER use provisions and depreciation to smooth earnings, but that this relation is reduced for firms with high disclosure quality. Moreover, they show that Swiss firms applying IFRS or US GAAP (with more extensive disclosure requirements) exhibit less smoothing than firms applying Swiss GAAP FER.

Based on these researches, I expect to find that increased disclosures regarding LLPs under IFRS have lead to less earnings management by banks, because of an inverse relationship between disclosure quality and earnings management.

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[4] Under IFRS 7, similar disclosures are required.

3. Hypotheses and research design

3.1 Hypotheses development

The purpose of loan loss provisions is to adjust banks' loan loss reserves to reflect expected future losses on their loan portfolios. These provisions can have significant effects on the reported earnings, as they are a large accrual for banks. Additionally, reduced volatility in earnings is in general assumed to represent lower risk. Therefore, bank managers have an incentive to smooth earnings through the discretionary part of LLPs, because less volatility in earnings is a fundamental foundation for stable stock prices (Anandarajan et al., 2007). Low levels of current earnings provide an incentive for managers to decrease loan loss provisions, in order to artificially increase earnings, while high levels of current earnings are expected to encourage managers to increase loan loss provisions (Collins et al., 1995). The goal of this practice is to smooth earnings, as reducing earnings variability means reducing perceived risk, because variability in earnings is a key indicator of risk. Bank management will want to show earnings that are in line with expectations (smooth) because of this (Kanagaretnam, Lobo and Mathieu, 2004), as shareholders will require a higher risk premium for increased perceived risk due to earnings variability.

First, I will test for earnings management using LLPs for the pre-IFRS period for my sample. Based on the above arguments, I expect to find existence of earnings management through income smoothing, illustrated by a positive relationship between LLPs and earnings before taxes and LLPs (higher earnings would equal higher LLPs and vice versa). My first hypothesis is as follows:

H1: Pre-IFRS, banks use loan loss provisions to manage earnings.

IFRS requires detailed disclosures on loan losses, leading to the expectation that, contrary to the general evidence on the effect of IFRS on earnings management, for the case of the banking industry, IFRS will reduce earnings management. As explained, higher earnings variability means higher perceived risk and required risk premiums, which provides an incentive for bank managers to smooth income through LLPs. When more information on loan loss accounting is available, it is expected that the incentives for discretionary use of LLPs for income smoothing will be reduced or eliminated. Share- and stakeholders would be able to detect earnings management more easily, so management is less likely to engage in earnings management (Lobo and Zhou, 2001). On this expectation I base my second hypothesis:

H2a: IFRS adoption in 2005 leads to a decrease in earnings management by banks using loan loss provisions.

Consistent with hypothesis 2a, I expect that banks that either did not adopt IFRS per 2005, or have adopted IFRS before this transition date (early adopters), will not show a change in earnings management using LLPs during this period. Hypothesis 2b is based on this:

H2b: Banks that did not adopt IFRS in 2005 do not exhibit a significant change in earnings management using loan loss provisions since then.

As stated above, the expectation of a decrease in earnings management using LLPs by banks is based on increased disclosures under IFRS. Founded on the expectation that share- and stakeholders of a bank would be able to detect earnings management more easily when more information on loan losses is disclosed, it can be anticipated that when disclosure requirements increase (which was the case resulting from IFRS adoption for banks in various countries) earnings management through income smoothing will decrease.

Based on this, I expect to find a negative relationship between disclosure requirements regarding loan loss accounting and earnings management by banks. My third hypothesis is derived from this expectation:

H3: LLP disclosure requirements are negatively related to earnings management by banks using loan loss provisions.

3.2 Sample selection

In my sample I include banks from European countries where IFRS was adopted starting 2005, in accordance with EU IAS regulation, so a difference in accounting standards can be observed for these banks during the transition period (a shift from local GAAP to IFRS). As a second condition, I select banks from countries that adhere to the Basel Accord (refer to section 2.1: I expect a higher level of earnings management for banks in Basel countries).

These selection criteria result in a selection of banks from the following countries: Belgium, France, Germany, Italy, Luxemburg, The Netherlands, Spain, Sweden and the United Kingdom. Switzerland also adheres to the Basel capital accord, therefore Swiss banks are included in the control sample, except when they show a change in accounting standards (from either Swiss GAAP FER or US GAAP to IFRS) between 2004 and 2005.

Data is acquired from the Bankscope (Bureau van Dijk) database. The original sample for these ten countries consisted of 10.237 banks, but after selecting the relevant data for the research model, the final selection includes 914 banks. Of these 914 banks, 850 are unlisted banks and 64 are listed. Together, the total sample of 914 banks accounts for a total of 1382 firm-year observations.

The total number of firm-year observations is distributed among two samples. The first is a sample of banks that have switched from their respective local GAAPs to IFRS so a change in accounting standards can be observed in 2005. Consistent with hypothesis 2a, I expect to observe a decrease in earnings management from 2005 and on for this sample. The second sample consists of banks where no change in accounting standards in 2005 can be observed. These banks are either early adopters of IFRS, or have not switched to IFRS in 2005 because they were not required to do so under EU Resolution no. 1606/2002. This is either because they do not prepare consolidated financial statements, or are not publicly

listed. If they are privately owned, they did not switch to IFRS voluntarily in 2005. This sample of banks will be used as a control sample, as I expect no significant change in earnings management from 2005 and on for these banks, consistent with hypothesis 2b.

3.3 Research design

To test for earnings management, usually accruals are disentangled into accruals over which management has discretion (which can be used to manage earnings) and accruals over which management does not have discretion. Therefore often a two-stage analysis is chosen when researching earnings management through the use of LLPs, which separates the discretionary part of the accrual from the non-discretionary part in the first stage. In the first stage the non-discretionary part of LLPs is modelled and the residual from this stage, which represents the discretionary part, is used in the second stage as the dependent variable. However, this approach has a big disadvantage, namely that it systematically underestimates the absolute value of the regression coefficients in the second stage (Kanagaretnam, Lobo and Yang, 2005, pp. 13-14). To counter this, I will conduct my research using a single-stage regression analysis, following Kanagaretnam et al. (2005). In this model, there are three proxies for the non-discretionary component of LLPs: first, loan charge offs during the year. Second, the loan loss allowance or reserve at the beginning of the year. And third, the change in non-performing loans during the year.

The empirical model is shown in the following equation:

$$
\overset{(+)}{} \quad \overset{(-)}{} \quad \overset{(+)}{} \quad \overset{(+)}{} \quad \overset{(+)}{}
$$
$$
LLP_t = \beta_0 + \beta_1 LCO_t + \beta_2 LLA_{t-1} + \beta_3 \Delta NPL_t + \beta_4 EBTP_t + \beta_5 LISTED_t
$$
$$
+ \underset{(++)}{\beta_6 EBTP_t * LISTED_t} + \varepsilon_t
$$

Where:

LLP_t	=	Loan loss provision for year t;
LCO_t	=	Net loan charge-offs for year t;
LLA_{t-1}	=	Loan loss allowance or reserve at the end of year t-1;
ΔNPL_t	=	Change in non-performing loans during year t, measured by

the non-performing loans for year t minus the non-performing loans for year t-1;

$EBTP_t$	=	Earnings before tax and loan loss provisions for year t;
$LISTED_t$	=	Dummy which denotes 1 for listed banks and 0 otherwise;
$EBTP_t * LISTED_t$	=	Interaction of $EBTP_t$ with type of bank.

All variables (except $LISTED_t$) are deflated by year t beginning total assets. The expected signs of the coefficients are indicated above the equation.

If banks use loan loss provisions for earnings management (to smooth income), as I expect, the coefficient β_4 for the variable $EBTP_t$ will be positive and significant, illustrating a positive relation between earnings and loan loss provisions.

The model also controls for differences between publicly and privately owned banks. The dummy variable $LISTED_t$ is introduced for this purpose. This control variable reads 1 for publicly listed banks and 0 for unlisted banks. Owners provide incentives to management to generate these returns (based on average performance over a short amount of time) through bonuses. This type of performance measure is more common for listed banks than for unlisted banks (Anandarajan et al., 2007, pp. 363-364). Managers of privately owned banks have can have different goals than managers of publicly owned banks, due to the fact that they face less regulatory supervision and pressure to produce smooth earnings. The above implies that listed banks on the other hand have greater incentives to engage in income smoothing. To reflect this prospect, the coefficients β_5 and β_6 are expected to be positive.

To test hypothesis 1 I will run this model for the main sample of banks for the pre-IFRS period (years 1995 to 2004). As mentioned, I anticipate that banks will have used LLPs to manage earnings before IFRS so β_4 is expected to be positive.

After this, the model is amended to include interaction terms between the earnings management proxy $EBTP_t$ and a dummy variable measuring IFRS-compliance ($IFRS_t$; which denotes 1 for observations post IFRS-adoption and 0 for observations pre IFRS-adoption): $EBTP_t * IFRS_t$.

I will test hypothesis 2a by running the model for the main sample for the years 1995-2008, so including both pre- and post-IFRS time periods. When earnings management has in fact declined after IFRS adoption, according to expectations, the coefficient on the interaction term between earnings before taxes and LLPs and IFRS should be negative, while the coefficient on $EBTP_t$ should be positive. This would indicate less earnings management using LLPs by banks post-IFRS compared to pre-IFRS.

Also, to test hypothesis 2b, the model will be ran for the years 1995-2008 (pre- and post-IFRS periods) for the control sample. Comparison of the coefficients on earnings before taxes and LLPs and the interaction term of $EBTP_t$ with IFRS should, according to expectations, not result in a significant difference in earnings management levels between the two periods.

Finally, the model from equation (1) is amended to include interaction terms between the earnings management proxy $EBTP_t$ and a self constructed disclosure score, measuring GAAP disclosure scores regarding loan loss provision accounting, $DSCORE_t$: A dummy variable which denotes 1 for observations from high LLP-disclosure GAAPs for year t, 2 for observations from mid LLP-disclosure GAAPs, and 3 for observations from low LLP-disclosure GAAPs.

To test hypothesis 3, the model from equation (3) will be ran for the total sample (so including banks from both the control as the main sample) for all years (1995 to 2008). According to hypothesis 3, higher LLP disclosure requirements are expected to be related with lower earnings management through LLPs. Therefore the interaction term between the variable $EBTP_t$ and $DSCORE_t$ is included. For lower disclosure GAAP-bank observations a higher level of earnings management is expected than for mid- and high-level disclosure GAAPs. Therefore, the coefficient on this interaction term is expected to be higher/more positive than β_4 (the earnings management coefficient for the total sample), as a stronger relationship between LLPs and earnings before taxes and LLPs is predicted for banks reporting under lower disclosure GAAP (which have a higher disclosure score). The used classification of different GAAPs is given in table 1 included on the next page.

Table 1
GAAP Classification

Panel A: *DSCORE* = 1

GAAP / Country code	Elaboration
IFRS	According to IAS 30 (IFRS 7), detailed information about loan losses is required, including the manner of which the provisions and losses on uncollectible loans are determined, mutations in the course of a provision during the period covered by the financial statement (additions, write-offs of uncollectible loans and the collections on write-offs, also on an individual loan class level) and the aggregate amount of the provision at balance date.
US GAAP	Similar to IFRS according to SFAS 5 and 114, but under SEC Industry Guide also detailed formats for analyses required to be disclosed in the annual statements are provided.
France (FR)	Similar to IFRS under 'Règlement n° 02-03' of the CRC.
Italy (IT)	Similar to IFRS. Under Circular 263, detailed requirements are issued for loan loss provisioning and detailed disclosures are required in the annual statements.
Sweden (SE)	Similar to IFRS. Under old impairment rules (before 2002), no detailed information was required. Due to lack of data for this period the focus is only on 2002 and on, as the Swedish FSA introduced new requirements based on IAS.
United Kingdom (GB)	Similar to IFRS, requiring separate disclosure of specific and general provisions and movements during the period (including write-offs and recoveries) under the BBA SORP and Companies Act 1985.

Panel B: *DSCORE* = 2

GAAP / Country code	Elaboration
Netherlands (NL)	Under RJ 600, details on LLPs and additions or write-offs during the year have to be disclosed, but this only curtails aggregate amounts rather than individual loan class amounts.
Spain (SP)	Under Circulars 4/1991 and 4/2004, similar to the Italian situation, requirements for setting aside LLPs are complex and detailed. Disclosure requirements are less detailed than IFRS.
Switzerland (CH)	Aggregate LLP amounts and movements during the year have to be disclosed under Circular 08/02. Individual amounts only have to be disclosed if material.

Panel C: *DSCORE*= 3

GAAP / Country code	Elaboration
Belgium (BE)	Under the 'Koninklijk besluit op de jaarrekening van kredietinstellingen' no specific disclosures on LLPs are required (other than aggregate amounts).
Germany (DE)	No specific LLP disclosure requirements. Just credit risk disclosures are required under GAS 5-10.
Luxembourg (LU)	Similar to Belgian GAAP, under the law of june 17, 1992 and Circulaire 01/32 CSSF.

4. Results and analysis

4.1 Evidence on pre-IFRS earnings management using LLPs

First, I test whether pre-IFRS, banks used LLPs to manage earnings (hypothesis 1). The results are presented in table 2 below.

Table 2
Coefficients – Main sample pre-IFRS

	B		Std. Error	t-statistic	Sig.
(Constant)	0,000		0,001	-0,096	0,924
LCOt	0,743	***	0,044	17,059	0,000
LLAt-1	0,010		0,012	0,874	0,383
CHNPLt	0,192	***	0,037	5,165	0,000
EBTPt	0,079	***	0,023	3,518	0,001
LISTEDt	-0,001		0,007	-0,081	0,935
EBTPt*LISTEDt	-0,104		1,513	-0,069	0,945

Adjusted R-squared = 0,781

*** = Coefficient is significant at a 1% level

** = Coefficient is significant at a 5% level

* = Coefficient is significant at a 10% level

The coefficient on $EBTP_t$ is positive and significant, which indicates income smoothing by banks using LLPs during the pre-IFRS period. Hypothesis 1 is therefore supported. The coefficient on $EBTP_t * LISTED_t$ is not in line with expectations (this was thought to be more positive than $EBTP_t$), as it was anticipated that listed banks exhibit more earnings management. However, this coefficient is not at all significant. This is due to the very limited number of observations for listed banks in the sample.

4.2 Evidence on pre- and post-IFRS differences in earnings management using LLPs

Second, I test for differences between earnings management using LLPs pre and post IFRS-adoption. The results regarding hypothesis 2a (main sample) are presented in table 3 below. This sample contains banks which have switched from local GAAP to IFRS in 2005, so for which a decrease in earnings management is expected after IFRS adoption.

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Table 3
Coefficients – Main sample pre/post-IFRS

	B		Std. Error	t-statistic	Sig.
(Constant)	-0,002	***	0,001	-3,893	0,000
LCOt	0,131	***	0,020	6,427	0,000
LLAt-1	0,088	***	0,009	10,352	0,000
CHNPLt	0,092	***	0,012	7,481	0,000
EBTPt	0,286	***	0,019	15,322	0,000
LISTEDt	0,002		0,007	0,299	0,765
IFRSt	0,003	***	0,001	4,805	0,000
EBTPt*LISTEDt	-0,360		1,572	-0,229	0,819
EBTPt*IFRSt	-0,169	***	0,023	-7,505	0,000
IFRSt*LISTEDt	-0,008		0,007	-1,101	0,271
EBTPt*IFRSt*LISTEDt	0,792		1,572	0,504	0,615

Adjusted R-squared = 0,519

*** = Coefficient is significant at a 1% level

** = Coefficient is significant at a 5% level

* = Coefficient is significant at a 10% level

The coefficient on *EBTPt* is positive and significant, indicating the presence of income smoothing for the total main sample, but the coefficient on *EBTPt * IFRSt* is negative and also significant. This indicates a decrease in earnings management after IFRS adoption, in line with expectations. Hypothesis 2a is therefore supported.

The coefficient on *EBTPt * LISTEDt* is not in line with expectations as it is negative, which would mean a lower level of earnings management for listed banks, but this result is not significant. The coefficient on *EBTPt * IFRSt * LISTEDt* is in accordance with expectations, as it is higher than the coefficient on *EBTPt * IFRSt* , but again not significant.

The results regarding hypothesis 2b (control sample) are presented in table 4 on the next page. This sample contains banks which have not switched from local GAAP to IFRS in 2005 (either early or non-adopters of IFRS), so for which a no change in earnings management is expected.

Table 4
Coefficients – Control sample pre/post-IFRS

	B		Std. Error	t-statistic	Sig.
(Constant)	-0,002		0,005	-0,404	0,688
LCOt	0,244	*	0,137	1,785	0,082
LLAt-1	0,061		0,042	1,445	0,156
CHNPLt	0,332	***	0,075	4,408	0,000
EBTPt	0,602		1,138	0,529	0,599
LISTED	0,003		0,005	0,612	0,544
IFRS	0,002		0,005	0,447	0,657
EBTPt*LISTEDt	-0,691		1,203	-0,574	0,569
EBTPt*IFRSt	-0,556		1,139	-0,489	0,628

Adjusted R-squared = 0,325

*** = Coefficient is significant at a 1% level

** = Coefficient is significant at a 5% level

* = Coefficient is significant at a 10% level

The coefficient on $EBTP_t$ is positive and significant, indicating the presence of income smoothing for the total control sample, but the coefficient on $EBTP_t * IFRS_t$ is negative. This indicates a decrease in earnings management after IFRS adoption, decrease in earnings management between the pre- and post-IFRS period (these results are not significant though). Hypothesis 2b would be rejected, but it has to be noted that the control sample for the pre-IFRS period only contains early adopters and for the post-IFRS period only non-adopters. A decrease in earnings management would then not be in line with expectations, as an increase would be expected.

The coefficient on $EBTP_t * LISTED_t$ is not in line with expectations as it is negative, which would mean a lower level of earnings management for listed banks, but this result is also not significant.

Overall, the results on the tests of hypothesis 2b are almost all insignificant and no real conclusion can be drawn, also because of the different nature of the sample pre- and post-IFRS adoption. No data for the post-IFRS period was available for the early adopters which are in the control sample, and vice versa, no data for the pre-IFRS period was available for the non-adopters in the control sample. This means that for the control sample, it is not really possible to draw a conclusion regarding the difference in earnings management pre- and post-IFRS.

4.3 Evidence on the relation between loan loss disclosure requirements and earnings management using LLPs

Finally, I test the relation between earnings management using LLPs and loan loss disclosure requirements, for both the main sample and control sample and both pre- and post-IFRS periods (hypothesis 3). The results are presented in table 5 on the next page.

Table 5
Coefficients – Total sample pre/post-IFRS

	B		Std. Error	t-statistic	Sig.
(Constant)	0,000		0,002	0,105	0,917
LCOt	0,175	***	0,018	9,546	0,000
LLAt-1	0,085	***	0,009	9,954	0,000
CHNPLt	0,101	***	0,012	8,233	0,000
EBTPt	0,324	***	0,123	2,625	0,009
DSCOREt	0,000		0,002	-0,087	0,931
EBTPt*DSCOREt	-0,156		0,122	-1,277	0,202
DSCOREt*LISTEDt	-0,005	***	0,001	-9,052	0,000
EBTPt*DSCOREt*LISTEDt	0,375	***	0,023	16,617	0,000

Adjusted R-squared = 0,496

*** = Coefficient is significant at a 1% level

** = Coefficient is significant at a 5% level

* = Coefficient is significant at a 10% level

The coefficient on $EBTP_t$ is positive and significant, indicating the presence of income smoothing for the total sample. The coefficient on $EBTP_t*DSCORE_t$ is negative. The disclosure score is measured as 1 for banks in high disclosure GAAPs, 2 for mid and 3 for low disclosure GAAPs. Since more earnings management is expected for banks in higher ranked disclosure GAAPs, the coefficient on $EBTP_t*DSCORE_t$ was anticipated to be higher than the coefficient on $EBTP_t$, which is not the case. This would mean that higher disclosure requirements do not deter banks for managing earnings through LLPs. Hypothesis 3 would then be rejected, as there is no support for a negative relationship between disclosure requirements and earnings management using LLPs. This result is not significant. The coefficient on $EBTP_t*DSCORE_t*LISTED_t$ is in line with expectations though, as it is higher than the coefficient on $EBTP_t*DSCORE_t$, and also significant, indicating higher levels of earnings management for listed banks.

4.4 Analysis and conclusions

First of all, I found evidence that, as hypothesized, before the adoption of IFRS in 2005, banks from the Basel-countries within the European Union used loan loss provisions to smooth their earnings. Bank managers have an incentive to smooth income through loan loss provisions because less volatility in earnings is assumed to represent lower risk and therefore is a fundamental foundation for stable stock prices. I also distinguished between publicly listed and unlisted privately owned banks, as the incentive for earnings management is stronger for listed banks than for unlisted banks. Results show that prior to IFRS, listed banks did not exhibit higher levels of earnings management, contrary to expectations. However, this result was not significant.

The introduction of IFRS in 2005 meant that banks have to provide detailed disclosures on loan losses in their annual statements. I hypothesized that when more information on loan losses is available, it can be expected that that the incentives for discretionary use of loan

loss provisions for income smoothing by bank managers will be reduced. Evidence shows that, according to expectations, the adoption of IFRS indeed lead to a decrease in the level of earnings management for my sample of banks. Moreover, the results also showed that listed banks exhibited higher levels of earnings management after the IFRS-adoption. This result was not significant.

It was hypothesized that the control sample containing voluntary adopters and non-adopters of IFRS would not show a significant change in the level of earnings management before and after the introduction of IFRS in 2005. However, the results also showed a decrease in earnings management between these two periods, contrary to expectations, but this result was insignificant.

The first main research question of this paper is:
    'What is the effect of the adoption of IFRS on the level of earnings management by banks?'
Based on the evidence I have discussed, it can be concluded that the effect of the adoption of IFRS in 2005 was a decrease in the level of earnings management by banks using loan loss provisions.

To explore the relation between disclosure requirements and earnings management using loan loss provisions further, I constructed a measure of disclosure requirements regarding loan loss accounting. This measure ranks the required disclosures regarding loan losses of the generally accepted accounting principles in the various countries contained in the sample, along with IFRS and US GAAP. As discussed earlier, it was hypothesized that higher disclosure requirements would lead to lower levels of earnings management. The evidence on this did not indicate that there was such a negative relationship between loan loss disclosure requirements and earnings management through loan loss provisioning. This result was insignificant. Subsequently, results significantly showed that that listed banks exhibit higher levels of earnings management using loan loss provisions than unlisted banks, in line with expectations.

The second main research question of this paper is:
    'What is the effect of loan loss accounting disclosure requirements on the level of earnings management by banks?'
Based on the results I have discussed, it cannot be concluded that higher disclosure requirements regarding loan loss accounting lead to lower levels of earnings management by banks using loan loss provisions. Evidence suggested that higher disclosure requirements on loan losses do not deter bank managers from using loan loss provisions to their discretion for income smoothing purposes. This result is not significant.

Finally, there are some limitations to this study that have to be mentioned. This study focuses only on loan loss provisions as an income smoothing instrument. Other forms of earnings management and other instruments besides loan loss provisions that might be used by banks to manage earnings are not taken into account. Also, the pre- and post-IFRS time periods included are not equal, and the post-IFRS period covers much more

observations as a lot of data was missing in the Bankscope database especially for the pre-IFRS period. Additionally, most of the observations were ranked with a high disclosure score when testing the third hypothesis. A more reliable and significant conclusion might have been obtained if the sample had contained more banks ranked with a mid or low disclosure score. And finally, this study considers only required loan loss disclosures under various accounting standards. Therefore, possible voluntary loan loss disclosures by banks and consequently the actual disclosures (as opposed to the required disclosures) are not taken into consideration.

Further research could focus on these limitations and besides this, Basel II and the credit crunch also provide interesting subjects for further studies. The new Basel capital framework requires additional disclosure requirements, also on loan loss accounting, and is currently in the implementation process. Future research focusing on the credit crunch might conclude that due to bad loan problems and losses on investments the incentive for bank managers to smooth income may fade away. Furthermore, during any crisis, the perceived risk by share- and stakeholders will be higher by definition, and stock prices will be less stable, again reducing incentives to practice earnings management.

5. Summary

In literature, earnings management by banks is studied using specific large accruals for banks, namely loan loss provisions (LLPs). The purpose of these provisions is to adjust banks' loan loss reserves to reflect expected future losses on their loan portfolios. Bank managers have an incentive to smooth earnings through the discretionary part of LLPs, because less volatility in earnings is a fundamental foundation for stable stock prices (Anandarajan et al., 2007). Most and more recent studies have found evidence for this.

The goal of the adoption of the International Financial Reporting Standards (IFRS) in the European Union since 2005 was to improve transparency and comparability of financial statements. The adoption of IFRS has introduced some new standards which are especially important to banks: IAS 30, IAS 32 and IAS 39 (and currently IFRS 7). The effect of these standards on loan loss accounting by banks is that banks are required to provide detailed information regarding loan losses in their annual reports. This leads to the expectation that, contrary to the general evidence on the effect of IFRS on earnings management, for the case of the banking industry IFRS will reduce earnings management. However, there has not been any empirical research supporting this. This study is the first of its kind in that sense.

To investigate the effects of the IFRS adoption on income smoothing practices through loan loss provisioning, I select a sample of banks from the Basel countries in the European Union (Belgium, Germany, France, Italy, Luxembourg, The Netherlands, Spain, Sweden, Switzerland and the United Kingdom). Data is used from years 1995 to 2004 for the pre-IFRS period and 2005 to 2008 for the post-IFRS period. The sample contains both listed and unlisted banks.

It is first of all hypothesized that prior to IFRS-adoption, banks in the sample used loan loss provisions for earnings management. Second, it is predicted that due to detailed loan loss accounting disclosure requirements under IFRS, earnings management using loan loss provisions will decrease for the main sample, as previous studies have shown that disclosures and earnings management are negatively related. Subsequently, for the control sample of non- and early-adopters of IFRS it is anticipated that there will be no significant change in the level of earnings management. And finally, is hypothesized that loan loss disclosure requirements in the various countries included in the sample are negatively related to the level of earnings management exhibited by banks. To test this I construct a measure of disclosure requirements regarding loan loss accounting. This measure ranks the required disclosures regarding loan losses of the Generally Accepted Accounting Principles (GAAP) in the various countries contained in the sample, as well as IFRS and US GAAP.

The evidence shows that prior to the adoption of IFRS, banks used loan loss provisions to manage earnings, in accordance with expectations. The effect of the adoption of IFRS in 2005 was a decrease in the level of earnings management by banks using loan loss provisions, also consistent with expectations. The control sample shows a similar decrease in the level of earnings management, contrary to expectations, but this result is not significant.

Further, based on the evidence, it cannot be concluded that higher loan loss accounting disclosure requirements lead to lower levels of earnings management by banks using loan loss provisions. The results suggest that higher disclosure requirement do not deter bank managers from using loan loss provisions for income smoothing purposes (this result is insignificant).

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Accounting Conservatism in Transitional Economies

Evidence of the influence of institutional factors in Eastern Europe

Paulina Kowalczyk[1]

Executive summary

Prior research shows that accounting conservatism exists in mature economies. However there is not too much research about accounting conservatism in transitional economies. This paper analyses the influence of institutional and political factors on accounting conservatism in Eastern European countries which have already joined the European Union. I researched the levels of unconditional and conditional conservatism in Eastern Europe and compared them with Western European results. I did not find evidence that there is conditional conservatism in Eastern Europe. My research shows that there was conditional conservatism only in Poland during the analyzed period. I found significant evidence proving my expectations regarding the influence of the quality of law, securities law and the risk of expropriation on conditional conservatism.

For the full text of this master thesis refer to the following webpage: http://hdl.handle.net/2105/5781.

1. Introduction

Most of the post-communist European countries have already joined the European Union. What is important is that the European Union intends to harmonize accounting regulations across member countries by implementing International Accounting Standards. However, prior research proves that the differences remain despite common regulations due to political and institutional factors specific to certain countries.

Conservatism in accounting has been researched for many years. The results regarding Western European countries and the United States prove the existence of conservatism in accounting. In contrast to the West, not all post-communist countries were subjects of the research and institutional factors which can influence conservatism are not fully explored in the case of these countries. The objective of the research is:

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[1] This paper is based on my master thesis, completed in 2009 as part of the master Accounting Auditing & Control at Erasmus University Rotterdam under supervision of Dr. Y. Wang, reviewed by Dhr. Rob van der Wal. Since September 2009 I have worked as an Associate in PricewaterhouseCoopers. In the future I am going to continue an academic carrier.

To analyze conservatism in accounting in post-communist countries of Central and Eastern Europe, which are members of the European Union and to identify institutional factors which have an influence on conservatism in these countries

The main research question is:
Is there accounting conservatism in Eastern Europe?

The research sub-questions are as follows:
- Does accounting conservatism differ across Eastern Europe?
- Do institutional factors influence accounting conservatism in Eastern Europe?
- Did the transitional process influence accounting conservatism in Eastern Europe?

My research contributes to prior research for a couple of reason. First of all Eastern European countries are rarely the subject of an analysis, secondly I used the Basu model in my analysis, third I explored the influence of institutional factors on accounting conservatism in this region. The results of this paper are important for all users of financial reporting to give them the possibility to assess the quality of accounting figures, especially in debt and management employment contracts. I found evidence that there is unconditional conservatism in both analyzed regions but it is higher in Western Europe than Eastern Europe. The results for conditional conservatism show that there is no conservatism in Eastern Europe (excluding Polish observations) but there is in Western Europe. Three Eastern European countries were analyzed in detail and I found that only in Poland for the whole analyzed period there is conditional conservatism. I found evidence proving my expectations regarding the influence of the quality of law on conditional conservatism, security law and risk of expropriation. I found significant evidence, which contradicted my expectations regarding transitional progress and tax burden; however I found reasons justifying these outcomes. I did not find significant evidence regarding my hypothesis about the influence of equity market exposure.

2. Accounting conservatism

Feltham and Ohlson (1995) define accounting conservatism as a situation when on `average book value is lower than market value. Basu (1997) defines conservatism as the incremental timeliness of bad news recognition over good news recognition. Basu (1997) as news means returns; he justifies it, by saying that in an efficient market, stocks incorporate all available information immediately. He assumed that the response of earnings to bad news is quicker than its response to good news. Givoly and Hayn (2000) examine conservatism from the point of view of changes in earnings, cash flows and accruals; they give another definition of conservatism based on the characteristics of a conservative reporting system, which tends towards the early and full recognition of unfavourable events in the financial statements and the delayed and gradual recognition of favourable events, and then conservatism can be measured by skewness or the variability of the earnings distribution. Givoly and Hayn (2000) also use another approach in measuring conservatism which is based on features of accruals. They explain that accruals tend to reverse, when there is a period, when income exceeds (is lower than) cash flow

and is followed by a period, when income is lower than (exceeds) cash flow. Conservatism takes place, when negative accruals tend to persist over time in stable companies. This measure is based on the definition of conservatism, in which the accounting system results in "slower revenue recognition, faster expense recognition, lower asset valuation and higher liability valuation", this definition incorporates elements of earnings conservatism (revenue and income) and balance sheet conservatism (assets and liabilities).

3. Literature review

3.1 The existence of conservatism and trends

One of the most important papers from the field of conservatism in accounting is "The conservatism principle and the asymmetric timeliness of earnings" of Basu (1997). First of all Basu proved that the regression coefficient is higher for a sample which included observations with negative unexpected returns than positive ones, it means that earnings is more timely in recognition of publicly available "bad news" than "good news". Basu (1997) examines also conservatism from accruals point. He found out that regression coefficient for bad news is higher for earnings than for CFO, but for good news there is no difference between R^2's, which is consistent with accounting conservatism incorporated in accruals. The next issue which Basu (1997) examines is the persistence of earnings. He proved that negative earnings have a higher tendency to reverse in the future than positive earnings. Basu (1997) also examines one of the reasons why there is an increase in the level of conservatism. He analyzed the relationship between auditors' liability and the coefficient of bad news and good news with earnings, and he finds that there is a relationship between this correlation and the level of auditors' liability. He founds that in periods of higher liability exposure for auditors there is higher a coefficient between bad news and earnings, and the coefficient between good news and earnings in the last period of high legal liability.

Givoly and Hayn (2000) widely prove that there was conservatism in accounting during the analyzed period. First of all they found out that in the early period (1966-1980) the companies generated slightly positive net accruals, and since 1982 net accruals have been negative. Accumulation of negative non-operating accruals is consistent with an increase in reporting conservatism over the last several decades. The other groups of measures like the earnings-return measures indicate an increase of conservatism overtime. The earnings distribution is negatively skewed in most of the examined periods and there is no similar phenomenon in cash flows. The negative skewness of earnings confirms the existence of conservatism and an increase of the skewness, which means an increase in conservatism over time.

3.2 International differences

The research of Giner and Rees (2001) focuses on three close European countries Germany, France and the UK. They found that the strongest conservatism was in the UK and then in France and Germany. However all three countries express an association of bad news with

returns which is much stronger than good news and returns. The differences between these three countries are however not significant.

Ball et al. (2000, 4) extend previous studies by going beyond just comparing different accounting regimes but focusing on institutional factors. Ball et al. (2000) study international differences between Australia, Canada, UK, USA, France, Germany and Japan. Ball et al. (2000) show that in common law countries with a so called shareholder orientation there are stronger incentives for conservatism, on the other hand code law or stakeholder oriented countries are characterized by less conservative accounting. They found out that in code law countries there is less conservatism then in common-law countries.

Garcia Lara and Mora (2004) find that both balance sheet and earnings conservatism practices exist in all countries examined, but there are significant differences in conservatism between countries. The market-to-book ratio in the UK is significantly different from the other countries. In all analyzed countries there is a significantly faster recognition of bad news in earnings with respect to good news. Lara Garcia and Mora (2004) indicate that the United Kingdom is the most extreme example in Europe (common-law-based country), which shows greater earnings conservatism than other analyzed countries

Raonic et al. (2004) focused on a different group of companies. They take for their analysis all companies across Europe which have been listed on more than one capital market between 1987-1999 (366 firms and 3 724 firm-year observations) using Basu model to measure conditional conservatism. The three factors considered are: equity market exposure and regulatory environment. Raonic et al. (2004) conclude that capital market pressure and regulatory impact each appears to lead to more conservative accounting.

Bushman and Piotroski (2006) analyzed the period between 1999-2001. They analyzed 38 countries. They used the Basu model in their research incorporating legal and institutional factors as dummy variables. Bushman and Piotroski (2006) find out that in the strong judicial system countries bad news is recognized faster than in countries with lenient judicial systems. Secondly, they find that strong public enforcement aspects of securities law slows recognition of good news in earnings relative to firms in countries with weak public enforcement aspects. In contrast, the private enforcement aspects of securities law have no impact on conservatism. Less conservatism in accounting is observed in countries with greater political involvement and a high risk of expropriation of assets by the state and high state ownership of enterprises

Evidence regarding one of the countries of Eastern Europe can be found in Jindrichovska and McLeay (2005). Jindrichovska and McLeay used the Basu model to measure conservatism in the Czech Republic. They did not find proof for the existence of accounting conservatism in the Czech Republic. This phenomenon Jindrichovska and McLeay explain due to economic transition and regulatory conditions that limit market influences on accounting behaviour.

The most recent paper about Eastern European countries is "Reliability of earnings figures and conservatism in transitional economies" by Martikainen and Tilli (2007). The results of the research show that in Bulgaria, Croatia, Lithuania, Poland, Romania, Russia, Latvia and Slovakia there is conservatism at a significant level. Conservatism in the Czech Republic and Ukraine is insignificant. The research also shows that joining the EU has a significant

positive influence on loss recognition, it means EU members are more conservative than non-EU ones. They also researched the influence of the transition process. They found out that those countries in which progress in the transition process is more thoroughly developed express higher conservatism, at the significant level.

4. Hypotheses and research design

4.1 Hypotheses development

H1: There is unconditional conservatism in post-communist countries
Capitalism has existed in post-communist countries for almost twenty years. During this period these countries were able to create institutional frameworks similar to Western European countries. All these changes allow it to be said that Eastern European countries have already created mechanisms typical for a market economy and that is why I can claim that unconditional accounting conservatism takes place in Eastern European countries.

H2: Conditional and unconditional conservatism is stronger in Western-European countries than in post-communist countries
Despite big progress made by post-communist countries in the transition process, full transformation from a command market to a free market economy cannot be done within such a short period of time. The market economy tradition in Western countries was built over decades, and it is not possible to repeat the same process in such a short time. On top of that, some countries like Slovenia or the Slovak Republic did not go through the transition process so fast. consequently it was expected that accounting in post-communist countries is less conservative than in Western European countries.

H3: There are differences in the level of conditional conservatism in Eastern European countries
Taking into account individual countries, it is reasonable to say that the countries despite a common communist tradition are different due to differently executed transition process. Countries had different approaches towards carrying out the transformation process. The Czech Republic was the quickest in privatization of state-owned enterprises. Poland chose a more gradual method of privatization, while Hungary tried to attract outside investors, which could buy state-owned enterprises. Beside their different ways of carrying out the transitional process, different factors like the size of capital markets, regulatory frameworks, and tradition (Polish accounting was relatively flexible already before 1990) can also determine dissimilar levels of conservatism in Eastern European countries. Based on the progress in the transitional process, regulatory framework, and the size of capital markets, I can expect that conservatism would be expressed the most in Poland and the lowest level of conservatism should take place in the Czech Republic.

H4: Asymmetric timeliness of earnings is higher in the countries with more progress in the transitional process
Progress in the transitional process as shown in various analyses differs greatly (source European Bank of Development and Reconstruction, Structural Change Indicators ,

http://www.ebrd.com/country/sector/econo/stats/index.htm). This can have an influence on accounting practices, since countries, which went faster through transitional process have an approach more similar to Western countries, which means that they could demonstrate a higher degree of conservatism.

H5: Asymmetric timeliness of earnings is higher in the countries with higher market exposure

Strong market exposure of companies is connected with the risk of litigation by investors. Companies which are listed on capital markets are exposed to litigation in the event that they mislead investors. Then, managers are especially cautious about their accounting policy. It is expected that higher market exposure causes a higher level of conservatism in accounting.

H6: Asymmetric timeliness of earnings is higher in countries with a strong legal system

I could expect that the extent that the legal/judicial system is conducive to the use of enforceable contracts, there will be higher conservatism, due to a need for verifiable accounting figures by contracting parties. The role of the judicial system is to maintain the enforceability of contracts. This means that countries with a stronger judicial system (which lead to the use of accounting numbers in formal contracts) are characterized by a higher demand for conservative reporting.

H7: Asymmetric timeliness of earnings is higher in countries with strong securities laws

Regulatory bodies are exposed to public judgment, which is more unfavourable in the event of overstatement of accounting numbers than understatement. Then regulatory bodies tend to create laws which encourage conservatism. Furthermore, the costs of strong security law (which regulates relations between market players) are smaller than individual contracts, thus security law responds to contracting incentives. The last, strong security law is connected with some non-criminal penalties but also criminal ones (if it is built into the framework of national law), this causes accounting to be even more conservative. All these reasons lead me to believe that I should expect that the quality of security law is connected with level of accounting conservatism.

H8: Asymmetric timeliness of earnings is higher in countries, where there is a high risk of expropriation

It is claimed, that government aims to control enterprises due to market imperfections such as monopoly power, to provide employment and subsidies. The state wants to control poor performing companies for the benefit of the greater society. I expect that the relation between risk of expropriation and conservatism is positive, so the higher level of this risk signifies a higher level of conservatism in accounting.

H9: Asymmetric timeliness of earnings is higher in countries with strong tax regimes

It was expected that companies in countries with high tax burdens, in order to avoid tax payment will exercise conservatism. In this case I can state the above hypothesis should be true. It is understandable that companies want to avoid paying taxes. In order to diminish the value of income taxes, companies try to underestimate earnings which is characteristic

of conservatism. On the other hand, the situation of post-communist countries is a little bit different, because tax authorities in these countries have a strong position and try to prevent these kinds of practices in companies. This opposite stream in the tax regime of post-communists countries could result in the relationship between tax regimes and accounting conservatism to be opposite to what I expect.

4.2 Research design

In the first stage, unconditional and conditional conservatism are measured in Western European countries and post-communist countries as by two pooled samples. The sample of Western Europe consists of companies from France and Germany. For post-communist countries observations from the Czech Republic, Hungary, Lithuania, Slovakia, Slovenia and Poland were taken to do the computation. The Basu model and market-to-book ratio are measures, which were used in this research.

Accounting conservatism in Eastern Europe. Comparison with Western Europe
In the first stage, two measures of conservatism are used: Basu model and market-to-book ratio.
The model of Basu is used in order to measure earnings conservatism.

$NI_t = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R^*_{it} DR_{it} + \varepsilon_{it}$ (1)

NI_{it} – accounting income (income before extraordinary items)
R_{it} - the return of firm i over the 12 months $(P_t - P_{t-1})/P_{t-1}$

$$DR_{it} = \begin{cases} 1 \text{ if } R_{it} < 0 \\ 0 \text{ otherwise} \end{cases}$$

Measures of conservatism from the regression 1(Givoly and Hayn, 2000, 293):
- β_1 – incremental response to bad news relative to good news, conservatism when $\beta_1 > 0$,
- $(\beta_0 + \beta_1)/\beta_0$ the relative sensitivity of earnings to bad news compared with their sensitivity to good news, conservatism when ratio >1
- Rb_2/Rg_2 where Rb_2 - R_2 power of regression in periods of bad news (negative returns); Rg_2 - R_2 power of regression in periods of good news (positive returns), conservatism when the ratio >1

In order to measure balance sheet conservatism there is used market-to-book ratio.
MTB= MV/BV
MV- market value represented by market capitalization
BV- book value represented by shareholders equity
The market-to-book ratio is calculated based on aggregated amounts of market and book value, where market value is sum of market capitalization of all companies in sample and book value is a sum of shareholder's equity of all companies in sample. MTB>0 indicates the accounting conservatism.

Influence of institutional factors on conservatism

The Influence of institutional factors on conservative accounting is measured by the incorporation of these variables into the Basu model as a dummy variable. The following model is constructed according to Bushman and Piotroski (2006) research.

After incorporating an institutional factor the Basu model is as follows:

$$NI = \beta_1 + \beta_2 R_{it} + B_{21}CCD\ R_{it} + \beta_4 R_{it}D + \beta_{41}CCD\ R_{it}D$$

After transformation, the above equation is as follows

$$NI = \beta_1 + (\beta_2 + B_{21}CCD)\ R_{it} + (\beta_4 + \beta_{41}CCD)\ R_{it}D$$

CCD- represents any institutional factor: transition process (TRANSP), equity market exposure (EQMEXP), legal system (LAW), security law (SECLAW), risk of expropriation (PTECON) and tax burden (TAX).

Similar to Bushman and Piotroski (2006), in their research the focus will be on recognition of good and bad news in CCD countries relative to non-CCD countries, so the $B_{21} + \beta_{41}$ are of great importance.

When $\beta_{21} \neq 0$ the speed of good news recognition differs in CCD countries relative to non-CCD countries

When $\beta_{41} \neq 0$ incremental speed of bad news recognition relative to good news recognition differs for CCD countries to non-CCD countries

In the model there are incorporated the institutional settings. Proxies are based on ratings provided by European Bank of Development and Reconstruction and World Bank in its annual reports.

I have analyzed the influence of following factors on conservatism in accounting:

- transitional process (TRANSP)
- equity market exposure (EQMEX)
- regulatory environment (law enforcement) (LAW)
- security law (SECLAW)
- political economy (PTECON)
- tax regime (TAX).

The data for research were extracted from World Scope and Thomson Financial database for the period 1994-2008 . Market capitalization was taken as a market value (WS.YR END MARKET CAP) which is Market Price-Year End * Common Shares Outstanding, book value is represented in database by common equity (TF.Total Common Equity common shareholders' interest in a company), the accounting earnings (NI) are income before extraordinary items (WS.IncomeBefExtraItemsAndPfdDiv- Net Income Before Extraordinary Items And Preferred Dividends), and dividends per share (WS.DividendsPerShare). All accounting variables are scaled by beginning market value of the company (WS.YR END MARKET CAP). Stock returns (R_{it}) are computed as $((P_{it}+Div_{it})-P_{it}-1)/P_{it}-1$.

Market-to-book ratio

All companies with missing values are excluded from the research. The number of observations is very low at the beginning of the analyzed period for Eastern European countries. The reason is that at the beginning of 90's securities markets were not developed and some stock exchanges were recently established in post-communist countries. The number of observation for the period 1994-2008 in Eastern European countries is 3.003 and in Western European countries 20.901.

Basu model

The structure of the sample is determined by the size of the capital markets of the analyzed countries. According to market capitalization (World Development Indicators online database), the biggest securities market is in Poland. Budapest and Prague's stock exchanges are similar in the size, and the capital markets with the smallest market capitalization are in Slovakia, Slovenia and Lithuania. This goes together with the structure of the sample. There are 2.161 observations for three Eastern European countries for the period 1994-2008. The data are dominated by Polish companies, which represent 60% of observations. The rest of the countries have the following shares: 18% Czech Republic, 17% Hungary, 0,6% Lithuania, 2% Slovakia and 2% Slovenian companies. Because of the dominance of Polish companies, a reestimation is provided of models excluding Polish observations. There are 18.673 observations for Germany and France for the period 1994-2008

5. Results and analysis

Estimations of accounting conservatism across regions and countries

My research shows that in the Western European region conservatism is stronger than in Eastern Europe for the analyzed period which confirms hypothesis 2 "Conditional and unconditional conservatism is stronger in Western-European countries than in post-communist countries" (regarding the part about unconditional conservatism, later on evidence is provided about conditional conservatism). The results also show that my expectations about hypothesis 1 are true, there is unconditional conservatism in Eastern Europe. The results show also that between the three analyzed countries, Poland has the highest market-to-book ratio, the next one is Hungary and at the end the Czech Republic. Table 1 presents the outcome of the analysis regarding conditional conservatism $NI = \beta_1 + \beta_2 R_{it} + \beta_3 D_{it} + \beta_4 R_{it} D$ for the Western European countries and Eastern European countries.

Table 1. Association between earnings and returns in Western and Eastern Europe

β_2, β_4 and adjusted R_2 presents the results derived from the following model NI=β_1+ $\beta_2 R_{it}$ + $\beta_3 D_{it}$ + $\beta_4 R_{it}D$, for country-year observations for years indicated in the first column. R_2 bad and R_2 good are derived from the models, where bad news (negative returns) are regressed on accounting income and good news (positive returns) are regressed on accounting income. In the last column there is presented number of observations. The values of the first row of each region in the second and the third column present the unstandardized coefficients; values in brackets in the second row are the t-statistics.

Period	β_2	β_4	Adj. R^2 [%]	$(\beta_2+\beta_4)/2$	R^2 bad	R^2 good	N
Western Europe							
1994-2008	0.021***	0.309***	10.9	15.71	0.089	0.006	18673
	(7.390)	(28.801)					
1994-2001	0.012***	0.292***	11.9	25.33			9462
	(3.790)	(22.872)					
2002-2008	0.035***	0.310***	10.4	9.86			9211
	(6.927)	(17.754)					
Eastern Europe							
1994-2008	0.050***	0.182***	9.5	4.64	0.035	0.032	2161
	(6.110)	(4.840)					
1994-2001	0.069**	0.325***	10.1	5.71			787
	(2.478)	(4.554)					
2002-2008	0.048***	0.084	9.3				1374
	(6.012)	(1.879)					
Czech Republic, Hungary, Lithuania, Slovakia and Slovenia							
1994-2008	0.115***	0.037	5.1				855
	(3.128)	(1,069)					
2002-2008	0.103**	-0.040	4.1				426
	(2.631)	-(0.296)					

* significant on the level of 10% confidence level
** significant on the level of 5% confidence level
*** significant on the level of 1% confidence level

There is evidence that the asymmetric timeliness of earnings (measured by the β_4 coefficient) is stronger in Western European countries than in Eastern European countries at the 1% significance level. Results derived in this section regard hypothesis 2: "Conditional and unconditional conservatism is stronger in Western-European countries than in post-communist countries". Both types of conservatism show a higher level in Western Europe. The market-to-book ratio is higher for Western Europe than for Eastern Europe in the Basu model's results I conclude that Western Europe's accounting is more conservative than Eastern Europe's accounting. In fact, there is no evidence indicating accounting conservatism in Eastern Europe, when I exclude from a sample Polish observations.

I mentioned in my objectives that I want to use two measures of accounting conservatism in order to check if the chosen methodology influences the results, and secondly if there are differences in the levels of conditional and unconditional conservatism in the analyzed

regions. Although results derived from the period 1994-2008 are similar, when I divide my sample in two periods, the results are opposite. The market-to-book ratio is higher for Eastern Europe than for Western Europe in the second period and results for the Basu model are opposite; the conditional conservatism was higher in Western Europe than in Eastern Europe for the second period. These opposite results I can explain due to a biased measure of the market-to-book ratio (Givoly and Hayn (2000). I think that the results of the market-to-book ratio in the second period for Eastern Europe are biased by growth opportunities. That is why the Basu model is a better measure of accounting conservatism.

After analysing Eastern Europe as a whole sample, it is interesting to explore countries individually. The number of observations for the Czech Republic, Hungary and Poland allow me to conduct research separately for these countries. Table 2 reveals the outcome.

Table 2. Association between earnings and returns in Eastern European countries

β_2, β_4 and adjusted R^2 presents the results derived from the following model NI=β_1+ β_2Rit + β_3Dit + β_4RitD, for country-year observations for periods indicated in the first column. R2 bad and R 2 good are derived from the models, where bad news (negative returns) are regressed on accounting income and good news (positive returns) are regressed on accounting income. In the last column the number of observations is presented. The values of the first row of each region in the second and the third column present the unstandardized coefficients; values in brackets in the second row are the t-statistics.

Period	β_2	β_4	Adj. R^2 [%]	$(\beta_2+\beta_4)$/ 2	R^2 bad	R^2 good	N
Czech Republic							
1996-2008	0.169**	0.123	4.1	-	0.007	0.018	391
	(2.220)	(0.580)					
Hungary							
1994-2008	0.072***	0.046	12.9	-	0.013	0.046	373
	(2.880)	(0.720)					
Poland							
1994-2008	0.032***	0.178***	12.4	6.56	0.038	0.029	1304
	(4.261)	(4.507)					

* significant on the level of 10% confidence level
** significant on the level of 5% confidence level
*** significant on the level of 1% confidence level

Comparing Eastern European countries, the first finding is that the timeliness of accounting earnings is the highest in Hungary (Adj R_2). Secondly, the incorporation of good news into earnings is the highest for the Czech Republic and the lowest for Poland (β_2). Further on, only in Poland there is evidence at the 1% significance level that there is asymmetric timeliness of earnings. The results for Hungary and the Czech Republic are insignificant; it means that there is no evidence of asymmetric timeliness for earnings. The relative sensitivity of earnings to bad news compared with their sensitivity to good news is higher than 1 in Poland (the calculation is not provided for the Czech Republic and Hungary, since the coefficients are not significant), and the last measure of conservatism: the relation of the power of the regression in periods of bad news (negative returns) to the power of the regression in periods of good news (positive returns) is higher than 1 only in the Polish case. I believe that there are two main drivers of the results obtained in Table 2. This is the way of handling the transitional process used by post-communist Eastern European countries and the tax regulations in these countries. The results for the beginning of the

analyzed period are determined by the first driver. In the Czech Republic a lack of an institutional framework around the securities market, which developed very quickly, is a reason for the lack of conservatism at the beginning of the period in the Czech Republic and Hungary. Poland had a different attitude. This country firstly developed regulations based on western standards, which some criticized for overambitious goals, because they were difficult to attain for companies which recently started to learn about capital markets (OECD 1998). However, it was probably the most important reason why there was accounting conservatism in Poland and not in Hungary or the Czech Republic. Nowadays, the security market's regulations have also improved in Hungary and the Czech Republic. The results from the Czech Republic are similar to those found in a paper by Jindrichovska and McLeay (2007). They also found evidence that there is no asymmetric timeliness in earnings. The reasons for these particular results are seen in the transitional nature of the Czech market and restrictive tax regulations, which diminish incentives for conservatism. It is worthwhile to note that the Czech Republic has the highest coefficient of stock returns (good news), which indicates that the timeliness of earnings is the highest in this country. This can indicate that strict tax requirements reinforce the incentives of companies to recognize all events in a timely manner. The specific Czech regulations regard limitations on provisioning, depreciation and deferred taxation. Companies that do not fill the requirements (e.g. reduce their tax base) can also face penalties (Jindrichovska and McLeay, 2007). The results for Poland are in accordance with the paper of Jermakowiacz and Gornik-Tomaszewski (1998), who researched the relation of stock returns and earnings. They found out that this relation is similar to the mature markets and the results are comparable to the research conducted on the US market by Easton and Harris (1991). The lack of evidence of conservatism in the Czech Republic, even when I take more recent periods into analysis, is driven by a very strict tax system in this country. Overall, I can conclude that in Eastern Europe the main drivers of conservatism are institutional settings (like taxes and securities market regulations). In these countries the costs of establishing adequate regulations by market players are too high (it was hoped that regulations would be established by players in the Czech Republic; this was a mistake and the government realised that this is its role to establish a legal framework and regulatory bodies at the end of 90's). The results regarding Poland, Hungary and the Czech Republic confirm hypothesis 3: "There are differences in the level of unconditional and conditional conservatism in Eastern European countries". These countries, despite their common communist past, differ in the level of conditional conservatism, and these differences result from the diverse way of handling the transitional process and establishing regulations. Poland is the most conservative country while there is a lack of evidence for the existence of conditional conservatism in the Czech Republic.

Table 3. Evidence on the influence of legal and political institutions on the asymmetric timeliness of earnings in Eastern Europe

The following table presents select coefficients and test statistics of estimations from the model

NI=β1   + β2Rit   + β3Dit + β4RitD + β11CCD + β21RitCCD+β31Dit CCD + β41DRitCCD

The sample holds observations from Czech Republic, Hungary, Lithuania, Poland, Slovakia and Slovenia available for period 1994-2008. In the first rows unstandardized coefficients are presented, the second rows provide t-statistics.

	Good news		Incremental bad news sensitivity		
	β_2	β_{21}	β_4	β_{41}	Adj R^2
TRANSP	0.086***	-0.067***	0.369***	-0.328***	10.20%
	(5.355)	-(3.421)	(5.675)	-(3.875)	
EQMEXP	0.045	-0.064	0.242	-0.026	7.60%
	(1.091)	-(0.827)	(1.671)	-(0.574)	
LAW	0.038***	0.028	0.041	0.284***	8.10%
	(3.815)	(1.032)	(0.743)	(3.234)	
SECLAW	0.044	-0.003	0.314	-0.153	7.50%
	(0.425)	-(0.032)	(1.313)	-(0.630)	
PTECON	0.029***	0.069***	0.097*	0.199**	8.80%
	(2.962)	(2.569)	(1.866)	(2.217)	
TAX	0.075***	-0.058***	0.369***	-0.344***	9.10%
	(5.357)	-(3.147)	(5.790)	-(3.992)	

*** significant on the level of 1% confidence level
** significant on the level of 5% confidence level
* significant on the level of 10% confidence level

Table 3 provides evidence about the relation of institutional factors and the timeliness of earnings. First of all the results for the transitional process are significant and they show that the transitional process causes lower timeliness of earnings (β_2 and β_{21}) and lower incremental bad news sensitivity (β_4 and β_{41}). This contradicts hypothesis 4: "Asymmetric timeliness of earnings is higher in the countries with more progress in transitional process". The reason why the outcome for the transitional process is different from my expectations is that there was a negative relation between the development of capital markets and the speed of privatization of state-owned –enterprises, which is the main element of the TRANSP proxy. The rapid privatization which was the main indicator of the progress of the transitional process was connected with a lack of setting up proper regulations. On the other hand high standards for securities law was a main driver of conservative accounting. Furthermore, high standards constrained privatization and the development of private enterprises due to difficult access to capital markets, as was the case in Poland.

The results for equity market exposure are insignificant, so the coefficients cannot really be interpreted; the reason why the outcome from equity market exposure is insignificant can be connected to the underdeveloped security markets in the analyzed countries. The securities markets are still unstable and vulnerable to outside factors (Schroder, 2000). This can be a reason why the results are not significant. Further on, in Blommestein's paper (1998, OECD report) it is indicated that the cost of establishing regulatory bodies and regulations encouraging conservatism was too high. Because market development did

not go alongside the development of regulations.This can also be a reason why despite higher market exposure of the listed companies accounting conservatism was not encouraged Based on this result I do not find significant evidence, which proves hypothesis 4: "Asymmetric timeliness of earnings is higher in the countries with higher market exposure".

Table 3 provides evidence that countries with impartial courts (clear legal framework) have a higher incremental sensitivity to bad news. Since the companies face the threat of litigation from investors when earnings are overvalued rather than the opposite, this threat is more probable in countries where the legal system is clear and enforceable. It is reasonable that companies recognize their "bad news" quicker in countries with high legal standards. The result is on a significant level. Furthermore, there is no evidence of the influence of the legal framework on good news sensitivity since the results are not significant. The outcome confirms my expectations regarding hypothesis 5: "Asymmetric timeliness of earnings is higher in countries with a strong legal system".
There is no evidence about the influence of securities law on the timeliness of earnings, since the results are not significant. However, there is a reason to do some further research by changing the construction of the dummy variable. The way it is done in previous analysis means that there are 79 observations with 0 values of the dummy, and 2080 with 1. This can be a reason for the insignificant results regarding the securities market in the previous analysis. This modification in the construction of dummy variables increases the number of observations with the dummy variable value of 0 to 473. The results after the correction of the SECLAW dummy variable are consistent with the expectation stated in hypothesis 6: "Asymmetric timeliness of earnings is higher in countries with strong securities laws". Countries with high quality securities laws recognize good news slower, at a significant level. However, based on the results there is no evidence showing how securities laws influence the recognition of bad news since the results are insignificant. The change in construction of the dummy variable improves the result and confirms the hypothesis. The improvement of the dummy variable was certainly justifiable, since previously the observations were in the majority of instances assigned to the high quality of security law, and it was impossible to get significant results.
The results regarding political economy are as follows: The sensitivity of good news is higher in countries with a high risk of expropriation at a 1% significance level. The result shows that companies operating in countries, which have a higher risk of expropriation, incorporate good news faster than countries with a low risk of expropriation. On the other hand, incorporation of bad news is also quicker in high risk of expropriation countries on the significance level 1% and 5%. Because post-communist countries are considered as non-benevolent countries, states which take over companies, that perform well the higher coefficient β_{41} than β_4, confirms that companies in countries with a high risk of expropriation undervalue their earnings by quicker incorporation of negative events. On the other hand, a higher β_{21} than β_2 is not consistent with the assumption that Eastern European countries are non-benevolent countries. The results show that countries with high PTECON incorporate good news faster but that the incremental bad news sensitivity is also higher. Then, it is hard to asses which direction the influence of political economy is stronger. Based on the results I can conclude that hypothesis 7 "Asymmetric timeliness of

earnings is higher in countries, where there is a high risk of expropriation" is confirmed, because incremental speed of bad news recognition relative to good news recognition is higher for countries with high risk of expropriation than for countries with low risk of expropriation (β_{41}).

The findings regarding tax regime are opposite to the stated hypothesis 9 "Asymmetric timeliness of earnings is higher in countries with strong tax regime", but confirm the expectations about the influence of this aspect on conservatism in post-communist countries. The result verifies that in countries with strict tax regimes, there is no conservatism but rather aggressive accounting (negative coefficient β_{41} on the significant level). It provides evidence that the tax regime has a significant influence on conservatism in post-communist countries, which confirms a brief divagation of Jindrichovska and McLeay (2007) about the reasons for the lack of conservatism in the Czech Republic. However, a high tax burden resulting in slower good news recognition may prove that tax regulation encourages conservatism, as expected by Bushman and Piotroski (2006). Nevertheless, the results show that β_{41} is negative on the significance level of 1%, which does not confirm hypothesis 9: "Asymmetric timeliness of earnings is higher in countries with a strong tax regime".

6. Summary and conclusions

The objective of this research is to analyze conservatism in accounting in the post-communist countries of Central and Eastern Europe, which are members of the European Union and to identify institutional factors which have influenced conservatism in these countries.

I investigated Eastern European countries which have already joined the European Union and had a communist regime in the past. I measured unconditional conservatism using the market-to-book ratio and Basu's conditional conservatism model. The period of my analysis was limited to the years 1994-2008.

Hereafter, I will shortly recall the results of my research. First of all, my main research question was "Is there accounting conservatism in Eastern Europe?". After the analysis I conducted I can answer: yes, there is unconditional conservatism in Eastern Europe. On the other hand I found evidence confirming the existence of conditional conservatism in Eastern Europe (including Poland in the sample). I compared the results for Eastern Europe with the results for Western Europe, and I concluded that accounting conservatism is represented more brightly in Western European countries

I also found answers for more detailed sub-questions in my research. Regarding my first sub-question "Does accounting conservatism differ across Eastern Europe?" I found that the level of conditional conservatism differed in the three countries analyzed. My second sub-question was as follows: "Does the transitional process influence accounting conservatism in Eastern Europe?". Hypothesis 4 was aimed at answering this question. The evidence shows that the progress of transition discourages conservatism. Thus it seems that the regulations are the main incentives for accounting conservatism in Eastern Europe. The results are consistent with the outcome of hypothesis 7 regarding security laws.

My last research sub-question verifies whether institutional factors influence accounting conservatism in Eastern Europe. First of all I did not find significant evidence that equity

market exposure encourages accounting conservatism and I justify this by pointing out the vulnerability of equity markets in emerging markets, which overshadow the results. The second institutional factor which I analyzed was the quality of law. I found evidence that the impartiality of the legal system encouraged conditional conservatism in Eastern Europe, which is in accord with my expectations. After the quality of law I researched another regulatory aspect: security law. In this case I also found that higher standards of security law positively influence the level of conservatism. These outcomes were in accordance with my eighth stated hypothesis. I found that the risk of expropriation by the state discouraged conservatism.

The results for the tax regime's influence on conditional conservatism was opposite to my expectations; however it is justifiable, since high tax burdens are so strong in these countries. This means that companies do not try to underestimate their earnings, but rather they try to recognize them in a timely manner due to the danger of penalties.

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Income Smoothing and Earnings Informativeness

A matter of institutional characteristics or accounting standards?

Alexandra Tudor[1]

Executive Summary

This study investigates the level of income smoothing and its impact on the informativeness of earnings. The main contribution of this research is that as well IFRS as investor protection are considered to examine the association between income smoothing and earnings informativeness. Income smoothing is measured as the variation in net income relative to the variation in operating cash flows. A returns-earnings regression based on Zarowin (2002) is used to measure earnings informativeness. A sample of listed companies from United Kingdom (strong investor protection), France and the Netherlands (weak investor protection) is chosen. The results suggest that companies in United Kingdom show less smooth earnings compared to companies in France and the Netherlands. In addition I find that firms smooth income to a higher degree in the period after IFRS. Moreover income smoothing improves earnings informativeness during the pre IFRS period for all sample companies, and to a higher degree in the United Kingdom, although not significant. Subsequently to IFRS adoption the results suggest that income smoothing decreases earnings informativeness in all countries.

For the full text of this master thesis refer to the following webpage: http://hdl.handle.net/2105/5605.

1. Introduction

Income smoothing is a form of earnings management and is generally defined as the dampening of fluctuations in reported earnings over time (Ronen and Yaari 2008, 317). In other words, management is inclined to take actions to increase earnings when earnings are relatively low and to decrease earnings when earnings are relatively high. The main reasons that managers smooth earnings are: maximizing their own wealth, reducing the

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perceived riskiness of the firm, enhancing firm value, meeting debt covenants, reducing tax and political costs and enhancing the reliability of financial forecasts.

Although there is evidence that income smoothing takes place, its effect on earnings informativeness is largely unknown. Hereby is earnings informativeness defined as *"the amount of information about future earnings or cash flows included in current period stock return"* (Zarowin 2002, 4). The literature hypothesizes two opposite effects of income smoothing (Zarowin 2002, Tucker and Zarowin 2006). One viewpoint is that income smoothing results in altered information and thus less informative stock prices. On the other hand income smoothing through efficient communication of private information about the firm's future expectations can lead to more informative stock prices.

This study investigates the relation between income smoothing and earnings informativeness in three different countries: UK, France and Netherlands. To compare between countries, the institutional infrastructure of the three countries has to be considered. The most relevant considered institutional factor here is investor protection, which is about how well the law protects shareholders against expropriation by managers (Cahan et al. 2008).

Income smoothing is assumed to take place through accounting choices. These choices in turn are dependent on the applied accounting standards. Therefore the set of accounting rules companies need to comply with, should be considered. As of January 1, 2005, companies listed in the European Union are required to present their consolidated financial statements applying International Financial Reporting Standards (IFRS). These new standards aim to improve comparability of companies across countries.

In this research I attempt to provide an answer to the following research questions:

What is the impact of IFRS on the level of income smoothing and its relation with earnings informativeness?

What is the impact of investor protection on the level of income smoothing and its relation with earnings informativeness?

Each country's sample consists of two periods, pre IFRS and post IFRS. I measure the degree of income smoothing as the ratio between the variation in net income and variation in operating cash flows (Zarowin 2002). The relation between income smoothing and earnings informativeness is given in a returns – earnings regression based on Zarowin (2002) and Tucker and Zarowin (2006).

I predict that the level of income smoothing will be higher in all three countries after IFRS adoption, since IFRS allows managers with more discretion. Companies in France and Netherlands, as weak investor protection countries, are expected to show higher levels of income smoothing during both periods.

The relation between income smoothing and earnings informativeness is predicted to be positive prior to IFRS for all three countries, with a stronger effect for UK, which is characterized by strong investor protection. After IFRS, the relation between income smoothing and earnings informativeness is expected to be weaker than in the first period for France and Netherlands and stronger for UK.

The association between income smoothing and earnings informativeness is important for policy makers as it relates to the ability of firms to manage earnings (Zarowin 2002, 4). This ability can be influenced by institutional factors (Leuz et al. 2003, Cahan et al. 2008) and accounting standards (Barth et al. 2008, Jeanjean and Stolowy 2008). I contribute to the body of international research by taking both the effects of IFRS and investor protection into account when investigating income smoothing and earnings informativeness.

The remainder of this paper is organized as follows: chapter 2 provides a comprehensive literature review. In chapter 3 the hypotheses are developed and research design is presented. Chapter 4 describes the empirical results and in the end chapter 5 provides a summary and conclusions of this study.

2. Literature review

2.1 Income smoothing and informativeness

2.1.1 Definition

Ronen and Sadan (1981, 2) define income smoothing as *"a deliberate attempt by management to signal information to financial users"*. In an earlier work the definition is *"the deliberate dampening of fluctuations about some level of earnings which is considered to be normal for the firm"* (Barnea et al. 1976, 110).

A more recent depiction is *"to characterize income smoothing as earnings management, we need to define the point at which managers' accrual decisions result in "too much" smoothing and so become earnings management"* (Dechow and Skinner 2000, 238). Basically income smoothing is the reduction of the variance in periodic profit over time to the extent allowed by accounting and management principles.

2.1.2 Earnings informativeness

Efficient income smoothing can improve the informativeness of a firm's current and past earnings about future earnings and cash flows. Earnings informativeness (or stock price informativeness) is defined by Zarowin (2002, 4) as *"the amount of information about future earnings or future cash flows impounded in the current period stock return."* Resource allocation can be improved if stock prices include more information through income smoothing (Zarowin 2002, 3).

When making discretionary accounting choices managers consider expected future earnings (Fudenberg and Tirole 1995, 77). Tucker and Zarowin (2006, 253) categorize the managers' use of reporting discretion as either (a) garbling or (b) efficient communication of private information. The authors argue that if income smoothing is garbling, then the resulting earnings are less informative about future earnings. When income smoothing is used to communicate private information about future performance expectations, it could provide more information about future earnings and cash flows. This last argument is the one I use further in this master thesis.

2.1.3 The relation between income smoothing and earnings informativeness

Although the effect of income smoothing on earnings informativeness is not thoroughly investigated, the accounting literature so far theorizes two opposite effects of income smoothing on earnings informativeness according to Zarowin (2002, 4) and Tucker and Zarowin (2006, 253). One viewpoint is that managers use income smoothing to make public their private information about the firm's future earnings (Ronen and Sadan 1981, Chaney and Lewis 1995, Tucker and Zarowin 2006). Here income smoothing results in more information about future earnings and cash flows, which in turn is reflected in the stock prices. Alternative findings suggest that income smoothing alters information and makes stock prices less informative. Less information about future earnings and cash flows will be reflected in the stock prices, making smoothing harmful (Tucker and Zarowin 2006, 253).

2.1.4 Income smoothing improving the value relevance[2] of earnings

The study of Hunt et al. (2000) investigates whether earnings smoothing through discretionary accruals improves or deteriorates the informativeness of earnings. The findings suggest that both discretionary and nondiscretionary accrual accounting practices increase the informativeness of earnings. Further the results support the informativeness hypothesis, namely that managers smooth income to convey their private information. Here, Hunt et al. (2000, 8) refer to the study of Chaney and Lewis (1995), which also stated that only managers have private information about future earnings and therefore smooth income.

The study of Zarowin (2002) introduces a new approach by focusing on the relation between current stock prices and future information in a cross-sectional setting. Zarowin (2002, 4) defines stock price informativeness as *"the amount of information about future earnings and cash flows that is reflected in current period stock returns"*. This notion is measured as the coefficient on future earnings (FERC) in the regression of current stock return on current and future earnings.
Regressions of stock returns against lagged, current and one year ahead earnings or cash flows and accruals, provide evidence that increased smoothing is associated with increased earnings informativeness. Thus firms with stock returns including more information about future earnings and cash flows have higher stock price informativeness.

The study of Tucker and Zarowin (2006) is more recent, and the approach used is closely related to Zarowin (2002). The authors believe that a firm has certain information about future earnings when current earnings are realized, because of the continuous business cycle. Then the reporting behaviour and the stock price reveal this information.
The research of Tucker and Zarowin (2006) provides evidence of more informative stock prices when firms smooth income, with stock prices of higher-smoothing firms more informative than lower-smoothing firms. Again, this is evidence that firms use discretion in reporting standards to make public information about future earnings and cash flows.

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[2] The term value relevance is used for earnings informativeness

2.1.5 Income smoothing as "garbling"

The second viewpoint in the income smoothing literature is that managers use their reporting discretion to "garble" earnings according to Tucker and Zarowin (2006, 253). Sloan (1996) investigates whether information about future earnings is fully reflected in the stock prices. This information is assumed to be contained in accruals and cash flows. In a regression of future abnormal returns on earnings, evidence is found that stock prices fail to anticipate the lower persistence of earnings impounded in accruals.

The research of Beneish and Nichols (2005) expands on Sloan (1996) by examining the role of earnings management in relation with the market pricing of accruals more thoroughly. The results suggest that when the probability of managed earnings is high, positive earnings are less persistent than negative earnings. This is in contradiction with investors' expectations that firms which manipulate earnings have higher future earnings. Subsequently the authors argue that earnings management is misleading.

2.2 Institutional characteristics

2.2.1 Investor protection

The notion of investor protection is defined by Cahan et al. (2008, 3) as *"how well investors are protected by law from expropriation by managers and controlling shareholders of firms"*. Insiders (managers) have the incentive to act in their own interest (opportunism), to obscure private control benefits and not reporting the true firm performance. An example is overstating earnings. When outside investors detect this behaviour, they will try to take actions against the insiders according to Leuz et al. (2003, 506). Investors are protected by law and regulation, which can differ across countries. Insiders are less intended to act opportunistically when investors are better protected. Here the distinction is made between strong investor protection and weak investor protection countries. This distinction is based on characteristics of a country's legal system, legal enforcement, shareholder rights, equity market importance, ownership concentration and disclosure requirements (Leuz et al. 2003, following La Porta et al. 1997, 1998).

2.2.2 The relation between investor protection, income smoothing and earnings informativeness

A study defining earnings management as managers' opportunistic behaviour and thus misleading is the research of Leuz et al. (2003, 506). Managers have the incentive to conceal true firm performance. The extent of their discretion depends on the accounting rules in a country and the legal system. Institutional characteristics are also taken into account. The results suggest that income smoothing is more persistent in weak investor protection countries.

The study of Cahan et al. (2008) investigates whether earnings informativeness due to income smoothing is related to the institutional infrastructure of a country. They use the approach of Tucker and Zarowin (2006) to measure earnings informativeness. This study focuses on the positive effects of income smoothing, managers communicating their private information about firm's future expectations.

The legal enforcement index based on La Porta et al. (1998) is used to measure investor protection. Legal enforcement is considered to be a good indication because laws are ineffective if they are not enforced. The findings suggest that income smoothing is more pervasive in countries with weak investor protection. Consequently income smoothing in countries with strong investor protection improves earnings informativeness to a higher extent than in countries with weak investor protection. Opportunism is associated with low investor protection while the communication of private information is related to strong investor protection. While there is less income smoothing in strong investor protection countries, its effect on informativeness is stronger than in countries with weak investor protection. Thus the efficient communication use of income smoothing predominates the use for opportunistic purposes.

2.2.3 The introduction of IFRS

As of January 1, 2005, all companies listed in the European Union are required to apply International Financial Reporting Standards (IFRS) when preparing their consolidated financial statements. IFRS are accounting standards issued by an independent body in Europe, the International Accounting Standards Board (IASB).

With the introduction of IFRS, standards are more principle based. More general principles rather than detailed rules are developed. Associated with the principle based approach of IFRS is fair value accounting, which is defined in IAS 39 as: *"the amount for which an assets could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction"* (IFRSs in your pocket 2009, 98). Fair value accounting differs from historical cost accounting in that it requires estimates based on market prices, which are not always observable (Ball 2006) and thus subject of management judgement. With the introduction of IFRS, many international differences in accounting standards are about to disappear. Harmonization will be the result, which improves the comparability of companies across countries. To achieve this, consistent appliance of IFRS across countries is necessary. The IASB is a standard setter and not a regulator. Implementation of the standards is primarily the responsibility of managers, auditors and local regulators in each country (Ball 2006).

2.2.4 IFRS, earnings management and earnings informativeness

The introduction of one single set of accounting standards in the European Union is supposed to increase uniformity and comparability. Increased uniformity goes together with reduced managers' discretion, as concluded by Palepu et al. (2007).

For instance, Van Tendeloo and Vanstraelen (2005) compare voluntary adoption of IFRS with German GAAP during 1999-2001. They find no significant difference in the level of earnings management.

Barth et al. (2008) investigate whether the degree of earnings management changes after voluntary adoption of international standards during 1994-2003, in a cross country study. They conclude that the level of income smoothing is lower for companies applying international standards. Also they find a higher association between net income and stock returns, which is evidence of earnings being more informative.

The study of Jeanjean and Stolowy (2008) examines the consequences of the introduction of IFRS on earnings management in UK, France and Australia. It is argued that IFRS *"provides firm with substantial discretion"* (Jeanjean and Stolowy 2008, 484). Earnings management is found to be higher after IFRS adoption in France and remaining stable in UK and Australia. The explanation given is that countries have different institutional characteristics.

Soderstrom and Sun (2007) attempt to find an explanation for the mixed results in prior research on the consequences of IFRS adoption for accounting quality. They argue that accounting quality not only depends on the accounting standards applied but also on a country's legal and political system and financial reporting incentives. Accounting standard setting is primarily influenced by government in code law countries and private organizations in common law countries. Differences in legal enforcement across countries also play a role.

3. Hypothesis development and research design

After 2005 listed companies in Europe are required to apply IFRS. These standards follow a principle based approach and fair value accounting which requires more subjective judgement.

Paananen and Lin (2008) report that income smoothing behaviour increased after IFRS adoption in Germany. Jeanjean and Stolowy (2008) provide evidence of more earnings management after IFRS introduction in France. This leads to my first hypothesis:

H1: After the introduction of IFRS, firms in UK, France and Netherlands smooth income to a higher degree than during pre IFRS period.

Certain studies investigated the level of income smoothing across countries, by taking investor protection into consideration (e.g. Cahan et al. 2008, Leuz et al. 2003). Their findings suggest that income smoothing is more pervasive in countries where shareholders are less protected by law and regulations. Following these results, I deduce the next hypothesis:

H2: Income smoothing is lower in countries with strong investor protection regimes.

Keeping in mind that UK is a strong investor protection country and France and Netherlands have weaker investor protection based on proxies of La Porta et al. (1998) and the fact that I investigate two time periods, the following sub hypotheses are developed:

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a: During pre IFRS adoption period income smoothing is higher in France and Netherlands compared to UK.
b: During post IFRS adoption period income smoothing is higher in France and Netherlands compared to UK.

When managers use income smoothing to communicate private information about future earnings, this information will be revealed in the stock price (Tucker and Zarowin 2006). Other studies argue that the effect of income smoothing on earnings informativeness also depends on the country's legal origin. Cahan et al. (2008) conclude that in strong investor protection countries income smoothing leads to more informative earnings. This is due to the fact that managers in these countries have high incentives to smooth earnings in order to reveal information to the market.
Assuming that the first hypothesis is true, and considering previous evidence about income smoothing improving earnings informativeness in strong investor protection countries, I have the same expectation about firms in UK.

H3: After the adoption of IFRS, income smoothing improves earnings informativeness to a higher extent than during the pre IFRS adoption period for firms in UK.

In contradiction to high investor protection, weak investor protection allows for more discretion. In this case the managerial intendancy to manipulate earnings aggravates according to Hung (2001). The author also suggests that the positive effect of income smoothing on value relevance of earnings is attenuated in low investor protection economies. This is because in those countries, managers are believed to smooth income for opportunistic reasons, according to Cahan et al. (2008). Income smoothing is then considered to cause earnings to be noisier and thus less informative Tucker and Zarowin (2006).
Considering the fact that France and Netherlands are characterized by weak investor protection, the next hypothesis can be formulated:

H4: After IFRS adoption, income smoothing improves earnings informativeness to a lower extent than during the pre IFRS period for firms in France and Netherlands.

Sample data

The aim of my study is to compare two groups of countries with different institutional characteristics prior to IFRS adoption and after the IFRS adoption. I choose listed companies from France and the Netherlands (French origin) on the one side and United Kingdom (English origin) on the other side. UK is a strong investor protection country while France and the Netherlands display a lower level of investor protection. Besides UK has a common law system, while France and the Netherlands are code law countries. The judgement on the strength of the investor protection system is based on the scores for the investor protection proxies (proxies from La Porta et al. 1997, 1998, used by Leuz et al. 2003).
I use annual, firm level data for my research from the databases Worldscope (Thomson One Banker) and Datastream. The regressions will be estimated for two sample periods: pre

IFRS adoption (2002 – 2004) and post IFRS adoption (2006 – 2008). The base years will be 2003 and 2007 respectively.

An overview of the sample construction is provided in table 1, after the missing observations are left out. For the final samples: financial firms are excluded, because of their different accounting practices.

Table 1 Sample

Country	Pre IFRS	Post IFRS
France	363	241
The Netherlands	82	78
UK	642	253
Total	*1.087*	*572*

Methodology

▪ **Income smoothing measure**

Income smoothing is measured by variation in net income relative to the variation in operating cash flows: σ_{NI}/σ_{CFO}. A lower relative variation in net income is evidence of income smoothing (Zarowin 2002). To estimate the income smoothing measure for 2003 (pre IFRS, base year), data about net income and operating cash flows for the years 2001, 2002, and 2003 is needed. Similar, the smoothing measure of 2007 (post IFRS, base year) requires data from 2005, 2006, 2007.

An income smoothing ranking is employed by Zarowin (2002) to control for industry and time effects. I choose a similar way of ranking, with a small modification. The smoothing variable *IS* is determined as the fractional ranking of income smoothing and takes values between 0 and 1. The fractional ranking is the raw rank minus 1 divided to the number of observations minus 1. An example: The firms are arranged according to the σ_{NI}/σ_{CFO} from low smoothing to high and suppose there are 100 firms totally. The highest smoothing firm has raw rank 100, which results in a fractional ranking of (100-1)/(100-1) = 1, for the second highest smoothing firm it will be (99-1)/(100-1) = 0,989. A higher value indicates more income smoothing and thus a higher rank.

▪ **Earnings informativeness measure**

The relation between stock returns and future earnings is measured by the future earnings response coefficient (FERC). This is the coefficient on future earnings in a regression of current stock return on current and future earnings. The model of Tucker and Zarowin (2006) requires a longer sample period, since three years ahead of earnings and returns are included in the regression. Zarowin (2002) restricts the sample period, by taking only one year ahead of earnings and returns in consideration. I choose this last approach, since my sample period after IFRS is limited. Besides like Zarowin (2002, 13) argues, if there is an association between income smoothing and earnings informativeness it is more likely to be discovered in the next year than in the second or third year.

Main model

To provide evidence on hypothesis 3 and 4, the effect of income smoothing on the relation between stock return and future earnings has to be examined. This will be achieved, by applying the next regression based on Zarowin (2002):

$$R_t = b_0 + b_1 EPS_{t-1} + b_2 EPS_t + b_3 EPS_{t+1} + b_4 R_{t+1} + b_5 IS_t + b_6 IS_t * EPS_{t-1} + b_7 IS_t * EPS_t + b_8 IS_t * EPS_{t+1} + b_9 IS_t * R_{t+1} + \varepsilon_t$$

Where:
R_t = the current annual stock return in year t
EPS_{t-1} = the earnings per share for year t-1, deflated by the stock price at the beginning of year t
EPS_t = the earnings per share for year t, deflated by the stock price at the beginning of year t
EPS_{t+1} = the earnings per share in the year t+1, deflated by the stock price at the beginning of year t
R_{t+1} = the stock return for year t+1

The earnings per share variables are adjusted for stock splits and stock dividends and excluding extraordinary items. The FERC is represented by b_3, and is predicted to be positive. The higher this coefficient the more information about future earnings is included in the current stock price. The coefficient on current earnings, b_2 is also predicted to be positive and higher than b_3. The coefficient on past earnings is predicted to be negative. The coefficient on $IS_t * EPS_{t+1}$, b_8, is expected to be positive if income smoothing results in more information about future earnings (since a higher ranking means more smoothing). In contrast when income smoothing is considered as garbling then b_8 is predicted to be negative. In that case current stock returns contain less information about future earnings. This regression will be estimated for each country twice, before IFRS and after IFRS adoption.

4. Empirical results and analysis

4.1 The degree of income smoothing

UK
From performed sample statistics it follows that the mean σ_{NI}/σ_{CFO} amounts 2,147 during pre IFRS and 1,350 after IFRS. A lower ratio indicates a higher degree of income smoothing. In fact the ratio should be less than 1 for income smoothing firms (Zarowin 2002). When I take a look at the absolute values of the σ_{NI}/σ_{CFO} ratio, then I conclude that 305 from the 622 UK firms (49%) have a ratio lower than 1, which is evidence of income smoothing. For the post IFRS period 155 from 239 companies (65%) show a lower variation in net income relative to the variation in operating cash flows. The difference in the mean values together with the decrease in the absolute values suggests that firms in UK smooth income to a higher degree after IFRS adoption.

To confirm this establishment, the Mann-Whitney test is performed. This is a non parametric test that allows comparing two independent samples, which do not satisfy the condition of normally distributed data. The actual Mann-Whitney statistic is the U[3]. The results of the Mann-Whitney test for UK are given in table 2.

Table 2 Mann-Whitney test results pre IFRS UK vs. post IFRS UK

Ranks					Test Statistics[a]	
	Period	N	Mean Rank	Sum of Ranks		σ_{NI}/σ_{CFO}
σ_{NI}/σ_{CFO}	Pre IFRS	621	452,41	280.946,00	Mann-Whitney U	60.604,000
	Post IFRS	239	373,57	89.284,00	Wilcoxon W	89.284,000
	Total	**860**			Z	-4,169
					Asymp. Sig. (2-tailed)	0,000
					a. Grouping Variable: Period	

The lower mean rank in the post IFRS period means that there are more lower values of the ratio σ_{NI}/σ_{CFO}, than in the pre IFRS period. The difference between these means is significant. From previous statements I conclude that firms in UK smooth income to a higher degree after adoption of IFRS, which confirms that hypothesis 1 is proven true for UK.

France

The mean income smoothing ratio (σ_{NI}/σ_{CFO}) is 1,097 in the pre IFRS period and 0,987 after IFRS adoption. Again, the mean ratio is lower after adoption of IFRS. In addition it takes a value lower than 1. For the absolute values of smoothing firms I find that about 66% in the pre IFRS period and 71% during the period after IFRS introduction have a ratio below 1. Also here the Mann-Whitney test is performed.

Table 3 Mann-Whitney test results pre IFRS France vs. post IFRS France

Ranks					Test Statistics[a]	
	Period	N	Mean Rank	Sum of Ranks		σ_{NI}/σ_{CFO}
σ_{NI}/σ_{CFO}	Pre IFRS	346	291,77	100.954,00	Mann-Whitney U	39.003,000
	Post IFRS	231	284,84	65.799,00	Wilcoxon W	65.799,000
	Total	**577**			Z	-0,489
					Asymp. Sig. (2-tailed)	0,625
					a. Grouping Variable: Period	

The Mann-Whitney test designates that the mean rank is lower after IFRS, but the difference is not significant (1-tailed significance 0,625/2 = 0,313). However, there is still an indication that companies in France smooth income more after adoption of IFRS. Thus hypothesis 1 is considered to be true for France.

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[3] $U=N_1N_2 + (N_1 * (N_1+1))/2 - R_1$, where N_1 and N_2 are the sample sizes of the two groups and R_1 is the sum of ranks of the first group.

The Netherlands

As for UK and France, for Netherlands the mean σ_{NI}/σ_{CFO} ratio is also smaller subsequent to IFRS adoption. The mean value is 1,550 in the first period with respect to 1,237 in the second period. Prior to IFRS, approximately 59% companies show a ratio indicating income smoothing practices. After IFRS the percentage grows up to 76%. This is consistent with the results of Jeanjean and Stolowy (2008), which also find evidence of increased earnings management in France.

Table 4 Mann-Whitney test results pre IFRS Netherlands vs. post IFRS Netherlands

Ranks					Test Statistics[a]	
	Period	N	Mean Rank	Sum of Ranks		σ_{NI}/σ_{CFO}
σ_{NI}/σ_{CFO}	Pre IFRS	78	82,97	6.472,00	Mann-Whitney U	2.537,000
	Post IFRS	76	71,88	5.463,00	Wilcoxon W	5.463,000
	Total	**154**			Z	-1,543
					Asymp. Sig. (2-tailed)	0,123
					a. Grouping Variable: Period	

In the table 4 the results of the Mann-Whitney test are presented. The mean rank is lower in the second period, thus the income smoothing ratio is lower over the whole period, significant at 10% level (1-tailed significance 0,123/2 = 0,061). There is evidence that companies smooth income to a larger degree after appliance of IFRS standards. Thus the prediction made in hypothesis 1 is considered true for Netherlands.

Comparison between France, the Netherlands and UK

France and Netherlands have weaker investor protection than UK. The legal environment of a country is predicted to influence the degree of managers' discretion in a country.

Pre IFRS

The Kruskal-Wallis test is similar to the Mann-Whitney, it is based on ranks, and performs well with not normally distributed data. In addition, the Kruskal-Wallis can be used to test for differences among more than two groups, which is the case here, since I want to compare the mean of σ_{NI}/σ_{CFO} for UK, France and the Netherlands. The results of this test for the pre IFRS period are shown in the next table.

Table 5 Pre IFRS Kruskal-Wallis test results France, Netherlands and UK

Ranks				Test Statistics[a]	
	Country	N	Mean Rank		σ_{NI}/σ_{CFO}
σ_{NI}/σ_{CFO}	UK	621	574,25	Chi-Square	45,586
	France	346	439,55	df	2
	Netherlands	78	485,15	Asymp. Sig.	0,000
	Total	**1.045**		a. Kruskal Wallis Test	
				b. Grouping Variable: Country	

The mean rank is the highest for UK and lowest for France. A lower mean rank indicates lower values of σ_{NI}/σ_{CFO}. The difference is significant, which means that the country in

which a company operates influences the degree of income smoothing. In France and Netherlands firms smooth income to a larger extent compared to firms in UK in the pre IFRS period. Also the mean σ_{NI}/σ_{CFO} is higher for UK, as mentioned in section 4.1. These findings confirm hypothesis 2a.

Post IFRS
The same expectations apply for the post IFRS period. Table 6 presents the results of the Kruskal-Wallis test.

Table 6 Post IFRS Kruskal-Wallis test results France, Netherlands and UK

Ranks				Test Statistics[a]	
	Country	N	Mean Rank		σ_{NI}/σ_{CFO}
σ_{NI}/σ_{CFO}	UK	239	294,02	Chi-Square	7,451
	France	231	260,17	df	2
	Netherlands	76	249,49	Asymp. Sig.	0,024
	Total	**546**		a. Kruskal Wallis Test	
				b. Grouping Variable: Country	

Again the mean rank of UK is the highest, followed by France and Netherlands. The degree of income smoothing is significantly different across the investigated countries, with companies in UK smoothing income less than companies in France and Netherlands. This conclusion can also be depicted if the mean ranks of σ_{NI}/σ_{CFO} for the three countries are considered. Hypothesis 2b is thus supported by the results.
Even in the period after IFRS firms in weak investor protection countries smooth income more than firms in strong protection countries. They might do so for different reasons. With weak investor protection (e.g. weak public enforcement) opportunistic behaviour is less likely to be detected and probably more prevalent.

4.2 Income smoothing and earnings informativeness

In this section the results of the main model are presented per country. The main model for each period is specified below.

Pre IFRS: $R_t = b_0 + b_1 EPS_{2002} + b_2 EPS_{2003} + b_3 EPS_{2004} + b_4 R_{2004} + b_5 IS_{2003} + b_6 IS_{2003} * EPS_{2002} + b_7 IS_{2003} * EPS_{2003} + b_8 IS_{2003} * EPS_{2004} + b_9 IS_{2003} * R_{2004} + \varepsilon_t$

Post IFRS: $R_t = b_0 + b_1 EPS_{2006} + b_2 EPS_{2007} + b_3 EPS_{2008} + b_4 R_{2008} + b_5 IS_{2007} + b_6 IS_{2007} * EPS_{2006} + b_7 IS_{2007} * EPS_{2007} + b_8 IS_{2007} * EPS_{2008} + b_9 IS_{2007} * R_{2008} + \varepsilon_t$

Table 7 Results UK

	Model variables	Intercept	EPS_{t-1}	EPS_t	EPS_{t+1}	R_{t+1}	IS_t	$IS_t *$ EPS_{t-1}	$IS_t *$ EPS_t	$IS_t *$ EPS_{t+1}	$IS_t *$ R_{t+1}
UK pre IFRS*	Coefficients	-0,268	0,018	0,142	-0,032	-0,089	0,014	0,056	0,258	0,507	0,058
	t-statistic	(-9,966)	(1,516)	(2,585)	(-0,408)	(-4,129)	(0,287)	(0,879)	(1,395)	(2,503)	(1,447)
	P-value	0,000	0,130	0,010	0,683	0,000	0,774	0,380	0,164	0,013	0,148
UK post IFRS**	Coefficients	0,003	1,121	0,686	2,072	-0,408	0,277	-1,643	1,764	-2,786	0,527
	t-statistic	(0,043)	(2,364)	(0,697)	(2,168)	(-2,714)	(1,975)	(-1,268)	(0,827)	(-1,617)	(1,865)
	P-value	0,966	0,019	0,487	0,031	0,007	0,049	0,206	0,409	0,107	0,063

*Adj. R^2=0,215

**Adj. R^2=0,165

The coefficient on the interaction between income smoothing and future earnings is the one I am interested in ($IS_t * EPS_{t+1}$). For the pre IFRS period this coefficient is significantly positive, as predicted. Thus it can be concluded that income smoothing enhances earnings informativeness in the pre IFRS period for UK. The value of b_7 is also positive but not significant.

For the post IFRS period income smoothing is predicted to improve the information content of current stock returns about future earnings to a higher extent than in the pre IFRS period for UK. In contrast, b_8 is found to be highly negative. However the results are not significant and the explanatory power of the model is also lower in the post IFRS period. If income smoothing alters information in the post IFRS period, a suitable explanation should be provided. It might be possible that IFRS allows for more discretion than UK GAAP, which encourages managers to manipulate earnings for opportunistic reasons.

In the end, the evidence provided does not support hypothesis 3, since the results are inconsistent with the predictions and not significant.

Table 8 Results France

	Model variables	Intercept	EPS_{t-1}	EPS_t	EPS_{t+1}	R_{t+1}	IS_t	$IS_t *$ EPS_{t-1}	$IS_t *$ EPS_t	$IS_t *$ EPS_{t+1}	$IS_t *$ R_{t+1}
France pre IFRS*	Coefficients	-0,348	0,086	0,090	0,013	0,009	0,229	-0,151	0,263	0,483	-0,209
	t-statistic	(-10909)	(2,063)	(1,464)	(0,144)	(0,234)	(4,110)	(-1,021)	(1,346)	(2,227)	(-2,800)
	P-value	0,000	0,040	0,144	0,885	0,815	0,000	0,308	0,179	0,027	0,005
France post IFRS**	Coefficients	0,110	1,667	1,116	-0,078	0,207	0,069	-0,791	-0,813	-0,088	-0,116
	t-statistic	(1,660)	(3,108)	(1,988)	(-0,142)	(1,106)	(0,523)	(-0,483)	(-0,572)	(-0,083)	(-0,349)
	P-value	0,098	0,002	0,048	0,887	0,270	0,601	0,629	0,568	0,934	0,728

*Adj. R^2=0,224

**Adj. R^2=0,153

The key interest coefficient is significantly positive for France during pre IFRS. Income smoothing also causes stock return to include more information about current earnings, although b_7 is not significant.

In the second period, b_8 shows a negative value, but highly insignificant. The same conclusion as for UK can be drawn here. In addition b_7 is negative, which means that income smoothing does not lead to more information about current earnings being included in the price, which is unreasonable.

Although for the post IFRS period the results are not significant, I carefully consider hypothesis 4 to be true for France, based on the results for both periods. Income

smoothing causes earnings to be less informative after IFRS adoption, I can not conclude that income smoothing is garbling in the post IFRS period, since the results are not significant.

Table 9 Results Netherlands

	Model variables	Intercept	EPS_{t-1}	EPS_t	EPS_{t+1}	R_{t+1}	IS_t	$IS_t *$ EPS_{t-1}	$IS_t *$ EPS_t	$IS_t *$ EPS_{t+1}	$IS_t *$ R_{t+1}
NL pre IFRS*	Coefficients	-0,232	-0,186	0,295	0,365	-0,291	0,053	0,622	-0,486	0,269	0,065
	t-statistic	(-3,639)	(-2,216)	(2,687)	(1,438)	(-2,501)	(0,508)	(2,007)	(-1,233)	(0,405)	(0,303)
	P-value	0,001	0,030	0,009	0,155	0,015	0,613	0,049	0,222	0,687	0,763
NL post IFRS**	Coefficients	0,106	1,066	1,370	0,797	-0,095	0,071	-0,278	1,420	-2,961	0,246
	t-statistic	(1,022)	(1,777)	(2,186)	(1,290)	(-0,261)	(0,327)	(-0,108)	(0,664)	(-1,942)	(0,384)
	P-value	0,310	0,080	0,032	0,201	0,795	0,745	0,915	0,509	0,056	0,702

*Adj. R^2=0,316

**Adj. R^2=0,226

For Netherlands b_8 is also positive but not significant prior to IFRS. The coefficient on current earnings is negative and insignificant. The evidence is not convincing, so I can not conclude that income smoothing improves earnings informativeness before IFRS adoption. After IFRS, the coefficient on future earnings is highly negative and significant at 10% level, which induces that income smoothing is altering information. In contrast, b_7 is positive but not significant. Given the insignificant results for the pre IFRS period, I consider that hypothesis 4 is supported for Netherlands.

5. Summary and conclusions

5.1 Conclusions
First of all I found evidence of higher income smoothing behaviour after the introduction of IFRS in UK, France and Netherlands. These results confirm the expectation that IFRS standards allow for more managerial discretion. Fair value accounting requires subjective judgement. Managers probably use this incentive to smooth income streams.
Further, in the weak investor protection countries France and Netherlands, firms present more stable earnings than in UK, for both periods of time. An explanation is that managers in low investor protection countries are more able to hide true firm's performance for stakeholders and act in their own benefit (Cahan et al. 2008).
The second part of my research, relates to the effect of income smoothing on earnings informativeness. In the period prior to IFRS income smoothing causes stock returns to contain more information about future earnings for all three countries, with insignificant results for Netherlands. Subsequently to IFRS adoption the findings indicate that income smoothing decreases earnings informativeness for all the three countries, although the results are insignificant for UK and France. This is in accordance to my expectations for France and Netherlands but not for UK. Since firms in UK show more stable earning after IFRS, it is not only about the degree of smoothness. Like Cahan et al. (2008) suggest, in strong investor protection countries firms mainly smooth income to efficiently

communicate information about true firm performance, while in weak investor protection countries opportunism is the major reason. In the first case, income smoothing should improve the value relevance of earnings.

A possible explanation for the garbling effect of income smoothing in the post IFRS period for UK, is that managers act in their own interest. The new standards provide more incentives for managers to smooth earnings than the UK GAAP standards probably. Managers use this discretion in an opportunistic way, despite of the high level investor protection. Another explanation could be that the public enforcement of accounting rules in the sample countries also changed after the introduction of IFRS. Or maybe national regulators expect more guidance from the European regulatory body (CESR) about how to enforce the new IFRS rules. Less strict enforcement would create more incentives for managers to deceive. However the results for the post IFRS period are not significant, and should carefully be interpreted.
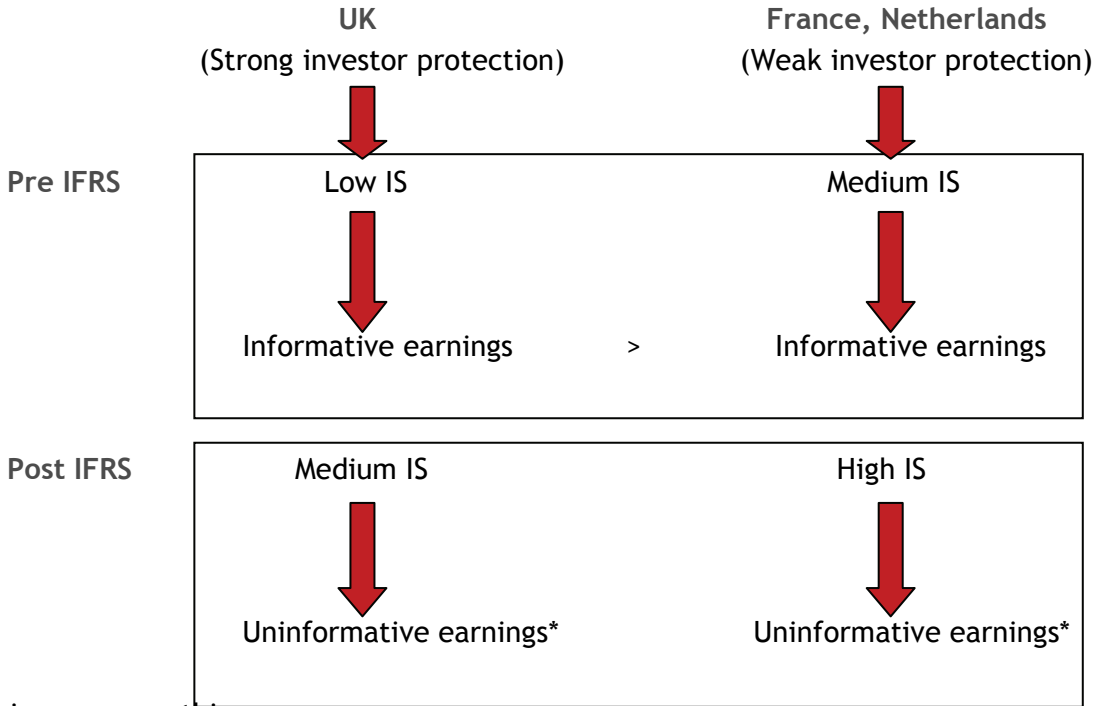
The degree of investor protection seems to be less important after IFRS adoption. Nevertheless this is a suggestive interpretation, since some results are insignificant.

Based on the evidence found no explicit conclusion can be drawn. The differences in the degree of income smoothing and earnings informativeness among countries can not be fully assigned to just the applied accounting standards, neither to just the institutional factors. It is rather a combination of factors, which affects the incentives for income smoothing.

In the end I would like to conclude this discussion by quoting Jeanjean and Stolowy (2008, 493):

"…management incentives and national institutional factors play an important role in framing financial reporting characteristics, probably more important than accounting standards alone. The IASB and the European Commission should now devote their efforts to harmonizing incentives and institutional factors rather than harmonizing accounting standards."

To summarize, the relation I found between IFRS, investor protection, income smoothing and earnings informativeness in this research is as follows.

	UK (Strong investor protection)		**France, Netherlands** (Weak investor protection)
Pre IFRS	Low IS ↓ Informative earnings	>	Medium IS ↓ Informative earnings
Post IFRS	Medium IS ↓ Uninformative earnings*		High IS ↓ Uninformative earnings*

IS = income smoothing

* the evidence is not significant

5.2 Limitations and suggestions for further research

I acknowledge that my study has some limitations. First of all the interpretation of the model is uncertain in an inefficient market, since it assumes market efficiency. Secondly, the income smoothing measure might not capture smoothing behaviour accurately. Next, the chosen samples include are small compared to prior research. The mandatory adoption of IFRS is still recent and the time horizon of data is limited. Fourthly, other factors that can influence income smoothing and/or the relation between income smoothing and earnings informativeness are not taken into account (e.g. firm size, industry, the growth rate of the company, inflation). In the end additional robustness test are not performed. In the end future research should be able to better investigate the effect of IFRS adoption on income smoothing and earnings informativeness using a bigger sample and omitting the implementation period. The influence of institutional factors should be more thoroughly investigated and changes in managerial incentives should be identified.

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The Mandatory Introduction of IFRS as a Single Accounting Standard in the European Union and the Effect on Earnings Management

Mark Lippens[1]

Executive summary

In this study, it was investigated whether the mandatory adoption of IFRS from 1 January 2005 by all listed companies in the European Union led to significantly lower levels of earnings management. I found that, despite the stricter character of IFRS compared to national GAAP, accruals-based earnings management has strictly increased as a consequence of the adoption of IFRS. I further found that real earnings management has strictly increased, and that, despite the fact that both manifestations of earnings management strictly increased, due to the introduction of IFRS, they are increasingly used as substitutes of one another. This indicates that management looks for alternatives to manipulate earnings when accruals-based earnings management becomes more difficult, instead of lowering their earnings management activities. I was therefore unable to establish that IFRS has been successful in restricting earnings management

For the full text of this master thesis refer to the following webpage: http://hdl.handle.net/2105/5129.

1. Introduction

In 2002, the EU Council and Parliament accepted the IAS-directive (1606/2002/EC). This regulation requires that all listed companies in the member states, beginning on 1 January 2005, prepare their consolidated financial statements in accordance with International Financial Reporting Standards (IFRS). With this legislation, the discussion on the role of accountings standards in producing high quality financial reporting with little room for earnings management, has intensified and is expected to intensify even further.

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[1] This article is based on my Master Thesis. I thank Prof. Dr. M.A. van Hoepen RA for his role as thesis supervisor. Currently, I am employed at KPMG Accountants N.V. as a trainee in the audit department.

While IFRS is thought to be more strict and rules-based, it also creates new opportunities for the exercising of judgement in the financial reporting process. Furthermore, new incentives to smooth earnings are created, in order to prevent the increase in volatility of earnings as a consequence of the introduction of IFRS. These conflicting effects make it hard to predict which effect IFRS will have on the prevalence of earnings management. Unfortunately, the existing literature on the effects of IFRS on the level of earnings management is also far from conclusive.

The mandatory adoption of IFRS thus creates opportunities for research on accounting standards and their effect on preventing earnings management. The fact that many countries now apply one single set of accounting standards creates an opportunity to research the isolated effect of tighter accounting standards, as the effect can now be researched in different institutional settings. However, new questions arise, due to the relatively newness of IFRS and some of its particularities, with the increased role of fair value as the most pronounced one. The main question therefore is whether IFRS is successful in reducing earnings management and producing high quality financial reporting. This leads to the following research question that is investigated in this study:

Has the mandatory adoption of IFRS from 1 January 2005 by all listed companies in the European Union led to significantly lower levels of earnings management?

To avoid the problems in existing research, the research design proposed in this study is different from that used in most earlier studies on this topic. Most important is that I consider the possibility that while accruals management could indeed be effectively reduced by stricter accounting standards, management could turn to real earnings management by strategically structuring transactions, to manipulate reported earnings. Because IFRS will not lead to a decrease in the incentives to manage earnings, and possibly even to increased incentives to do so, managers can still be expected to manage earnings. Real earnings management then becomes a feasible alternative for accruals-based earnings management.

The rest of this paper is organized as follows. In Chapter 2, a broad literature review is presented that considers the existing literature with respect to the effect of accounting standards in general, and IFRS in particular, on the prevalence of earnings management. In Chapter 3 my hypotheses are developed. The research methodology that is used to test these hypotheses is explained in Chapter 4. In Chapter 5 my results are presented and Chapter 6 concludes with the summary and conclusion.

2. Prior literature

2.1 Definitions
To consider whether the introduction of IFRS indeed enhances financial reporting quality, first of all a measure of financial reporting quality is needed. For this, the amount of earnings management is often considered. Earnings management is thought to have a

negative influence on the transparency and comparability of financial reporting (Heemskerk & Van der Tas, 2006).

In the wide range of literature regarding earnings management, several definitions of earnings management can be found. Healy and Wahlen (1999) provide us with the following definition:

"Healy and Wahlen (1999): "Earnings management occurs when managers use judgement 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."

Central theme in the above definition is the purposeful intervention by a firm's management in the financial reporting process. This intervention is possible because of the discretion available to management to do so. Standard setters allow managers a considerable amount of judgement in the financial reporting process. This enables managers to choose the reporting methods, estimates, and disclosures that match the firm best and thereby provide the most information for financial statement users (Healy & Wahlen 1999). However, greater discretion over financial reporting also creates opportunities for earnings management. In that case, choices made by a firm's management in the financial reporting process are not motivated by best reflecting their firm's underlying performance (Healy & Wahlen 1999). Instead, they are aimed at influencing the users of the financial reports in such a way that will benefit the organisation or its management.

Earnings management does not need to refer exclusively to the exercising of judgement in the accounting process. Another way to manipulate earnings is to strategically structure transactions. This can be done in several ways, including speeding up sales by providing greater discounts or cutting R&D expenses to increase earnings. Roychowdhury (2004) states that the failure to look at real earnings management next to accruals-based earnings management could well explain the lack of strong results in many previous studies. Graham et al. (2005) even find evidence that suggests that earnings management by real transactions is becoming more important than accounting earnings management. Therefore, in my study I consider both accounting earnings management or *accruals-based earnings management*, and specially designed transactions or *real earnings management*.

2.2 Overview of prior literature

Due to the relative novelty of IFRS, the amount of research on the effect that the widespread adoption of IFRS has had on the level of earnings management in the EU is limited. Studies that do focus on IFRS, for the most part compare IFRS with US GAAP, making use of the availability of data of early adaptors in countries such as Germany and Switzerland. Tendeloo and Vanstraelen (2005) and Heemskerk and Van der Tas (2006) are examples of studies that focus on early adopters. Both studies address the question whether the adoption of IFRS is associated with lower levels of earnings management.

Tendeloo and Vanstraelen focus on Germany, and investigate whether German companies that have adopted IFRS engage significantly less in earnings management compared to German companies reporting according to German GAAP.

Using the absolute value of discretionary accruals as a measure of earnings management, Tendeloo and Vanstraelen (2005) are unable to establish that IFRS impose a significant constraint on earnings management. Adoption of IFRS even seems to increase the magnitude of discretionary accruals. However, when the authors take hidden reserves into consideration, there is no difference in earnings management behaviour between IFRS adopters and companies reporting under German GAAP. Also, companies that have adopted IFRS appear to engage more in earnings smoothing. But this increase is significantly reduced when the company has a Big 4 auditor.

Like Tendeloo and Vanstraelen (2005), Heemskerk and Van der Tas (2006) are unable to associate the adoption of IFRS with lower levels of earnings management. Heemskerk and Van der Tas gathered a research sample that consists of 160 financial reports of German and Swiss companies. Making use of the same earnings management proxies as Tendeloo and Vanstraelen (2005), they find that with the implementation of IFRS, the use of discretionary accruals has increased. Controlling for country of origin, industry or size does not significantly influence this result. For their measure of income smoothing, they find that with the implementation of IFRS, the use of accruals to smooth earnings has increased.

The results of their study leads Heemskerk and Van der Tas (2006) to conclude that earnings management has increased with the implementation of IFRS. The incentive to manage earnings in order to reduce the effect that IFRS has on the volatility of earnings, is identified by the authors as the main explanation for their results. They also point to the increased role of subjectivity under IFRS, which creates opportunities for management to manage earnings.

So, both Tendeloo and Vanstraelen (2005) and Heemskerk van Van der Tas (2006) are unable to associate IFRS with lower levels of earnings management compared to national GAAP. This is consistent with Goncharov and Zimmerman (2006), who focus on income smoothing, and find no significant difference in earnings management between German GAAP and IAS. Besides considering IFRS and German GAAP, Goncharov and Zimmerman also focus on US GAAP. They find that firms that report under US GAAP engage in earnings smoothing less often than firms that report under German GAAP or IAS. So while no significant differences between German GAAP and IAS are found, their results lead the authors to conclude that US GAAP is more effective at mitigating earnings management than either German GAAP or IAS.

Another study that investigates the comparative quality of IAS and US GAAP, is that of Barth et al. (2006). They find that firms applying IAS generally have lower accounting quality than US firms. In particular, IAS firms have a significantly lower variance of the change in net income, a lower ratio of the variances of the change in net income and

change in cash flows, a significantly more negative correlation between accruals and cash flows, and a higher frequency of small positive net income. Barth et al. also compare accounting amounts for IAS and US firms before and after the IAS firms adopt IAS. The results suggest that application of IAS reduces, but does not eliminate differences in accounting quality between the two sets of firms.

In the literature, but also in the financial press and by regulators, the focus has largely been on earnings management through the exercising of judgement in the accounting process. However, recent findings indicate that management is increasingly willing to sacrifice real economic value by using strategic transaction to manage earnings (Graham et al., 2005). As a possible explanation, Graham et al. (2005) state that in the post Enron and WorldCom era, and with the implementation of laws like the Sarbanes-Oxley Act, managers are afraid to use their discretion to manipulate accruals. Tighter accounting standards, also leave less room for managerial judgment in the financial reporting process.

Ewert and Wagenhofer (2005) study the effect of tightening accounting standards. They distinguish between accounting and real earnings management. Accounting earnings management concerns the way accounting standards are applied on given transactions and events. Real earnings management changes the timing or structuring of real transactions. Ewert and Wagenhofer find that as a consequence of tighter accounting standards, real earnings management strictly increases, which is interpreted as real earnings management substituting for the more difficult and thus costlier accounting earnings management.

However, although accounting earnings management thus becomes more difficult, the study shows that stricter accounting standards do not unambiguously reduce accounting earnings management. Ewert and Wagenhofer (2005) point to the trade-off between two effects of tighter accounting standards. On one hand, it becomes more difficult and thus costlier to engage in accounting earnings management. But at the same time, the reduction in accounting earnings management increases the association between reported earnings and the market price reaction. This stronger association increases the benefit and thus the incentives for a firm's management to engage in earnings management. So, Ewert and Wagenhofer show that tighter accounting standards not only lead to increased real earnings management, but also to increased incentives to manage earnings overall. The authors therefore conclude that that total earnings management can either decrease or increase with tighter accounting standards.

Results obtained by Cohen et al. (2007), which focus on earnings management in the pre- and post- Sarbanes Oxley Periods, are a further indication that stricter rules aren't necessarily successful in restricting earnings management. They authors find evidence that a substitution effect exists between accruals-based earnings management and real earnings management. The researches document that accruals-based earnings management increased steadily in the years before the passage of SOX, followed by a significant decline in the years afterwards. Conversely, the level of real earnings management declined prior to SOX, and increased significantly in the post-SOX period. Therefore, Cohen et al. (2007) not only show that other mechanisms apart from accounting

standards play a role in restricting earnings management, but they are also able to document a substitution effect between the two main manifestations of earnings management.

3. Hypotheses development

From the overview of previous research, it can be learned that existing literature is far from conclusive with respect to the effects of the adoption of IFRS on the prevalence of earnings management. However, some possible explanations for this lack of conclusive findings can be identified. First of all, most existing research on the effect of IFRS on the level of earnings management focuses on data samples from before 2005. In this year IFRS became mandatory for listed companies in the European Union. Before that date, in countries like Germany and Switzerland, firms could voluntarily choose to adopt IFRS. This means that research results from these earlier studies could be biased by factors such as self-selection and false signalling.

Also, due to a lack of effective enforcement and a lack of knowledge about IFRS (then IAS) by both regulatory and legal bodies and users of financial statements, a firm's management could falsely state that it complied with IFRS, while in fact this was hardly the case. When these companies are included in the research sample, the results will naturally be biased towards IFRS being not effective in restricting earnings management. The same applies to the problem with self selection. Companies that already had high quality financial reporting could comply with IFRS relatively easy, thereby making a statement to their investors about their financial reporting quality. However, when high financial reporting quality is the reason behind the voluntary adoption of IFRS, complying with IFRS will naturally not have a significant effect on financial reporting quality. Again, this could significantly bias the results of earlier studies.

Another important consequence of the focus of most earlier research on the period before 2005, is the fact that the IASB's improvements project, under which existing standards are being revised and new standards are issued, had not been started at the time of the research. In recent years, many standards have been revised and new IFRS standards have been issued. It can be expected that this has dramatically increased the quality of the standards. Therefore, results from earlier research probably are not representative for the current standards.

Also, while there is convincing evidence that real earnings management nowadays is used intensively to manage earnings, most existing exclusively focus on accruals-based earnings management. This means that a large part of earnings management activities is probably not considered in these studies. This in turn leads results obtained in these studies to be not representative of the magnitude of all manifestations of earnings management combined.

Together, these considerations lead me to believe that the results in previous research on the effect of IFRS on the level of earnings management are not representative for the

effect that the widespread adoption of IFRS from 1 January 2005 has had on the magnitude of earnings management in the EU member states. Based on the above, I expect the results in most previous studies to be biased towards IFRS being ineffective in restricting earnings management.

IFRS is characterised by stricter rules, which reduces the possibilities for accruals-based earnings management. The increased importance of subjectivity with respect to fair value accounting has an opposite effect. But if the decreased tolerance towards accounts manipulation by users and regulators as a consequence of recent accounting scandals is taken into account, it can be expected that the overall effect of IFRS on accruals-based earnings management is a restrictive one. Therefore, the first hypothesis is:

H1: The widespread adoption of IFRS in the European Union from 1 January 2005, has led to an absolute decrease of the level of accruals-based earnings management by listed companies in the EU member states.

However, as stated earlier, accruals-based earnings management is only part of the story. Management seems to increasingly turn to real earnings management to manipulate earnings. Furthermore, with the introduction of IFRS, earnings are thought to become more volatile, while previous research shows that management likes to present a smooth earnings path. Volatile earnings are, among others, associated with higher risk and thus lead to higher capital costs. With incentives to manage earnings remaining the same, or even increasing as a consequence of increased incentives to smooth earnings, management can be expected to look for alternative ways to manage earnings. Consistent with findings in previous studies, I hypothesize that management shifts away from accruals-based earnings management towards real earnings management. The second hypothesis therefore is:

H2: The widespread adoption of IFRS in the European Union from 1 January 2005, has led to an absolute increase of the level of real earnings management by listed companies in the EU member states.

As I hypothesize that accruals-based earnings management *decreases* and real earnings management *increases* as a consequence of the adoption of IFRS, I implicitly assume that there is a substitution effect between the two manifestations of earnings management. I expect accruals-based earnings management to decrease as a consequence of stricter accounting standards. At the same time, management can be expected to turn to alternative ways to manage earnings, mainly real earnings management, as incentives to do so remain the same or even increase. To test the existence of a substitution effect, my third hypothesis is:

H3: The widespread adoption of IFRS in the European Union from 1 January 2005, has led to a substitution effect, with accruals-based earnings management and real earnings management increasingly used as substitutes of one another.

With this hypothesis I test whether, in the post-IFRS period, accruals-based earnings management and real earnings management are more used as substitutes of one another instead of as complementary ways to manage earnings, compared to the pre-IFRS period.

Lastly, I consider listed companies from six different countries in my research sample. Several studies address the fact that there is more to restricting earnings management and enhancing financial reporting quality than high quality accounting standards alone. As Ball et al. (2003) state "…*it is incomplete and misleading to classify countries in terms of their formal accounting standards, or even their standard setting institution, without giving substantial weight to the institutional influences on preparers' actual financial reporting incentives.*" Therefore, I control for these institutional factors.

Considering differences in the institutional context and because of the different accounting traditions in the countries from my sample, I expect that the adoption of IFRS will have different effects in different countries. In countries where earnings management was relatively high in the pre-IFRS period, I expect the introduction of a set of high quality accounting standards such as IFRS, to have had a relatively large effect at restricting earnings management. And although accounting standards are not all there is to restricting earnings management, the fact that the implementation of IFRS in the EU member states is part of a larger action plan to enhance investor protection and effective and efficient capital markets further enhances this expectation. Therefore, my last hypothesis is:

H4: The widespread adoption of IFRS in the European Union from 1 January 2005, has had different effects in different countries, with the restricting effect on the level of earnings management being the highest in countries with the highest levels of earnings management in the pre-IFRS period.

4. Research Design

I focus on two main kinds of earnings management, namely accruals-based earnings management and real earnings management.

4.1 Accruals based earnings management

Magnitude of discretionary accruals

As a first measure of accruals-based earnings management, I consider the magnitude of discretionary accruals. Total accruals exist of non-discretionary accruals, which are normally related to economic activity, and discretionary accruals, that result from manipulative actions by management. Only total accruals can be observed, which means that discretionary accruals have to be estimated. Several models have been developed for this purpose, under which the Modified Jones Model (Dechow et al., 1995). This model is among the ones most frequently used in studies on the relation between accounting

standards and the level of earnings management, and will also so be used in this study, although I make some modifications.

The Modified Jones Model has received heavy criticism. By some studies, it is found to generate tests of low power for detecting earnings management of economically plausible magnitudes (e.g. accruals of 1% to 5%) (Peasnell et al., 2000). This leads to Type II errors, in which the null hypothesis of no earnings management is wrongly accepted. Also, in the case of extreme financial performance, the model is poorly specified, in that it attributes these extremes to earnings management (Peasnell et al., 2000). So in this case, Type I errors pose a problem, in that researches wrongly reject the null hypothesis of no earnings management.

Several improvements have been proposed in the literature to deal with these problems. Following Peasnell et al. (2000), I use a cross-sectional model. This, among other things, generates larger sample size, thereby increasing both the efficiency and reliability of the results. Also, to deal with the problem of misspecification in the case of extreme financial performance, I include the change in cash flow from operations as an extra variable in the regression. Dechow (1994) finds that the change in operating cash flow is negatively correlated with total accruals. Also, Jeter and Shivakumar (1999) argue that including cash flow from operations in the regression model not only increases precision, but also increases the power to detect earnings management, especially at lower levels of earnings manipulation.

Apart from the adjusted Model proposed above, I will also use the original Modified Jones Model, adjusted for credit sales. This increases comparability of the results with earlier studies which also use this model. Also, using the two models to estimate discretionary accruals could be informative as to the relative quality of both models.

Using the cross-sectional approach to estimate discretionary accruals, first firms are matched on year (t) and industry (k). A minimum of six observations per regression is required. Than, in the first stage of the two-stage cross-sectional regression, for each 2 digit SIC-year groupings, accruals are regressed on the change in sales adjusted by credit sales ($\Delta ADJREV$), gross property, plant, and equipment (PPE), and the change in cash flow from operations (ΔCFO), using the following regression.

(1) $TA_{it}/A_{i, t-1} = \alpha_{1t}[1/A_{i, t-1}] + \alpha_2[\Delta ADJREV_{it}/A_{i, t-1}] + \alpha_3[PPE_{it}/A_{i, t-1}] + \alpha_4[\Delta CFO_{it}/A_{i, t-1}] + \varepsilon_{it}$

All variables in the model are scaled by lagged total assets ($A_{i,t-1}$) to reduce heteroscedasticity. ε_{it} is included as an error term. Total accruals (TA_{it}) are calculated as earnings before extraordinary items and discontinued operations ($EBXI_{it}$) minus the operating cash flows from continuing operations (CFO_{it}):

(2) $TA_{it} = EBXI_{it} - CFO_{it}$

As said, apart from the model stated above, I will also use the original Modified Jones Model, adjusted for credit sales:

(3) $TA_{it}/A_{i, t-1} = \alpha_{1t}[1/A_{i, t-1}] + \alpha_2[\Delta ADJREV_{it}/A_{i, t-1}] + \alpha_3[PPE_{it}/A_{i, t-1}] + \varepsilon_{it}$

After the first stage, the coefficient estimates from equation (1) and (3) are used to estimate the firm-specific non-discretionary accruals (NDA_{it}) for the sample firms:

(4) $NDA_{it} = \hat{a}_{1t}[1/A_{it-1}] + \hat{a}_2[\Delta ADJREV_{it}/A_{it-1}] + \hat{a}_3[PPE_{it}/A_{it-1}] + \hat{a}_4[\Delta CFO_{it}/A_{i,t-1}]$

And for the Modified Jones Model:

(5) $NDA_{it} = \hat{a}_{1t}[1/A_{it-1}] + \hat{a}_2[\Delta ADJREV_{it}/A_{it-1}] + \hat{a}_3[PPE_{it}/A_{it-1}]$

Finally, discretionary accruals (DA_{it} for the Modified Jones Model, $DA_{it}(\Delta CFO)$ for the model that controls for financial performance) are calculated as:

(6) DA_{it} or $DA_{it}(\Delta CFO) = TA_{it}/A_{it-1} - NDA_{it}$

In this study, the desire by management to reduce the volatility of earnings is considered as one of the main incentives for earnings management. This means that earnings can be managed downwards as well as upwards. Furthermore, no specific corporate events are distinguished that drive earnings management activities. Because accruals reverse over time, and no assumptions are made regarding the direction in which earnings are managed, I compute the absolute value of discretionary accruals to proxy for earnings management. My proxies for accruals-based earnings management will therefore be the absolute value of discretionary accruals, calculated with either the ΔCFO model, **ABS_DA(ΔCFO)**, or the Modified Jones Model, **ABS_DA**.

Income smoothing

Apart from the magnitude of discretionary accruals, I also consider a second measure of accruals-based earnings management. Following Tendeloo and Vanstraelen (2005), and Heemskerk and Van Der Tas (2006), I use the correlation between total accruals and cash flow from operations as a proxy for income smoothing. A negative correlation between accruals and cash flow is inherent to accrual accounting. However, accruals can also be managed to smooth the variability in cash flow from operations. Differences in the magnitude of the negative correlation between total accruals and cash flow from operations before and after IFRS are then indicative for the difference in the magnitude of income smoothing in the two periods.

4.2 Real earnings management

Apart from focussing on manipulating earnings by using discretion over the accounting process, I also consider real earnings management. As I did with accruals, I rely on previous

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studies for my proxies for real earnings management. Following, among others, Roychowdhury (2006), I consider the abnormal level of cash flow from operations, and the abnormal level of production costs to be proxies for the level of real earnings management. These proxies have been used and proven to be valid in subsequent studies by, among others, Gunny (2006) and Cohen (2007).

Roychowdhury (2006) considers three manipulation methods that affect the levels of cash flow from operations and productions costs:
1. Sales manipulation, which is accelerating the timing of sales by offering increased price discounts or more lenient credit terms.
2. The reduction of discretionary expenses, which include advertising expense, research and development, and SG&A expenses.
3. Overproduction, which involves lowering cost of goods sold by increasing production.

From this, it follows that:
1. Abnormally high price discounts and overproduction lead to *abnormally high production costs* relative to sales.
2. Price discounts and overproduction have a *negative* effect on contemporaneous abnormal cash flow from operations, while reducing discretionary expenditures has a *positive* effect. Therefore, the net effect on abnormal CFO is *ambiguous*.

Abnormal cash flow from operations

The estimating models that I use are based on Roychowdhury (2006), which is in turn based on Dechow et al. (1998). First, normal CFO is expressed as a linear function of sales (S_{it}) and the change in sales (ΔS_{it}). Again, all variables in the model are scaled by lagged total assets ($A_{i,t-1}$) to reduce heteroscedasticity:

(7) $CFO_{it}/A_{i,\,t-1} = \alpha_{1t}[1/A_{it-1}] + \alpha_{2t}[S_{it}/A_{i,\,t-1}] + \alpha_{3t}[\Delta S_{it}/A_{i,\,t-1}] + \varepsilon_{it}$

Then, in the second stage, normal cash flow from operations ($NCFO_{it}$) is calculated using the estimated coefficients from equation (7):

(8) $NCFO_{it}/A_{i,\,t-1} = \hat{a}_{1t}[1/A_{it-1}] + \hat{a}_{2t}[S_{it}/A_{i,\,t-1}] + \hat{a}_{3t}[\Delta S_{it}/A_{i,\,t-1}]$

Lastly, abnormal cash flow from operations (R_CFO) is measured as the actual cash flow from operations (CFO_{it}) minus the estimated normal cash flow from operations ($NCFO_{it}$).

(9) $R\_CFO = CFO_{it}/A_{i,\,t-1} - NCFO_{it}/A_{i,\,t-1}$

As explained earlier, the effect of the different real earnings management activities on cash flow is ambiguous. Futhermore, no direction of earnings management is predicted in this study. Therefore, as with discretionary accruals, I use the absolute value of abnormal CFO (**ABS_R_CFO**), as my first proxy for real earnings management. However, to be consistent with earlier studies, I will also consider the nominal value of R_CFO.

Abnormal production costs

Production costs are defined as the sum of cost of goods sold (COGS) and the change in inventory during the year. First, COGS are modelled as a linear function of contemporaneous sales:

(10) $CGOS_{it}/ A_{i, t-1} = \alpha_{0t} + \alpha_{1t}[1/A_{it-1}] + \alpha_{2t}[S_{it}/A_{i, t-1}] + \varepsilon_{it}$

Inventory growth is modelled as:

(11) $\Delta INV_{it}/ A_{i, t-1} = \alpha_{0t} + \alpha_{1t}[1/A_{it-1}] + \alpha_{2t}[\Delta S_{it}/A_{i, t-1}] + \alpha_{3t}[\Delta S_{i, t-1}/A_{i, t-1}] + \varepsilon_{it}$

Thus, inventory growth is modelled as a function of current sales and lagged sales. Next, production costs (PROD) are defined as the sum of COGS and INV. Using (6) and (7), production costs are then modelled as:

(12) $PROD_{it}/ A_{i, t-1} = \alpha_{0t} + \alpha_{1t}[1/A_{it-1}] + \alpha_{2t}[S_{it}/A_{i, t-1}] + \alpha_{3t}[\Delta S_{it}/A_{i, t-1}] + \alpha_{4t}[\Delta S_{i, t-1}/A_{i, t-1}] + \varepsilon_{it}$

Again, in the second stage, abnormal production costs (R_PROD) are estimated as the observed production costs, minus the estimated normal production costs, which in turn is calculated by using the obtained coefficients from the first stage.

5. Tests and results

5.1 Sample description

I investigate the prevalence of earnings management in two main time periods: the pre-IFRS period, and the post-IFRS period. The pre-IFRS period extends from 2000 through 2004, and the post-IFRS period extends from 2005 through 2006.

My sample includes listed companies from Belgium, Denmark, Finland, Italy, The Netherlands and Sweden. In all these countries, IFRS is mandatory for listed companies from 1 January 2005. Although Sweden is not a member of the EU, the audit report and basis of presentation note refer to IFRS as adopted by the EU.

I exclude financial institutions (SIC 60-69) and utility companies (SIC 40-49) from my sample, as these industries are subject to specific accounting requirements and sometimes significant government intervention and regulation, which affects the earnings figures. Companies of which data of all variables is not available, firm equity is negative, or total or discretionary accruals are above 100% of lagged total assets, are also excluded from the sample. Due to the restriction that a minimum of six observations per regression is required, my sample includes observations from three industries, namely: Manufacturing (SIC 20-39), Wholesale Trade (SIC 50-59), and Services (SIC 70-89).

5.2 Model specification

I performed regression analysis to control for the differences in earnings management incentives. The earnings management proxies are regressed on IFRS and a number of other independent variables, to test whether IFRS has an effect on the levels of earnings management, apart from other factors that may also play a role. For my proxies for accruals-based earnings management, ABS_DA and ABS_DA(ΔCFO), I use the following model:

$$EM_t = \delta_0 + \delta_1 YEAR_t + \delta_2 IFRS_t + \delta_3 ROA_t + \delta_4 CFO_t + \delta_5 LNEMPL_t + \delta_6 LEVERAGE_t + \delta_7 IND + \delta_8 COUNTRY + \delta_9 COUNTRY*IFRS + \varepsilon_{1t}$$

Where:

EM_t	=	EM-proxy, either ABS_DA or ABS_DA(ΔCFO)
$YEAR_t$	=	calendar year
$IFRS_t$	=	dummy variable (pre-IFRS = 0, post-IFRS = 1).
ROA_t	=	return on assets in year t.
CFO_t	=	cash flows from operations in year t, divided by lagged total assets.
$LNEMPL_t$	=	natural logarithm of the number of employees in year t.
$LEVERAGE_t$	=	ratio of long term debt over common equity in year t.
IND	=	industry dummy:

       SIC 20-39 (Manufacturing) = 1;
       SIC 50-59 (Wholesale trade) = 2;
       SIC 70-89 (Services) = 3

COUNTRY   =   country dummy:
       Italy = 1;
       Belgium = 2;
       The Netherlands = 3
       Denmark = 4;
       Finland = 5;
       Sweden = 6.

To test for the effect of the implementation of IFRS on my real earnings management proxies, I use a similar model:

$$RM_t = \delta_0 + \delta_1 YEAR_t + \delta_2 IFRS_t + \delta_3 ROA_t + \delta_4 LNEMPL_t + \delta_5 LEVERAGE_t + \delta_6 IND + \delta_7 COUNTRY + \delta_8 COUNTRY*IFRS + \varepsilon_{1t}$$

Where RM is either absolute abnormal cash flow from operations (ABS_R_CFO) or abnormal production costs (R_PROD).

Finally, I also consider a second measure of accruals-based earnings management. Following Tendeloo and Vanstraelen (2005), and Heemskerk and Van Der Tas (2006), I use the correlation between total accruals and cash flow from operations as a proxy for income smoothing. Differences in the magnitude of the negative correlation between total accruals and cash flow from operations before and after IFRS are indicative for the difference in the magnitude of income smoothing in the two periods.

$$ACC_t = \delta_0 + \delta_1 YEAR_t + \delta_2 IFRS_t + \delta_3 ROA_t + \delta_4 CFO_t + \delta_5 IFRS_t*CFO_t + \delta_6 LNEMPL_t + \delta_7 LEVERAGE_t + \delta_8 IND + \delta_9 COUNTRY + \delta_{10} COUNTRY*IFRS + \varepsilon_{1t}$$

ACC_t is the value of total accruals in year t, scaled by lagged total assets. The interaction variable $IFRS_t*CFO_t$ is included to test for the effect of IFRS on the negative correlation between total accruals and cash flow from operations. As hypothesized in **H1**, I expect accruals-based earnings management, under which income smoothing, to decrease after the introduction of IFRS. In other words, I expect that the introduction of IFRS leads to a less negative correlation between total accruals and cash flow from operations, compared to the pre-IFRS period. Therefore, a positive coefficient for this interaction variable is expected.

5.3 Regression results: accruals-based earnings management

From my regression analysis, LEVERAGE and the interaction variable COUNTRY*IFRS prove to be insignificant, and are therefore excluded from further analysis. The interaction variable IFRS*COUNTRY, also didn't prove to be significant. I was unable to establish that the effect of IFRS on restricting earnings management, after controlling for the other variables in the model, is different across the countries in my sample. Therefore H4 is rejected, and because of the lack of significance, I have excluded the interaction variable from further analysis.

Possibly, the relatively newness of IFRS is to blame for the lack of significant results for this interaction variable. It was found by some studies that with respect to the 2005 implementation of IFRS, financial statements retained a strong national identity (Ernst & Young, 2006). Due to unfamiliarity with IFRS, companies seem to have adopted IFRS in a way that deviates as little as possible from prior local standards, at least until IFRS practice has developed internationally. If in different countries, companies have adopted IFRS in a way that is as much as possible consistent with previous national GAAP, then the implementation will have had little effect on the relative levels of earnings management in the different countries of my sample.

For YEAR, I get a negative and significant coefficient, meaning that for my sample period, a declining trend in time of accruals-based earnings management can be observed. This decline is not directly caused by the introduction of IFRS. Possibly, the knowledge that the implementation of IFRS would go through in 2005 has had an effect in earlier years, as companies anticipated on this fact. Also, other initiatives such as that related to corporate governance could have caused the level of earnings management to decline.

Finally, the dummy for IFRS proves to be significant and has a positive coefficient. This indicates that the implementation of IFRS has had an increasing effect on the level of earnings management. This is in contrast to what I hypothesize in **H1**, but consistent to what Tendeloo and Vanstraelen (2005), and Heemskerk and Van der Tas (2006) find. After controlling for other incentives for earnings management, this finding means that IFRS is unsuccessful in diminishing the level of earnings management. IFRS even seems to increase

the amount of earnings management. Increased discretion in the accounting process, partly due to the introduction of fair value, could be to blame for this finding. Also, the increasing volatility of earnings, and thus increased incentives to smooth them, could cause earnings management to increase after the introduction of IFRS.

5.4 Regression results: income smoothing

Regression analysis for income smoothing also shows an increasing effect for IFRS. Apart from leading accruals based earnings management measured by the magnitude of discretionary accruals to increase, income smoothing therefore also increases in response to the introduction of IFRS. This is inconsistent with **H1**, which is therefore rejected.

My findings on accruals based earnings management indicate that IFRS has an increasing effect on accruals-based earnings management. At the same time however, time-trend analysis shows that the overall level of accruals-based earnings management for my total sample is significantly lower in the post-IFRS period compared to the pre-IFRS period. How then to explain this contradiction?

The decreasing trend in accruals-based earnings management, independent of the introduction of IFRS, could possibly be explained by the anticipation of firms on the implementation of IFRS in 2005, as well as other initiatives such as those related to corporate governance. These factors may have also caused an acceleration in the decreasing trend from 2005, in turn leading to significant lower levels of accruals-based earnings management in the post-IFRS period independent of the implementation of IFRS itself. Based on my findings, this decreasing trend has accelerated *despite of* the implementation of IFRS, as IFRS itself has an increasing effect on accruals-based earnings management.

5.5 Regression results: real earnings management

For abnormal cash flow from operations, consistent with my models for accruals-based earnings management, a decreasing trend in time is found, as well as a positive effect of IFRS. Thus, apart from leading to increased accruals-based earnings management, based on my findings the implementation of IFRS also leads to increased real earnings management. This is consistent with **H2**, which is therefore accepted. However, in stead of a substitution effect between the two main manifestations of earnings management, this increase in real earnings management goes hand in hand with an increase in accruals-based earnings management.

For abnormal production costs, most independent variables are not significant. Based on the lack of significance found for almost all independent variables, it could be seriously questioned whether the model used to estimate abnormal production costs is reliable. Based on the R Square of only 0,037 for the regression model with R_PROD, many explanatory variables are missing in the model. The R Square of 0,211 for the model with ABS_R_CFO leads to more confidence in the results found, although there is still room for more explanatory variables.

The regression results for ABS_R_CFO are consistent with my time-trend analysis, where I established that the level of real earnings management measured as the absolute abnormal cash flow from operations is significantly higher in the post-IFRS period. So despite of a decreasing trend in real earnings management during my sample period, real earnings management is significantly higher in the post-IFRS period, with IFRS adding to this increased magnitude.

5.6 Regression results: substitution effect EM/RM

Lastly, I test the substitution effect between the two main manifestations of earnings management by including a proxy for real earnings management as an independent variable in the regression for accruals-based earnings management, and vice versa. Given the lack of significant results, abnormal production costs are excluded from this analysis.

I included my proxy for real earnings management, ABS_R_CFO, as an extra control variable in my regression for accruals-based earnings management. I have excluded cash flow from operations, as I now included abnormal cash flow from operations, which is part of total CFO. The interaction variable IFRS*ABS_R_CFO, is included to test whether the introduction of IFRS has led to a substitution effect between accruals-based earnings management and real earnings management.

Results obtained from the regression analysis show that there is still talk of a decreasing trend in accruals-based earnings management during my sample period, and IFRS still has an increasing effect on accruals-based earnings management. For my interaction variable with IFRS, IFRS*ABS_R_CFO, I obtain a negative coefficient, although not significant for the regression with ABS_DA(ΔCFO). The obtained negative coefficient indicates that the introduction of IFRS has led to a substitution effect between the two main manifestations of earnings management, although both accruals-based earnings management and real earnings management have strictly increased. Results show that the introduction of IFRS has led to a more negative relation between accruals-based earnings management and real earnings management, meaning that in the post-IFRS period, accruals-based earnings management and real earnings management are increasingly used as substitutes of one another.

Controlling for accruals based earnings management in my regression for real based earnings management leads to similar results. Again, the signs of the obtained coefficients are mostly unchanged, with also for real earnings management a decreasing trend in time during my sample period, and an increasing effect of the adoption of IFRS on the level of earnings management. The signs of the coefficients for the accruals-based management proxies, as well as for the interaction variables, are consistent with that obtained for the regression of absolute discretionary accruals when controlled for real earnings management. The negative coefficient for the interaction variables indicates that the introduction of IFRS had led the two main manifestations of earnings management to be increasingly used as substitutes of one another. This is consistent with **H3**, which is thus accepted.

6. Summary and conclusions

In this study, I investigated whether the mandatory adoption of IFRS from 1 January 2005 by all listed companies in the European Union has led to significantly lower levels of earnings management. I hypothesized that due to the stricter character of IFRS compared to national GAAP, combined with the decreased tolerance towards accounts manipulation by users and regulators as a consequence of recent accounting scandals, accruals-based earnings management has strictly declined after the introduction of IFRS. However, results obtained from regression analysis indicate exactly the opposite, namely that accruals-based earnings management has *increased* as a consequence of the adoption of IFRS.

I also hypothesized that management shifts away from accruals-based earnings management towards real earnings management. With incentives to manage earnings remaining the same or even increasing as a consequence of increased incentives to smooth earnings, I expected management to look for alternative ways to manage earnings. Regression analysis confirmed that real earnings management has strictly increased as a consequence of the introduction of IFRS.

So both accruals-based earnings management and real earnings management has *increased* as a consequence of the implementation of IFRS. However, I also expected that there would be talk of a substitution effect between the two manifestations of earnings management, as accruals-based earnings management was expected to *decrease* and real earnings management to *increase* as a consequence of the implementation of IFRS. To test whether there is still talk of a substitution effect between the two manifestations of earnings management, I performed additional regression analysis. From this, I indeed found that IFRS has led the two manifestations of earnings management to be increasingly used as substitutes of one another, despite the fact that the magnitude of both manifestations of earnings management have strictly increased in the post-IFRS period compared to the pre-IFRS period.

Lastly, I considered whether the implementation of IFRS has led to different effects in the different countries in my sample. However, regression analysis shows that the country in which a company is based has no significant influence on the effect of IFRS on the level of earnings management. This could be explained as IFRS having the same effect on the relative levels of earnings management in different countries. But it could also be interpreted as IFRS being ineffective in restricting earnings management all together. This last interpretation is consistent with the rest of my obtained results, as well as with the finding in earlier studies that IFRS is mainly applied in line with national accounting traditions.

Based on these findings therefore, I am unable to establish that for my total research sample IFRS has led to less accruals-based earnings management. Although accruals-based earnings is significantly lower in the post-IFRS period than in the pre-IFRS period, regression analysis shows that when controlled for differences in earnings management incentives, IFRS has led to an increase in accruals-based earnings management. This is consistent with earlier studies, such as that by Tendeloo and Vanstraelen (2005) and

Heemskerk and Van der Tas (2006). My results also show that IFRS has led to an increase in real earnings management. With both accruals-based earnings management and real earnings management increasing as a consequence of the adoption of IFRS, it can be stated that based on my findings, IFRS has not been successful in restricting earnings management.

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Goodwill Impairment as a Tool for Earnings Management

Jamilla Lemans[1]

Executive summary[2]

This research examines whether or not goodwill impairments are being used by Dutch listed firms to manipulate earnings. Two different regression models are used for this purpose which include firm-specific factors as well as proxies for big bath accounting, income smoothing and a factor for measuring the recognition of higher impairments around the time of a CEO change. The results show that the method (model) chosen to measure the impairment decision influences the generated results, and that overall no strong evidence is found which indicates that goodwill impairments are indeed being used to manipulate earnings.

For the full text of this master thesis refer to the following webpage: http://hdl.handle.net/2105/5375.

1. Introduction

This research examines whether or not the impairment of goodwill is used to manipulate earnings at Dutch listed firms in the period 2005-2008. Since the introduction of the standards IFRS 3 and IAS 36, more professional judgement is needed for the valuation of goodwill in the financial statements, thereby bringing a higher level of subjectivity. This subjectivity provides opportunities for management to manipulate earnings, which can cause a distorting image in the financial statements which are provided to its users. When considering this subjectivity in the light of the current credit crisis, it becomes clear that this is a hot topic. The goal of this research is to investigate the significance of management's influence on the value of goodwill which is being accounted for when applying an impairment test. This leads to the following overall research question:

Are goodwill impairments being used by management as a tool for earnings management?

The remainder of this paper is structured as follows. First some important prior research on earnings management and goodwill is discussed (Section 2). Next, the hypotheses are presented as well as the models which are being applied in this research. Section 4 then presents the main results as well as the analysis. The paper concludes with a short

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[2] For a more elaborate discussion of earnings management and goodwill (impairment), as well as a more elaborate discussion of empirical evidence from prior literature and more detailed results of the empirical part of this research, a reference is made to the full text version of the master thesis.

summary and conclusion, the limitations of this research as well as some suggestions for future research on this topic in Section 5.

2. Prior literature

This section will discuss prior literature regarding earnings management, the implications of applying the impairment test for goodwill, as well as how the impairment test can be used as a tool for earnings management.

2.1 Earnings management

In the literature many different insights with regard to defining earnings management exist. A definition that is used often and will be used in this research is the definition from Schipper (1989, pp. 92): "*Disclosure management, in the sense of a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gains (as opposed to, say, merely facilitating the neutral operation of the process*". This definition implies that management intervenes in the reporting process to reach some sort of personal gains. Also it does not classify earnings management as fraud. Therefore this definition captures the most import aspects of earnings management and fits this research in a good manner.

In practice, also different types of earnings management can be distinguished. The two most important types for this research are big bath accounting and income smoothing. Big bath accounting is an example of the use of earnings management to decrease the earnings of a firm. As many as possible, losses and write-offs are incurred in the same year. According to Mohanram (2003, pp. 2), big bath accounting is used by firms which cannot achieve their targets in a year. When these firms miss their targets, they engage in accounting methods to make the firm's results even worse. Two reasons for this can be identified. First it is very unlikely that the firm can reach the targets set for that year, implying the year is 'lost'. Secondly, the costs arising from missing the targets are incurred anyway. The costs the firm will incur from performing even worse will be minimal, since the biggest damage is done by missing the targets. The additional incurred losses can be used to increase or smooth income in future years.

Income smoothing on the other hand is used by management if they want to present a consecutive line of increasing earnings. To achieve this, earnings management that both increases and decreases income can be used. If the firm's income is higher than targeted, income can be decreased by using earnings management. As Mohanram (2003, pp. 3) points out, two purposes for this kind of accounting can be identified. The first is to 'save' some income for the future when the firm may not be able to meet its targets. The earnings from the previous period are used later. Earnings management can then be considered '*as an intertemporal transfer of income between periods*' (Mohanram, 2003, pp. 6). The second purpose of decreasing income, if income is higher than targeted, is to prevent expectations about the firm's performance to rise. If the expectations about future earnings increase, future targets will be more difficult to reach. Consequently, the consecutive line of increased earnings can be ended, as a result of one exceptionally good result.

2.2 The goodwill impairment test

The issuance of the new standard IFRS 3 requires that goodwill will be impaired annually based on fair value estimates of the acquired business. The impairment test replaces the annual depreciation of goodwill that was used previously.

According to IFRS 3, it is necessary to recognize an impairment loss when there is a decrease in value. An impairment loss is defined as '*the amount by which the carrying amount of an asset or a cash generating unit exceeds its recoverable amount*' (IAS 36.6).

An implication of applying the impairment test in practice is that a large amount of factors need to be determined for the impairment calculation, including the recoverable amount, the value in use, the carrying amount and the fair value. For instance regarding fair value, it is important that entities, who are estimating expected future cash flows, rely on reasonable and supportable assumptions and projections, according to Lander and Reinstein (2003, pp. 228). Also they should consider all available evidence to estimate these cash flows, since this forms the basis of the impairment test. The weight given to such evidence should be commensurate with how well the entity can verify this evidence objectively. Entities using ranges to estimate the amount or timing of possible cash flows should consider the likelihood of possible outcomes either directly, when applying an expected cash flow approach, or indirectly through the risk-adjusted discount rate, when determining the best estimate of future cash flows.

However, the factors used in an impairment test depend on a lot of assumptions made by management, since management is responsible for preparing the initial impairment calculation. The auditor only has the obligation to check this calculation. Some examples of assumptions that need to be made in the calculation include the discount factor (the weighted average cost of capital can be used for this), the amounts of future cash flows and the growth factor of the future cash flows. These assumptions give rise to a relatively high level of subjectivity in the impairment test. This level of subjectivity is supported by literature of Kuipers and Boissevain (2005). They argue that the most important opportunities to manage earnings are present in the area of cash flow projections. Therefore the underlying assumptions need to be challenged, amongst others internally and by the auditor, to test whether these assumptions are realistic. The existence of this higher level of subjectivity is also supported by Ball (2006) and Bini and Bella (2007). However, challenging the assumptions may be quite difficult to accomplish in practice. Johnson (2007) expresses concerns about auditors who may lack the necessary training in valuation methods for estimating fair values. This raises serious questions regarding the implementation of the fair value principle (and impairment) in practice.

Ball (2006) provides a possible reason for management to use impairments as a tool to manage earnings. Management fears to be punished by the market in the case of impairment shortly after an acquisition. The market may see this impairment as a sign of mismanagement, because the firm has likely overpaid for the acquired business. This reasoning is also supported by empirical evidence found by Li et al. (2005).

2.3 Managing goodwill impairments

This section will discuss the link between earnings management and the impairment of goodwill based on a summary of the most important prior research done on this subject. A

distinction is made between different kinds of research that give other insights into this subject.

Zucca and Campbell (1992) performed empirical research to test the link between earnings management and goodwill impairments. They assume that there is no pattern in the path of expected earnings, indicating that the path is 'random'. Zucca and Campbell (1992) found that the majority (45 out of 77) of the write-downs investigated were recorded when earnings were below expected earnings ("bathers"), while 22 out of 77 were recorded when earnings exceeded expectations ("income smoothers"). They interpreted these results as evidence that write-downs are used to manage earnings.

Van de Poel et al. (2008) recently studied a sample of listed companies in 15 EU countries preparing financial statements under IFRS in the period 2005-2006. They find, based on regression analysis, that the goodwill impairment decision for these companies is highly associated with financial reporting incentives. More specifically, their findings support that companies typically take their impairments when earnings are 'unexpectedly' high (smoothing) or when they are 'unexpectedly' low (big bath accounting). This evidence is therefore in accordance with the results of the research of Zucca and Campbell (1992).

Research was performed by Alciatore et al. (1998) on the finding that the discretion inherent in GAAP pertaining to asset impairments could be used by firms in their self-interest. An example they provide is that firms may use GAAP flexibility to avoid taking impairments due to concerns about potentially negative stock market reactions to such charges. Other firms could however record an impairment loss when earnings are particularly high in order to smooth income or, alternatively, they could take a bath by accelerating an impairment when earnings are already poor to maximize profits in future periods. Alciatore et al. (1998) argue that this flexibility suggests that the impairment decision could be strategically used by managers to adjust the timing and amounts of charges to income.

In addition, Jordan and Clark (2004) also found evidence which indicated that companies with unusually low earnings in a year reported a large impairment loss in order to lower the reported earnings even further, which is indicative of big bath accounting. Empirical evidence consistent with this behaviour is found by Francis et al. (1996). They show that managers use two different sorts of determinants in the asset impairment decision. On the one hand, managers take into account factors which reflect declines in the values of assets due to poor firm performance, increased competition and changes in the economic climate. On the other hand, asset impairment decisions may be influenced by personal reporting incentives, which means that management may take advantage of the discretion afforded by accounting rules to manipulate earnings by either not recognizing impairments when this is needed, or by recognizing impairments only when it is advantageous for management to do so. Francis et al. (1996, pp. 134) use a weighted tobit model to estimate the importance of impairments and earnings management variables in explaining both the existence and amount of a firm's write-off decisions. They find that for the full sample of write-offs, both manipulation and impairment are important determinants, but that incentives play a substantial role in explaining such items as goodwill write-offs.

Sevin and Schroeder (2005) also conducted research concerning goodwill impairments but focused more on the size of the firm as a factor that could influence the impairment. They

found that smaller firms were more negatively impacted by SFAS 142 and were therefore more likely to impair goodwill than larger firms. They therefore argued that goodwill seemed to be an account that lends itself to some level of manipulation and that the firm size and the level of earnings appear to be a factor in determining the impairment. Beatty and Weber (2006) examine several potentially important economic incentives that firms face when making impairment decisions. In using a regression model, which is consistent with previously discussed research by Van de Poel et al. (2008), they find evidence suggesting that firms' equity market concerns affect their preference for 'above-the-line' versus 'below-the-line' accounting treatment, and firms' debt contracting, bonus, turnover, and exchange delisting incentives affect their decisions to accelerate or delay expense recognition. However, Bens (2006) questioned the regression model used by Beatty and Weber (2006, pp. 296). He argued that accounting decisions can be quite complex, and such a simple linear framework (many dummy variables are incorporated in the model) may not capture many of the interesting subtleties involved. Moreover, many of the proxy variables used in the Beatty and Weber framework were difficult to interpret unambiguously. This criticism indicates that the regression model used by Beatty and Weber (2006), but herewith also the model used by Van de Poel et al. (2008), should be adjusted to capture more of the complexity of accounting (impairment) decisions. Henning et al. (2004, pp. 119) used a research method consistent with research discussed previously by Van de Poel et al. (2008) and Beatty and Weber (2006). Regarding the amount of goodwill write-offs, their results indicate that *"U.S. firm goodwill write-offs and U.K. firm goodwill revaluations exceed the amounts predicted by our models when we consider the initial value of goodwill. However, the actual write-offs and revaluations do not differ from amounts predicted by our models when we consider changes in the value of goodwill after the acquisition"*. The authors find this interesting, since this kind of valuation behaviour is consistent with the big bath findings of Elliott and Shaw (1988). The results of Henning et al. (2004, pp. 114) may therefore reflect managerial incentives to maximize the goodwill impairment in transition, especially since the impairment was shown as a non-operating loss in the year of the adoption of SFAS 142, but as an operating expense in subsequent years. According to Henning et al. (2004, p. 119), it appears that *"U.S. firms delayed the income-reducing effects of goodwill write-offs, and U.K. firms timed the asset-increasing effects of goodwill revaluations to avoid additional agency costs"*. These findings indicate that a certain amount of influence was used in determining the timing of the impairment decision, because a different timing of the impairment (and revaluation) could have had a major influence on the presented income in the financial statements.

Another direction of research supporting the link between earnings management and goodwill impairments was performed by Masters-Stout et al. (2007, pp. 2). In their research they incorporate the change in CEO as a variable which could influence the impairment decision. They hypothesize that CEOs tend to manipulate the impairment in the early years of their tenure since blame can be placed on earlier management's acquisition decisions and expensing goodwill early can improve future earnings. If new CEOs impair more goodwill than their senior counterparts, it would indicate that the impairment rules are not being applied consistently. In their research they also use a

regression model, as previously seen with Van de Poel et al. (2008), Beatty and Weber (2006) and Henning et al. (2004). The results of the analysis (Masters-Stout et al., 2007, pp. 13) provide compelling evidence that new CEOs impair more goodwill than their senior counterparts. Also a relationship exists between net income and the amount of impairment for all CEOs. These results therefore indicate that the new impairment rules, at a minimum, are applied differently between new and senior CEOs.

Strong and Meyer (1987, pp. 643) also performed research regarding CEO changes and goodwill impairments. They used multiple discriminant analysis to investigate the determinants of goodwill. In using this method, they determined that the change in senior management was a significant variable in explaining the tendency to report asset impairments. If the new executive came from outside the firm, this effect was even more significant.

The results of the research by Lapointe-Antunes et al. (2008)[3] provide additional evidence for the conclusion that impairments are reported in the case of a CEO change. They use a multivariate tobit model to assess the determinants of transitional goodwill impairment losses, which is in accordance with the method used by Francis et al. (1996) as discussed earlier. Overall, Lapointe-Antunes et al. (2008, pp. 43) find that the adoption of the impairment approach effectively triggered the recognition of large impairment losses for Canadian firms. An association is shown between the magnitude of transitional goodwill impairment losses and firms' incentives to both overstate and understate them. The results (Lapointe-Antunes et al., 2008, pp. 51) suggest that firms record higher transitional goodwill impairment losses to minimize the deviation from the industry median ROE (return on equity) and ROA (return on assets) as well as when they experience a change in CEO. The results are also consistent with firms recording lower transitional impairment losses to avoid further deviation from the industry median leverage, when there are sizable unrealized gains on exercisable stock options, when they subsequently issue new debt or equity capital, and when they are cross-listed in the United States. Finally, their findings seem to indicate that financially literate and independent audit committee members constrain managerial opportunism with respect to transitional goodwill impairment losses.

3. Hypothesis development, model development and sample selection

3.1 Hypothesis development
Based on the discussion of empirical evidence about the link between earnings management and goodwill impairments, it is possible to develop multiple hypotheses.

The first hypothesis can be linked back to the discussion of big bath accounting. When earnings are unexpectedly low and therefore the overall performance of the firm is below the desirable level, management will be more likely to choose for the recognition of an

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[3] Noticeable for this research is that Lapointe-Antunes et al. (2008) divided the total sample into industry groups (energy, materials, industrial, consumer discretionary, consumer staples, health care, financials, information technology, telecommunications and utilities), according to TSX Indices, as given by Compustat.

impairment loss since the performance is already low. Therefore they 'take a bath' by recognizing a high goodwill impairment loss. This will provide management with the opportunity to increase or at least improve earnings in future years, since then the recognition of an impairment loss will probably not be necessary. This can also be linked to the bonus plan hypothesis which is also an important aspect of earnings management. Managers are unable to reach their bonus in a year of poor firm performance and therefore they take a bath to improve the chance of reaching the bonus in future years.

Based on the theory of big bath accounting, the following hypothesis is developed:

> **H1:** *Firms are more likely to recognize a goodwill impairment loss when their earnings are 'unexpectedly' low, ceteris paribus.*

To test this hypothesis, a proxy for the use of big bath accounting will be incorporated in the model. In this research the variable $BATH_{it}$ (and $BATH2_{it}$) will be used for this purpose. This variable is used to determine whether the earnings (before taxes) of the firm are below the industry median. When this is the case, management has an incentive to engage in earnings management by taking a bath. How this variable is measured is discussed into more detail in Appendix I. It is expected that a positive relation will be found between this variable and the impairment decision, since low earnings indicate poor performance and therefore an impairment loss may need to be recognized. Based on the latter, it is expected that the hypothesis will hold when tested by the model which is developed for this research.

The reasoning for the development of the second hypothesis is based on earnings management in the form of income smoothing. Under the circumstances that earnings are 'unexpectedly' high and the performance of the firm does not influence the bonus level anymore, management will have an incentive to recognize a goodwill impairment loss. This choice can be based on the fact that earnings are so high that the ceiling of the manager's bonus has already been reached. In that case, it is more profitable for management to accelerate the impairment since accelerating goodwill impairments has a positive effect on the chance of reaching the bonus in future years. Also this choice can be based on the fact that management wants to present a consecutive line of increasing earnings. When impairments need to be accounted for, this could have a great influence on this consecutive line of earnings, depending of course on the absolute size of the impairment. Therefore management may have incentives to postpone the impairment loss and to pass the impairment on to the future in the case of poor performance. However, when looking at the case when earnings are unexpectedly high, these earnings can then be smoothed by recognizing an impairment loss that may not have been necessary yet to boost performance in the future. Therefore, this hypothesis can be seen from two different viewpoints. The first viewpoint is based on the bonus plan hypothesis, the second is based on the incentive to smooth earnings.
Based on the previously discussed theory the following hypothesis can be formulated.

> **H2:** *Firms are more likely to recognize a goodwill impairment loss when their earnings are 'unexpectedly' high, ceteris paribus.*

As also discussed with the first hypothesis, for this hypothesis also a proxy needs to be determined which can measure whether income smoothing takes place. For this purpose the variable $SMOOTH_{it}$ (and $SMOOTH2_{it}$) will be incorporated in the model (see Appendix I for a more precise measurement of this variable). This variable is used to determine whether the firm's earnings deviate (substantially) upward from the industry median. When this is the case, an indication is found that management has an incentive to smooth earnings. It is expected that a positive relation will be found between this variable and the impairment decision, since the unexpected good performance of a firm provides the incentive to smooth earnings and therefore to report an impairment loss.

Based on the latter, it is expected that this hypothesis will hold when tested by the model.

Overall, Hypothesis 1 and 2 imply that it is expected that managers are encouraged to underreport earnings in the case of large earnings surprises. In that case, firms have incentives to report all impairments and even accelerate impairments to boost performance in the future (see also Van de Poel et al., 2008, pp. 15).

The effects of a change in CEO are also included in this research, since the discussed evidence in the previous section has shown that a change in CEO can result in big bath accounting. Important research discussed on this topic was done by Masters-Stout et al. (2007). They found compelling evidence that new CEOs impair more goodwill than their senior counterparts. Also Lapointe-Antunes et al. (2008) found higher transitional goodwill impairment losses when a firm experienced a CEO change. The reasoning behind this is that new CEOs will try to loose the inheritance of the previous CEO to make sure that the performance in the following years will improve. So the new CEO will try to pass the weak performance onto its predecessor. As discussed with the first hypothesis, the new CEO will therefore 'take a bath' to loose this entire inheritance immediately in the first year. Based on the previously discussed theory it is therefore also hypothesized that:

> **H3:** **Firms that experience a change in CEO record higher transitional goodwill impairment losses.**

To test this hypothesis, a proxy is incorporated in the model only now for measuring higher impairments around the time of a CEO change. The variable CEO_{it} will be used for this purpose which is based on a combination of the models of Masters-Stout et al. (2007, pp. 6) and Francis et al. (1996, pp. 122-124). The results of research done by Masters-Stout et al. (2007, pp. 11-12) and Francis et al. (1996, pp. 125) have proven that, as expected, this variable has a significant impact on the impairment decision. Since a change in CEO is often associated with big bath accounting, it is therefore expected that a positive relation will be found between this variable and the impairment decision.

Based on the theory and the outcomes of these studies, it is therefore expected that this relation between CEO changes and the recognition of goodwill impairment losses can be found in this empirical research, which implies that it is expected that Hypothesis 3 will hold when being tested by the model

3.2 Model development

In the brief literature review, multiple models have been mentioned that were used to perform empirical research on goodwill impairments and earnings management. The choice was made to use the model of Van de Poel et al. (2008) as the starting point for this research, and from thereon make adjustments to fit the model to the purposes of this research. The model of Van de Poel et al. (2008) is the most appropriate model to use as a starting point for this research since it incorporates many different factors, including reporting incentives and economic conditions of the firm. Also the variables are measured such that the magnitude of the figures is also taken into account in a large number of cases when investigating the impairment decision.

The following two adjusted models are developed for this research.[4]

Model 1

$$IMPAIRMENT_{it} = \alpha_0 + \alpha_1\, BATH_{it} + \alpha_2\, SMOOTH_{it} + \alpha_3\, CEO_{it}$$
$$+ \alpha_4\, \Delta SALES_{it} + \alpha_5\, \Delta OCF_{it} + \alpha_6\, \Delta indROA_{it}$$
$$+ \alpha_7\, GOODWILL_{it-1} + \alpha_8\, SIZE_{it} + \alpha_9\, INDUSTRY_{it} + \varepsilon_{it}$$

Model 2

$$IMPAIR\_AMOUNT_{it} = \alpha_0 + \alpha_1\, BATH2_{it} + \alpha_2\, SMOOTH2_{it} + \alpha_3\, CEO_{it}$$
$$+ \alpha_4\, \Delta SALES_{it} + \alpha_5\, \Delta OCF_{it} + \alpha_6\, \Delta indROA_{it}$$
$$+ \alpha_7\, GOODWILL_{it-1} + \alpha_8\, SIZE_{it} + \alpha_9\, INDUSTRY_{it} + \varepsilon_{it}$$

3.3 Sample selection

The focus of this research will be on all Dutch listed companies in the period 2005-2008. This implies that the total initial sample consists of 1.529 firm-year observations as gathered through the Thomson One Banker financial databases from Worldscope Fundamentals. Noticeable is that the year 2008 has also been included as far as is known at this very moment[5].

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[4] The precise measurement of the variables is incorporated in Appendix I and will not be discussed here into further detail. For the reasoning behind the choice of these different variables as well as the choice for the method of measuring the variables, a reference is again made to the full text version of the thesis.

[5] Date of sample selection is March 17th 2009.

Table 1: Goodwill impairment losses by industry (excl. Financials)

Industry group		Number of firm-year observations			
		Total	% of total	Impairment	% of total
0001	Oil and Gas	17	4.63%	5	29.41%
1000	Basic materials	11	3.00%	5	45.45%
2000	Industrials	134	36.51%	29	21.64%
3000	Consumer goods	55	14.99%	12	21.82%
4000	Health care	23	6.27%	1	4.35%
5000	Consumer services	63	17.17%	13	20.63%
6700	Other	7	1.91%	3	42.86%
9000	Technology	57	15.53%	11	19.30%
	Total	*367*	*100.01%*[6]	*79*	*21.53%*

The initial sample is adapted to the research setting. This is done by excluding those observations which concern inactive firms, as well as observations for which not all data is available (especially for the year 2008). In addition, also those observations have been excluded in which no goodwill opening balance is present and simultaneously no impairment is recorded since these observations do not relate to goodwill and/or impairments and therefore do not have any additional value for this research. After this process of elimination the sample consists of 393 firm-year observations, split up into the different industries, as depicted in Table 1.

Important to notice is that financials have been excluded since such firms have to deal with very different laws and regulations than firms in other industries and may therefore cause a distortion in the results. The final sample therefore consists of 367 observations.

4. Results and analysis

This section will present the results of the performed empirical research, as well as an analysis of the results. In the first subsection, the results for the total sample are presented for both models. The second subsection briefly presents the results for the alternative tests.

Noticeable is that five different versions of the two models have been used in the regression analysis to determine whether any significant changes occur when a particular variable is excluded. Version I is the full model as depicted in section 3.2. The versions II, III and IV each exclude (one of) the variables that were incorporated to test the hypotheses. This is done to test whether these variables have additional explanatory power and whether excluding these variables can lead to changes in the results concerning the regression coefficients. The choice is made to exclude the variables in the following order. Version II first excludes the variable CEO_{it} since this variable is not one of the types of earnings management as distinguished by the theory. The next variable that is excluded for

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[6] The total percentage differs from 100% as a consequence of rounding-off the percentages for each industry.

version III is $BATH_{it}$, since big bath accounting may be easier to detect than income smoothing and may therefore be used less often by management to avoid a loss of prestige. Therefore, version IV excludes the variable $SMOOTH_{it}$. Version V is the last version that is applied and is composed of the full model (version I), but includes also the interaction term between big bath accounting and a CEO change, since this is a factor which is added to the model instead of removed like was done for the previous versions, since it is expected that this will have additional explanatory power.

4.1 Regression results

This section presents the regression results for both models. Noticeable is that the focus here is on the most important variables in the model, which are used to test the hypotheses. The results for the remaining variables are only depicted in Table 2 and 3 and will not be discussed into further detail in this paper.

4.1.1 Regression results Model 1

For Model 1, the conclusion is drawn that the explanatory power of the model (Adjusted R-square) is not high, namely 0.093 at a maximum for version III of the model (1-III), indicating that this is the optimal version of the model. Noticeable is that Model 1-III is not the full model or the full model with as an additional variable the interaction term between big bath accounting and a CEO change. This implies that the models 1-I and 1-V have less explanatory power than the model that does not include the variable $BATH_{it}$ and the interaction term. This implies that these factors do not have additional explanatory power and can best be left out of the model. This result contradicts with expectations, since it was expected that the full model (including the interaction term) would have the highest explanatory power. In addition, the regression part of the Sum of Squares is particularly low, confirming the low explanatory power. The conclusion can therefore be drawn that Model 1 does not predict the impairment decision accurately and that a large residual is presented which cannot be explained by the regression.

Table 2 shows that the economic factor ΔOCF_{it}, the reporting incentive $SMOOTH_{it}$ and the control variable $SIZE_{it}$ are factors that have a significant influence on the impairment decision ($IMPAIRMENT_{it}$) for all versions of Model 1. For the model versions I, II and III the significance levels at which these factors prove to have a significant influence are also similar. However, the significance level that is applicable in the case of the economic factor ΔOCF_{it} for versions IV and V is somewhat different (1% and 10% respectively instead of 5%), but the factor still has a significant influence.

Table 2: Regression results Model 1 (total sample)

	Model I	Model II	Model III	Model IV	Model V
(Constant)	-0.246 (0.003)***	-0.245 (0.002)***	-0.236 (0.002)***	-0.175 (0.014)**	-0.247 (0.003)***
ΔindROAit	0.005 (0.395)	0.005 (0.395)	0.005 (0.379)	0.004 (0.473)	0.005 (0.397)
ΔSALESit	0.057 (0.328)	0.057 (0.324)	0.056 (0.330)	0.065 (0.261)	0.056 (0.333)
ΔOCFit	-0.440 (0.030)**	-0.443 (0.028)**	-0.476 (0.009)***	-0.314 (0.056)*	-0.439 (0.032)**
BATHit	0.027 (0.691)	0.027 (0.690)			0.025 (0.734)
SMOOTHit	0.108 (0.047)**	0.108 (0.044)**	0.106 (0.047)**		0.108 (0.047)**
CEOit	-0.008 (0.868)				0.007 (0.898)
GOODWILLit	0.066 (0.655)	0.067 (0.652)	0.067 (0.648)	0.054 (0.715)	0.066 (0.656)
SIZEit	0.065 (0.000)***	0.065 (0.000)***	0.064 (0.000)***	0.059 (0.000)***	0.065 (0.000)***
*BATHit*CEOit*					0.008 (0.951)

***, **, * = coefficient is significant at the α=0.01, 0.05, 0.10 level

When examining the effects of the variables of interest on the impairment decision into more detail, the conclusion can be drawn that the reporting incentive *SMOOTH*$_{it}$ has a positive significant influence on the impairment decision, which is consistent with expectations and prior research (Zucca and Campbell, 1992; Van de Poel et al., 2008). This indicates that high earnings and therefore high performance lead to a higher reported impairment loss, which is a proxy for the use of income smoothing. This implies that firms use impairments as a tool for earnings management in the form of income smoothing to present a consecutive line of increasing earnings. Therefore this provides evidence in support of Hypothesis 2 that firms are more likely to report a goodwill impairment loss when their earnings are 'unexpectedly' high.

One variable that does not prove to have a significant influence on the impairment decision is the reporting incentive *BATH*$_{it}$. This result contradicts with the results of Zucca and Campbell (1992) and Van de Poel et al. (2008), since they found evidence that this factor does have a significant effect on the impairment decision. Since this effect was supported by the theory concerning big bath accounting, it is remarkable that the results show no significant effect. Noticeable is that the model which has the highest explanatory power does not include this variable, indicating that it does not have additional explanatory power when incorporated in a model with the other variables. One possible reason why this variable has no significant effect is that management does not use the discretion provided by IFRS to report large impairment losses when performance is poor, based on economic considerations for the firm as a whole or with regard to private gains. It is possible that management is afraid it needs to step down when performance is even lower. Also it is possible that management can still earn a bonus at the current

performance level which would be lost when an impairment loss is reported. Many considerations can therefore lead to the same decision not to report an impairment. These results however indicate that big bath accounting is not used by management, which implies that no evidence is found in support of Hypothesis 1, stating that firms are more likely to recognize a goodwill impairment loss when their earnings are unexpectedly low. Therefore this hypothesis should be rejected based on this evidence.

Another variable that does not have a significant effect on the impairment decision is CEO_{it}. Again it is remarkable that no significant relation is found, since this result is inconsistent with expectations as well as with the results of the research performed by Masters-Stout et al. (2007), Lapointe-Antunes et al. (2008) and Strong and Meyer (1987) which indicated that a significant positive relation should have been found. Since the effect on the impairment decision is not significant, this variable does not prove that more or higher impairments are being reported around the time of a CEO change. This therefore implies that no evidence is found in support of Hypothesis 3, which should therefore be rejected. A possible reason why this effect does not prove to be significant is that also the variable associated with big bath accounting is not significant, indicating that less use is being made of this method. Another reason is that not in many cases when a CEO change has taken place, an impairment loss is being reported. Perhaps the performance of the company has not been such at the time of the change that an impairment loss could have been justified. Therefore the impairment could not have been passed onto the previous CEO since then suspicion would have been raised, which implies that it is in the best interest of the CEO not to report an impairment loss.

4.1.2 Regression results Model 2

For Model 2, the Adjusted R-square is at a maximum of 0.566 for version V of the model (2-V). The explanatory power of this model is therefore quite high. Noticeable is that this concerns the full model which incorporates all variables as well as the interaction term, indicating that together these variables can best predict the impairment decision. In addition, the regression for Model 2-V explains the largest part of the Sum of Squares, which leads to a smaller residual. This confirms that the explanatory power is quite high.

The estimates of the regression coefficients for Model 2 are depicted in Table 3. The results show that the economic factors $\Delta SALES_{it}$ and ΔOCF_{it}, the reporting incentives $BATH2_{it}$ and $SMOOTH2_{it}$, the control variable $GOODWILL_{it}$ and the interaction term $BATH2_{it}*CEO_{it}$ all have a significant influence on the impairment decision ($IMPAIR\_AMOUNT_{it}$) for all versions of the model, except the interaction term which is only incorporated in model version V. For all these variables the significance levels are also the same for all versions of the model, except for $\Delta SALES_{it}$ (5% level, with exception of version III where the 1% level is applicable).

Table 3: Regression results Model 2 (total sample)

	Model I	Model II	Model III	Model IV	Model V
(Constant)	-0.017 (0.007)***	-0.017 (0.009)***	-0.009 (0.216)	0.008 (0.222)	-0.010 (0.058)*
ΔindROAit	0.000 (0.259)	0.000 (0.268)	0.000 (0.632)	0.000 (0.562)	0.000 (0.580)
ΔSALESit	0.010 (0.019)**	0.011 (0.015)**	0.013 (0.009)***	0.011 (0.034)**	0.008 (0.040)**
ΔOCFit	0.176 (0.000)***	0.173 (0.000)***	-0.158 (0.000)***	-0.102 (0.000)***	0.190 (0.000)***
BATH2it	-0.421 (0.000)***	-0.422 (0.000)***			-0.245 (0.000)***
SMOOTH2it	-0.119 (0.002)***	-0.113 (0.003)***	0.148 (0.000)***		-0.142 (0.000)***
CEOit	0.005 (0.127)				-0.004 (0.164)
GOODWILLit	0.038 (0.001)***	0.038 (0.001)***	0.043 (0.001)***	0.048 (0.000)***	0.029 (0.002)***
SIZEit	0.001 (0.306)	0.001 (0.248)	0.000 (0.819)	-0.002 (0.071)*	0.001 (0.267)
*BATH2it*CEOit*					-0.325 (0.000)***

***, **, * = coefficient is significant at the α=0.01, 0.05, 0.10 level

When examining the variables of interest into more detail, the conclusion can be drawn that the variable $BATH2_{it}$ has a significant influence, however with a negative sign. This result contradicts expectations and prior research (Francis et al., 1996; Van de Poel et al., 2008), since it was expected that low earnings would lead to the recognition of an impairment loss. Evidence now is found indicating that firms experiencing 'unexpectedly' low earnings are more likely not to report an impairment loss. This effect can be caused by the relative magnitude of the change in earnings. Perhaps the level of earnings for a firm were not substantially low from the view of management, therefore leading to the delay of an impairment. The choice not to record an impairment loss can then possibly be based on the idea that the lower performance is only temporarily and therefore no impairment is necessary. This can therefore account for the different sign for this variable, since low performance in this case is not associated with goodwill impairments. Based on theory this can also be explained as a form of loss minimalisation. So this method is different than big bath accounting, since that method can also be associated with loss maximalisation. This result implies that no evidence is found supporting Hypothesis 1, stating that firms are more likely to report a goodwill impairment loss when their earnings are 'unexpectedly' low. Therefore this hypothesis needs to be rejected based on the different sign of the effect, even though the effect is significant.

The variable $SMOOTH2_{it}$ also has a negative significant influence on the impairment decision for the model versions I, II and V, but a positive sign for model version III. This positive sign is as expected, since a high performance and therefore high earnings can be smoothed by recognizing an impairment loss. This result is also consistent with the research of Francis et al. (1996). However, the negative sign for this variable when the other model versions are applied contradicts expectations. This can be explained by the

reasoning that earnings are not high enough to record an impairment loss. One possible reason for this can be that management cannot reach the maximum bonus when an impairment is recognized. Also it is possible that the recognition of an impairment can negatively affect the presentation of a consecutive line of increasing earnings. These results indicate that for model version III this variable is a proxy for the use of income smoothing, which implies that evidence is found that goodwill impairments are indeed being used as a tool for earnings management in the form of income smoothing. Therefore, for this model version, evidence is found that supports Hypothesis 2, indicating that firms are more likely to record a goodwill impairment loss when their earnings are 'unexpectedly' high. However, for the other model versions (I, II and V) the results indicate that the variable is not a proxy for income smoothing or profit minimalisation, but instead a proxy for profit maximalisation since no impairment loss is being recognized. This implies that for these model versions evidence is found which is not in support of Hypothesis 2. Therefore this hypothesis should be rejected.

For the interaction term $BATH2_{it}*CEO_{it}$ the sign is negative, which contradicts with the individual expectations for these two variables since for both variables a positive relation was expected. This result also contradicts with the individual results in prior research (Francis et al., 1996 for $BATH2_{it}$; Masters-Stout et al., 2007 for CEO_{it}). taking into account that no prior research incorporated an interaction term for the combined effect of these factors. A possible explanation for the negative sign for this interaction term can be based on the result for the proxy for big bath accounting. The sign of the variable $BATH2_{it}$ is negative. When the sign for the variable CEO_{it} is positive, together these variables lead to a negative sign for the interaction term. In that case the sign for the variable CEO_{it} is as expected. Since the interaction term is significant and negative, a CEO change is not associated with big bath accounting but more with loss minimalisation. In other words, around the time of a CEO change, loss minimalisation is applied instead of big bath accounting and therefore the new CEO does not pass a weak performance onto his predecessor to loose the inheritance. Evidence is therefore found which contradicts with Hypothesis 3, indicating that firms which experience a change in CEO record higher goodwill impairment losses. Therefore this hypothesis should be rejected.

4.2 Results alternative tests

When comparing the results from the two models, it is a remarkable finding that the results differ significantly, since Van de Poel (2008) has stated that the use of a model with a dummy variable as the dependent variable (Model 1) to measure the impairment decision does not lead to different results compared to the use of goodwill impairment amounts (deflated by total assets) for measuring the dependent variable (Model 2). Since the results differ substantially after applying the two different models, alternative tests have been performed. Appendix II depicts the results of these tests for both models.

The main conclusions that can be drawn from these tests are as follows. For Model 1 (see Tabel 4, Appendix II), the results show that the variable $SMOOTH_{it}$ is the only significant variable for the observations from the year 2005, while for all other years none of the variables of interest have a significant influence on the impairment decision. This indicates that the results are heavily influenced by the observations from 2005, which is the

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transition year to IFRS. Therefore it can be concluded that income smoothing has only been applied in 2005, meaning that Hypothesis 1 only holds for the observations from 2005 and should be rejected for all other years. The results for the total sample therefore do not sustain alternative tests. Based on these results, it seems that the introduction of IFRS has provided management the opportunity to manipulate earnings.

The results for Model 2 are depicted in Table 5 (Appendix II). The results show that for the years 2005 and 2008 none of the variables have a significant effect on the impairment decision. It seems that in 2005 management was awaiting further developments as a consequence of the introduction of IFRS and that the credit crisis has influenced management's behaviour in 2008. Observations from 2005 and 2008 therefore cause a distortion in the results for the total sample, since they weaken the effects of the different reporting incentives on the impairment decision.

For the observations from 2006 and 2007, the results differ substantially. For 2006 the variables $BATH2_{it}$ and $SMOOTH2_{it}$ have a significant effect for the model versions I, II and III, but not for version V. Since these reporting incentives do not have a significant effect on the impairment decision for version IV, this result contradicts with those for the total sample. However, for the other versions of Model 2, the sign of the variable $SMOOTH2_{it}$ is positive while it was negative for the total sample. This indicates that for the observations in 2006, higher impairments are being recognized in the case of unexpectedly high earnings. This implies that income smoothing is being used as a tool for earnings management, meaning that evidence is found in support of Hypothesis 2, while previously evidence for profit maximalisation was found. Noticeable is that the variable CEO_{it} proves to be significantly negative only for version V at the 5% level. This result contradicts the result for the total sample, since in that case a positive relation is found for version I instead of V. Therefore a CEO change in this case is associated with lower impairments. The interaction term is still negative and significant at the 1% level. Therefore the conclusions drawn based on the earlier results for this factor are robust.

For 2007, the reporting incentives $BATH2_{it}$ and $SMOOTH2_{it}$ and the interaction term have a significant effect when applying the model versions I, II and V, but not for version IV since in that case $SMOOTH2_{it}$ is not significant. The signs and significance levels for these variables are similar to those for the total sample. This can therefore lead to the conclusion that the conclusions drawn earlier based on these variables sustain after this alternative test. For the sample of 2007 also the variable CEO_{it} proves to have a significant positive effect at the 1% level for Model 2-I. This contradicts prior results for the total sample, since then this variable is not significant. This therefore indicates that in 2007 more CEO changes occurred simultaneously with the recognition of higher impairment losses. Therefore evidence is found that a firm which experiences a change in CEO recognizes higher impairments, which is in support of Hypothesis 3.

5. Summary and conclusion

In this research it has been investigated whether goodwill impairments are being used as a tool to manipulate earnings. Based on the presented results, the conclusion needs to be drawn that it depends on the model which is being applied whether this is the case, since

the results from the two models differ substantially. After alternative testing, the results differ from those for the total sample. For Model 1 earnings management is only found for the observations from 2005, so after the introduction of IFRS. For Model 2 (total sample), only indications are found that goodwill impairments are being used for profit maximalisation and loss minimalisation, instead of income smoothing and big bath accounting. Impairments are therefore used in a less extreme manner. After alternative testing, the only strong evidence however remains that in 2007 higher goodwill impairments have been recorded around the time of a CEO change. For all other observations, no (conclusive) evidence is found for earnings management. So overall, the results for the total sample are heavily influenced by the transition year to IFRS (2005) and the credit crisis (2008) and no strong evidence is found which indicates that management indeed uses goodwill impairments to manipulate earnings.

This research implies that goodwill impairments are highly subjective and therefore it is recommended to lower this subjectivity for instance by developing guidelines for management to perform the impairment test. More research should be performed on this subject to make it possible to include potential guidelines in the standards or to provide the standards with more detailed descriptions on how to perform the impairment test. This in turn could make it easier for auditors to check the impairment test and may therefore lower the subjectivity associated with it.

A limitation of this research is that no results have been generated for each industry separately. Since the subsamples for the different industries would have been too small in this research, the choice was made not to run the regression for each industry separately since it would make the results less reliable. This can however be a good example for future research. Also it is possible to look at financials or compare financials to the other firms, since financial firms have been excluded from this research because of their different laws and regulations with which they need to comply.

Also it is possible to investigate the effects of the introduction of IFRS on the level of earnings management in the Netherlands with regard to goodwill. This could be done by examining a certain period before and after the introduction (compare the use of amortization with impairments). Also the influence of the revised standard IFRS 3R can be investigated in a similar manner, since this new standard allows the use of the full goodwill method which can have an impact for the financial statements.

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Appendix I

Overview of the variables and their definitions

Dependent variables	
$IMPAIRMENT_{it}$	Indicator variable that takes the value of 1 if firm i takes a goodwill impairment in year t, and 0 otherwise.
$IMPAIRMENT\_AMOUNT_{it}$	The reported impairment amount deflated by total assets at the end of year t-1.
Economic factors	
$\Delta indROA_{it}$	The percentage change in firm i's industry return on assets (ROA) from year t-1 to year t, where industry is defined based on the Industrial Classification Benchmark Industry (ICB) from Worldscope.
$\Delta SALES_{it}$	The percentage change in firm i's sales from year t-1 to year t (= the change in firm i's sales from period t-1 to t, divided by total assets at the end of year t-1).
ΔOCF_{it}	The change in firm i's operating cash flows from period t-1 to t, divided by total assets at the end of t-1.
Reporting incentives	
$BATH_{it}$	Indicator variable equal to 1 if the change in firm i's pre-impaired earnings (before tax) from year t-1 to year t, divided by total assets at year t-1, is below the industry median of non-zero negative values, and 0 otherwise (= the proxy for the use of big bath accounting by management).
$SMOOTH_{it}$	Indicator variable equal to 1 if the change in firm i's pre-impaired earnings (before tax) from year t-1 to year t, divided by total assets at year t-1, is above the industry median of non-zero positive values, and 0 otherwise (= the proxy for the use of income smoothing by management).
$BATH2_{it}$	The value of unexpected earnings when unexpected earnings are below zero, and 0 otherwise. Unexpected earnings are measured as the operating earnings (earnings before taxes, so net income + income taxes) in year t less the operating earnings in year t-1, divided by total assets at the end of year t-1.
$SMOOTH2_{it}$	The value of unexpected earnings less the write-off when this resulting amount exceeds zero, and 0 otherwise. Unexpected earnings are measured as the operating earnings (earnings before taxes, so net income + income taxes) in year t less the operating earnings in year t-1, divided by total assets at the end of year t-1.
CEO_{it}	Indicator variable equal to 1 if the firm experienced a change in the CEO position in year t-1 or t, and 0 otherwise.
Control variables	
$GOODWILL_{it}$	The ratio of firm i's opening balance of goodwill on total assets at t-1.
$SIZE_{it}$	The natural logarithm of firm i's total assets in year t.
$INDUSTRY_{it}$	Indicator variable that takes the values of the ICB industry codes to divide the sample into multiple industry groups. The industry distribution is based on the ICB (Industrial Classification Benchmark Industry) division. There is a total of 9 industry groups.

Appendix II – Regression results alternative tests

Table 4: Summary regression results Model 1 – Regression coefficients

	BATHit	*SMOOTHit*	*CEOit*
Total sample, 2005-2008	0.027 (0.691)	0.108 (0.047)**	0.008 (0.668)
Total sample, 2005-2006	-0.056 (0.561)	0.156 (0.025)**	-0.003 (0.958)
Total sample, 2007-2008	0.090 (0.346)	0.033 (0.713)	0.035 (0.648)
Only first-time adopters IFRS, 2005-2008	0.004 (0.954)	0.107 (0.060)*	0.032 (0.535)
Only first-time adopters IFRS, 2005-2006	-0.073 (0.497)	0.146 (0.041)**	0.022 (0.726)
Only first-time adopters IFRS, 2007-2008	0.056 (0.586)	0.029 (0.769)	0.043 (0.634)
Only first-time adopters IFRS, 2005-2006-2007	-0.024 (0.769)	0.094 (0.112)	0.041 (0.452)
Only first-time adopters IFRS, 2005	-0.037 (0.808)	0.186 (0.075)*	-0.025 (0.783)
Only first-time adopters IFRS, 2006	-0.089 (0.548)	0.061 (0.569)	0.066 (0.488)
Only first-time adopters IFRS, 2007	0.008 (0.956)	-0.031 (0.778)	0.072 (0.505)
Only first-time adopters IFRS, 2008	-0.042 (0.842)	0.084 (0.728)	0.056 (0.779)

***, **, * = coefficient is significant at the α=0.01, 0.05, 0.10 level

Table 5: Summary regression results Model 2 – Regression coefficients

	BATH2it	SMOOTH2it	CEOit
Total sample, 2005-2008	-0.421 (0.000)***	-0.119 (0.002)***	0.005 (0.127)
Total sample, 2005-2006	-0.263 (0.000)***	0.062 (0.081)*	0.000 (0.998)
Total sample, 2007-2008	-0.705 (0.000)***	-0.385 (0.000)***	0.014 (0.023)**
Only first-time adopters IFRS, 2005-2008	-0.440 (0.000)***	-0.139 (0.001)***	0.009 (0.032)**
Only first-time adopters IFRS, 2005-2006	-0.264 (0.000)***	0.071 (0.079)*	0.001 (0.870)
Only first-time adopters IFRS, 2007-2008	-0.711 (0.000)***	-0.391 (0.000)***	0.024 (0.002)***
Only first-time adopters IFRS, 2005-2006-2007	-0.461 (0.000)***	-0.152 (0.001)***	0.009 (0.040)**
Only first-time adopters IFRS, 2005	-0.005 (0.670)	0.000 (0.943)	0.000 (0.442)
Only first-time adopters IFRS, 2006	-0.342 (0.000)***	0.140 (0.035)**	-0.007 (0.183)
Only first-time adopters IFRS, 2007	-0.860 (0.000)***	-0.482 (0.000)***	0.028 (0.004)***
Only first-time adopters IFRS, 2008	-0.065 (0.720)	0.187 (0.424)	0.008 (0.574)

***, **, * = coefficient is significant at the α=0.01, 0.05, 0.10 level

Earnings Management through Goodwill Impairment:

CEO and CFO tenure impact

Olga Vladimidrovna Viśnevskaá MSc. LL.B.[1]

Executive summary

This paper examines the relationship between the extent of goodwill impairment and the properties of CEOs and CFOs of a selection of FTSE Eurotop 100 Index companies. Prior research indicated that it is likely that CEOs tend to take earnings baths early in their tenure, as the losses can then still easily be blamed on their predecessors, as well as creating a lower benchmark for measuring their own future financial performance. Also, the nature of a specific turnover process and the prior employment of the incoming CEO (hired from within or outside the company) have been considered as an explanatory variable by some studies. The outcomes of this study indicate that the tenure and prior employment of the CEO are significantly associated with a company's financial reporting behavior in relation to the magnitude of goodwill impairment. However, contrary to expectations, goodwill impairment charges are likely to increase as the tenure of a CEO increases. CEOs promoted from inside the same company are likely to impair goodwill by larger amounts, compared to CEOs hired from outside the company. A significant association between the CFO tenure and prior employment variables and the magnitude of impairment charges was not established in this study.

For the full text of this master thesis refer to the following webpage: http://hdl.handle.net/2105/5550.

1. Introduction

The objective of this study is to asses the extent of goodwill impairment by European companies for the period 2006-2007, and to investigate the relationship between the extent of goodwill impairment and the properties of executives in charge at the time.

The commonly used opportunistic perspective of the Positive Accounting Theory predicts that when self-interested actors are confronted with opportunities to use discretion with

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[1] This thesis was supervised by Drs. C.D. Knoops. Olga Viśnevskaá has graduated from the Erasmus School of Economics and is currently in completing her masters thesis on the topic of financial law at the Rotterdam School of Law.

regard to financial accounting and reporting to their own advantage, they will do so. This practice of 'earnings management' could be aimed at either increasing the reported income, or decreasing it through income smoothing and taking of earnings baths. The International Financial Reporting Standards are often criticized for allowing room for discretion especially due to the prescription of use of fair values. More specifically, the accounting treatment of goodwill through the use of impairment tests is often criticized. My own examination of the financial reporting standards revealed that indeed, in my opinion, there was room for managerial discretion with respect to goodwill (re)valuation and possible losses arising from it. Accordingly, I expect executives to use goodwill impairment charges to manage earnings to achieve personal goals. As I wonder whether personal goals could be related to the phase of employment of an executive, I formulate the following research question:

> *Are tenure and prior employment of the CEO and the CFO associated with a company's financial reporting behavior in relation to the magnitude of goodwill impairment?*

Considering the prior research mentioned further in this master thesis, this study mainly builds and expands on the work conducted by Masters-Stout e.a. 2007. My study adds value to the existing body of research for the following reasons:

- Firstly, contrary to most studies mentioned in this master thesis, as well as that by Masters-Stout, this study is conducted using data of European companies that are subject to IFRS and not SFAS. The outcomes can thus be considered more relevant in the European context;
- Secondly, as far as my knowledge goes, no other study has been conducted on the relationship between the CFO tenure and prior employment and a company's financial reporting behavior regarding the magnitude of goodwill impairment;
- Finally, as far as I know, no other study has combined and offset both CEO and CFO properties in relation to goodwill impairment, in one research design.

The remainder of this article is organized as follows. First, I will describe the theoretical background to my study and review the outcomes of prior research on the subject. Continuingly, I will introduce the hypotheses that were tested and follow with a brief description of the sample used in my study. I will then describe the research design and the corresponding model and continue with the elaboration of the results. Before I conclude this article, I will reflect on the outcomes of my study and give suggestions for further research.

2. Theoretical background and prior literature

2.1 Earnings management and financial reporting incentives
The practice of managers trying to influence the financial reporting numbers and the way they appear in the financial statements is often known by the term 'earnings

management'. Several incentives to manage earnings can be identified, for example (Palepu e.a., 2007):

1. accounting-based debt covenants: requirement of certain debt-contracts and meeting targets arising from them, can induce managers to distort accounting figures to gain more favorable results;
2. management compensation: (bonus-)compensation which are often connected to reported profits and wanting to secure their position for longer period of time, is another motivation to favorably influence the reported income;
3. corporate control contests: managers can use accounting numbers to gain approval of company's shareholders in their attempt to become/remain a manager.

There are several ways for managers to influence financial reporting, one of which is asset distortion. When managers desire to increase reported earnings they tend to overstate assets, as this is accompanied by either an increase in income or a reduction of costs in the income statement. On the other hand, managers can also desire to deflate earnings by understating assets. Managers can 'smooth income' by overstating expenses during a period of exceptional performance by the company. Also managers can 'take a bath' in income by overstating expenses during a period of exceptionally bad performance to create an appearance of a turnaround in the following years (Palepu e.a., 2007). Thus, managers are not necessarily interested in presenting accounting figures only 'for the better' as earnings baths occur as well.

2.2 Discretionary financial reporting and the case of goodwill
The first step in the examination of prior research concentrated on the studies of the relationship between opportunistic behaviour and goodwill impairment testing. Prior research showed evidence of opportunistic behavior on the account of managers with regard to impairment testing of goodwill as the prescribed accounting treatment. The findings were, however, not uniform. Some researchers (Anantharaman 2007, Henning and Shaw 2004) found little support for the criticism of goodwill impairment testing, which was introduced as the new accounting treatment of goodwill in SFAS 142 and IAS 36. To the contrary, other studies have shown evidence of the misuse of managerial discretion to some degree under the new accounting standards (Beatty and Weber 2005, Lapointe 2005, Zang 2008, Ramanna and Watts 2007, Carlin e.a. 2007).

2.3 Management tenure: the role of the chief executive officer
Like any process, the period of tenure of the chief executive officer (CEO) can be divided into different phases. The agency theory predicts that managers are guided by self-interest. Presumably, different phases of tenure will correspond with different goals and motivations. And so, the second step of the literature examination was aimed at examining the relationship between the executive management's phase of employment and its influence on financial reporting.

Moore (1973) conducted one of the first studies on the subject of the influence of management changes in the field of accounting. He found that in the year of a top management change, income reducing discretionary accounting decisions, such as write-

downs, write-offs and taking of provisions, occurred significantly more than in years with no management change. He interpreted the overall results to be an indication of the newly appointed management taking an earnings bath. More so, because the majority of companies with indication of income-reducing discretionary accounting decision did report an increase in income in the first reporting year after the change. Accordingly, Moore hypothesized that the incentives of the incoming management for taking the income reducing discretionary decisions are two-fold. First, the blame would be placed on their predecessors and the historical benchmark for their own future performance is reduced. Second, the losses taken in the year of the change would not have to be reported in the future, thus increasing the future reported income and the appearance of their performance.

Later, DeAngelo (1987) found that when a 'dissident' (an outside manager) was hired, he would report an 'immediate earnings bath', so to be able to report an earnings turn-around in the following years. Pourciau (1993) investigated the behavior of incoming managers in cases of what she called a non-routine (involuntary) executive change. She found that for these instances the incoming executives managed accruals in the year of the change to reduce income, and did the opposite in the following year. Additionally, in the year of the change, larger write-off were taken. Francis e.a. (1996) conducted a broad study of possible causes of discretionary write-offs. Among others, she found that write-offs occur more frequently if preceded by a management change, and are then also larger in size.

Several studies, which did not directly investigate the relationship between executive tenure and goodwill impairment, did produce outcomes on this subject as well. Like Beatty and Weber (2005), who hypothesized that the difference between actual and predicted goodwill write-offs could be explained by the departure of the CEO who made the original acquisition decision. Further, the study by Lapointe (2005) also found that higher transitional goodwill impairment losses correlated with companies having experienced recent management change. Additionally Ramanna and Watts (2007) found that goodwill-write offs are negatively associated with CEO tenure. Finally, Zang (2008) found that recent management change was an explanatory variable for earnings management through transitional goodwill impairment losses[2], as he believed that higher goodwill impairment losses were taken during the transitional period to increase the likelihood of higher earnings in the future.

Bengtsson e.a. (2007) investigated the occurrence of earnings management in Sweden, surrounding management turnovers through both accruals, as well as write-offs. Earnings were reduced in the first year of the turnover and increased in the following year. This supports the findings in the previously mentioned studies. Furthermore, Bengtsson attempted to distinguish an association between earnings management and an executive turnover in question, being routine versus non-routine. However, he found no conclusive evidence in support of this distinction.

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[2] Loss incurred by companies upon the adoption of the new SFAS. 142 standard.

Masters-Stout e.a. (2007) performed a subsequent study, which related goodwill impairments under SFAS 142 to CEO tenure. For the companies that did impair, she found that newly appointed CEOs reported higher impairments than senior CEOs.' Her additional findings indicated that CEOs hired internally from within the present employees of the company impaired relatively smaller amounts. She hypothesized that these CEOs were more 'personally invested' in previously taken strategic acquisition decisions and thus lacked what she called a 'fresh perspective'. These outcomes were however insignificant.

2.4 Management tenure: the role of the chief financial officer

From the previous step of my prior research analysis it became clear that scholars hypothesize that CEOs have certain incentives to manipulate financial reporting, have the power to do so, and use their power to act on their incentives. In the continuing step I attempt to consider the role of another senior manager, which could be presumed to influence the financial reporting of a company: the chief financial officer (CFO).

The role of the modern CFO is no longer limited to mere 'financial record keeping'. Now, the CFO 'is one of the top decision makers – often leading member of the top management along with the chief executive officer and the chief operating officer.' (Copeland, 2001). A CFO today, is involved in decision-making on many levels and about many significant issues throughout the entire company. Intuitively, it can be supposed that some incentives that drive CEOs, might similarly drive CFOs. If so, the agency theory predicts that the CFO will also try to exert influence to satisfy his self-interests. Surprisingly, very few studies have been conducted on the influence of the CFO in the field of accounting research. Could it be more commonsense to consider the CFO to have more influence on financial reporting? More than the CEO?

Building on that intuition, Jiang and Petroni (2008) were interested in finding the answer to the question of 'who has the most influence on earnings management', the CEO or the CFO. They executed three previously conducted studies, which already established an association between CEOs' equity incentives and earnings management, and reexamined them by also testing the association between the CFOs' equity incentives and earnings management. The general outcomes indicated that the amount of discretionary accruals was more closely associated with the CFO rather then with the CEO incentives and that the role of a CFO is indeed influential with regard to a company's financial reporting behavior.

Greiger and North (2006) also suspected that the CFO 'has a substantial amount of control over a company's reported financial status', as they studied the effect of a CFO change on reported accruals. They found that after an appointment of a new CFO, earnings are significantly reduced through the management of accruals. Furthermore, these findings did not seem to be influenced or mitigated by the appointment of a new CEO. Finally, they also found that the hiring of a CFO from a different source than the company's direct audit company, produced more significant outcomes.

3. Hypothesis development

Based on these outcomes of prior research and the predictions of the positive accounting theory I have arrived at the following hypotheses to be tested in my study:

> H_1: *Shorter CEO tenure corresponds with higher goodwill impairment charges.*
> H_2: *Companies with CEOs, who have been employed by the same company two years or less, will take relatively higher goodwill impairment losses.*

Additionally, I have asked myself whether the logic that has been applied to the relationship between properties of a CEO of a company and its financial reporting behavior, could also be applied to the properties of the CFO. Combined with the outcomes of studies regarding the CEO properties mentioned above I arrive at the following additional hypotheses:

> H_3: *Shorter CFO tenure corresponds with higher goodwill impairment charges.*
> H_4: Companies with CFOs, who have been employed by the same company two years or less, will take relatively higher goodwill impairment losses.

4. Sample and data collection

My study examined the financial data of 58 major European companies listed in the FTSE Eurotop 100 Index during the period 2006-2007, resulting in 116 observations. In 37% of the cases, goodwill impairments were observed. Largest average absolute and relative (measured against revenues) impairment losses were observed in the telecommunications industry. The average CEO tenure for companies within the sample was 5.9 years; the average CFO tenure was 4.5 years. Additionally, 67% of the CEOs in the sample, prior to their appointment, were employed by the same company for less than three years, which classified them as 'internal hires' for the purpose of my study. 54% of the CFOs were classified as internal hires. When examining the subsample of companies that that have taken a decision to impair goodwill, the frequency of the impairment decision decreased as observed tenures of CEOs increased. A similar pattern was observed between the frequency of impairment decisions and CFO tenure.

The financial data was hand collected using the information provided in the annual reports. Information regarding the tenure and prior employment of the executives was hand-collected for each executive from additional sources like company websites and newspaper articles, as a general database for such information of European companies does not exist.

5. Research design and model

To test my hypotheses I used a multivariate regression model, which I will describe in this section.

The dependent variable of this model (IMP_{it}) is the reported goodwill impairment charge. First, the effects of the independent variables were measured against the reported nominal impairment amount. Secondly, I believed that there would be added value to measuring the dependent variable relative to the effect this has within the entire income statement of a the specific company, as this puts the impairment charge amount into perspective. This is why, the alternative dependent variable metric is the impairment loss divided by the revenue.

To test my hypothesis I added several independent variables of interest. To test H_1 and H_3, I departed from Master-Stout e.a. (2007), who used dummy variables to distinguish between the new and old executives , as I do not find their arguments to be substantial enough to justify the separation into those specific categories. Using a continuous metric would, as I believed, provide for a test of a more nuanced relationship between the dependent variable and this independent variable of tenure. Furthermore, other studies that have used executive tenure as an independent variable (e.g. Ramanna, Watts, 2007), have also used a continuous metric. Consequently, to test the effect of executive tenure, I use the tenure duration measured in years (CEO_TENURE_{it} and CFO_TENURE_{it}). In line with the hypotheses I have formulated, I expected there to be a negative association between these variables and the dependent variable.

To test H_2 and H_4 I added dummy-variables into the model ($CEO\_INTERNAL_{it}$, $CFO\_INTERNAL_{it}$). These dummy variables made it possible to test for the difference in the impact of an executive prior employment on the (relative) size of the impairment charge. The dummy variable was coded 0 and is considered to be an external-hire, if the executive in question was employed by company *i* for less than three years before appointment as an executive officer. In the other case the variable was coded 1. I based this distinction on Master-Stout e.a. (2007), as it seems reasonable to consider an executive who has been with a company for less than three years not to be entrenched. In line with the hypotheses I have formulated, I expected there to be a negative association between these variables and the dependent variable.

Additionally, I included several control variables associated with the economic condition of the companies. I used EBITDA ($EBITDA_{it}$) to control for the size of the economic activity of a company. I saw the EBITDA amount as the measure of the ability of a company to absorb impairment charges. I did not hypothesize a coefficient sign, as, on one hand, I can imagine that higher EBITDA can be seen by the management as buffer that can absorbed 'unwanted' expenses and smooth income. On the other hand, lower (than expected) EBITDA could also induce an earnings bath strategy.

Further, I included the after tax net income ($INCOME_{it}$), which is also used by Masters-Stout e.a. (2007), as a measure of economic performance (profitability) of the companies in the sample. This variable is included in the model to account for the overall profitability of a company. Although net income already includes any impairment losses, I presumed that if a company is confronted with a negative or extremely low or high net income before the publication of final financial results, the management might feel tempted to adjust the reported impairment charge. Consequently, similar pattern that I described for the EBITDA can also be applied to the relationship between the net income and the goodwill impairment

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charge: high profits could induce income smoothing and losses can be seen as an opportunity to take (further) earnings baths. Thus, no coefficient sign was hypothesized either.

The size of a company ($SIZE_{it}$) measured as the natural logarithm of company's total assets to normalize the impact of the part of the sample on the larger side of the spectrum, was included in the model as well. I predicted a positive relationship between the size of a company and the amount of the impairment charge, which is also supported by Van de Poel e.a. (2008) outcomes. It seems to me that, as larger companies are often the product of several prior mergers, this would result in more recognized goodwill that in turn can be a subject to impairment.

Finally, I included a company's leverage, measured as total liabilities divided by the total assets, as control variable. I expected highly leveraged companies to be subjected to more attention and scrutiny by their creditors (who are professional investors), and these companies to operate under bigger restrictions of loan contracts. This should in turn reduce the amount of earnings management in general. And when earnings management would take place, it would probably be directed upwards to increase reported earnings. For this reasons I expected a negative coefficient sign for this variable. This variable can be considered a proxy for room for discretionary earnings management by a company as was used by Zang (2008).

Hence, my empirical model looks as follows:

$$IMP_{it} = a + \beta_1 CEO\_TENURE_{it}, \beta_2 CEO\_INTERNAL_{it}, \beta_3 CFO\_TENURE_{it},$$
$$\beta_4 CFO\_INTERNAL_{it}, \beta_5 EBITDA_{it}, \beta_6 INCOME_{it}, \beta_7 SIZE_{it}, \beta_8 LEV_{it}, + \varepsilon$$

I tested this model using the data from the entire sample, as well as performing separate tests on the data from the subsample of companies that impaired goodwill during the observed period. Furthermore, I used two different definitions of the independent variable IMP (measured in absolute and in relative values), and also of the independent variable CEO_TENURE (measured in years and as a natural logarithm). This has resulted in different outcomes. Secondly, I executed three types of regression with regard to the executive properties data. First, I applied the abovementioned model, removing the CFO variables and accounting only for the CEO properties, to measure the 'pure' association between IMP and CEO tenure and prior employment. After that, I did the same now removing the CEO tenure and prior employment properties, to measure the 'CFO effect'. Thirdly, I tested my main model, mentioned above, which controlled the associations between impairment charges and one executive type tenure and prior employment, for that of the other.

6. Results

6.1 CEO properties
The outcomes regarding the independent variables of interest, the CEO properties, are consistent in all cases. However, they are entirely not as expected. CEO tenure is

positively associated with impairment charges. Furthermore, compared to CEOs hired from outside the company, CEOs hired from inside the company are associated with higher impairment charges. These associations are significant at $\alpha<.05$ for both the entire sample and the subsample, when tenure is expressed as a logarithm. When tenure is expressed in years, measuring impairment relative to revenues, gives slightly better significance results. Overall, these finding indicate that H_1 and H_2 of my research design are false. These findings are summarized in table 1.

Table 3 Regression outcomes CEO properties

		Exp.	Abs.	Rel.		Abs.	Rel.
Entire sample	EBITDA	+/-	+	-	EBITDA	+	-
	INCOME	+/-	-	+	INCOME	-	+
	SIZE	+	+	+	SIZE	+	-
	LEV	-	-	-	LEV	-	+
	CEO_TENURE	-	+*	+**	*LN_CEO_TENURE*	+**	+**
	CEO_INTERNAL	-	+**	+**	*CEO_INTERNAL*	+**	+**
Subsample	EBITDA	+/-	-	-	EBITDA	-	-
	INCOME	+/-	+	+	INCOME	+	+
	SIZE	+	+	+	SIZE	+	+
	LEV	-	-	-	LEV	-	-
	CEO_TENURE	-	+	+**	*CEO_TENURE*	+**	+**
	CEO_INTERNAL	-	+**	+*	*CEO_INTERNAL*	+**	+**

**. Coefficient is significant at the 0.05
*. Coefficient is significant at the 0.10

6.2 CFO properties

The coefficients of the independent variables of interest were insignificant at $\alpha<.05$ for all tests performed on the data from the entire sample. Within the subsample, the association between prior employment of the CFO and the magnitude of impairment charges is significant. For this population, compared to CFOs hired from outside the company, CFOs hired from inside the company are associated with relatively higher impairment charges, contrary to expectations. As such, the validity of H_3 and H_4 was not established for the entire sample, and validity of H_3 was not established for the subsample either. H_4 was proven to be significantly false for the data of the subsample. These findings are summarized in table 2.

Table 4 Regression outcomes CFO properties

		Exp.	Abs.	Rel.		Abs.	Rel.
Entire sample	EBITDA	+/-	+	-	EBITDA	-	+
	INCOME	+/-	-	+	INCOME	+	-
	SIZE	+	+	+	SIZE	+	+
	LEV	-	-	-	LEV	-	-
	CFO_TENURE	-	-	+	*LN_CFO_TENURE*	-	-
	CFO_INTERNAL	-	+*	+	*CFO_INTERNAL*	+*	+
Subsample	EBITDA	+/-	+	+	EBITDA	+	+
	INCOME	+/-	-	-	INCOME	-	-
	SIZE	+	+	+	SIZE	+	+
	LEV	-	-	-	LEV	-	-
	CFO_TENURE	-	+	+	*LN_CFO_TENURE*	+	+
	CFO_INTERNAL	-	+**	+**	*CFO_INTERNAL*	+**	+**

**. Coefficient is significant at the 0.05 level
*. Coefficient is significant at the 0.10 level

6.3 Combined model

With respect to independent variables of interest, several associations become clear. The association between the CEO tenure and the magnitude of impairment charges is significant at $\alpha<.05$ in all cases, except for the test of the subsample using the absolute values of IMP and using the tenure variable expressed in years. When tests are performed on the data of the entire sample CEO prior employment is significant at $\alpha<.05$, except when IMP is measured in relative values and the CEO tenure is measured in years. Overall, this means that when the decision not to impair is taken into account and the model controls for the association of CFO properties, the association between the CEO tenure and the magnitude of impairment charges is positive. Furthermore, compared to CEOs hired from outside the company, CEOs hired from inside the company are associated with higher impairment charges. Thus, H_1 and H_2 were proven to be false for the entire sample.

In the subsample, the association between the CEO tenure and the magnitude of impairment charges is significant at $\alpha<.05$, except for when IMP is measured in absolute values and tenures are measured in years. The association with CEO prior employment is not significant within the subsample. As such, H_1 has proven to be false within the subsample, and validity of H_2 has not been established.

The association between CFO tenure and the magnitude of impairment charges when controlled for the associations of CEO properties, remains insignificant at $\alpha<.05$ in all cases. The validity of H_3 thus is not established. Furthermore, the association between the magnitude of impairment charges and CFO prior employment is insignificant when analyzing the data of the entire sample. However, within the subsample, CFO prior tenure association is significant at $\alpha<.05$, when impairment charge is measured in absolute values, regardless of the definition of tenure. The absolute size of goodwill impairment charges is positively associated with a CFO being promoted from inside, when the decisions not to

take goodwill impairment losses is disregarded. H_4 is thus proven to be false within the subsample. H_4 validity has not been established for the entire sample. These findings are summarized in table 3.

Table 5 Regression outcomes controlled for both types of executives

		Exp.	Abs.	Rel.		Abs.	Rel.
Entire sample	β_1EBITDA	+/-	+	+	β_1EBITDA	+	+
	β_2INCOME	+/-	-	-	β_2INCOME	-	-
	β_3SIZE	+	+	+	β_3SIZE	+	+
	β_4LEV	-	-	-	β_4LEV	-	-
	β_5CEO_TENURE	-	+**	+**	β_5LN_CEO_TENU	+**	+**
	β_6CEO_INTERN	-	+**	+*	β_6CEO_INTERNAL	+**	+**
	β_7CFO_TENURE	-	-	-	β_7LN_CFO_TENU	-	-
	β_8CFO_INTERN	-	+	+	β_8CFO_INTERNAL	+	+
Subsample	β_1EBITDA	+/-	-	-	β_1EBITDA	-	-
	β_2INCOME	+/-	+	+	β_2INCOME	+	+
	β_3SIZE	+	+	+	β_3SIZE	+	+
	β_4LEV	-	-	-	β_4LEV	-	-
	β_5CEO_TENURE	-	+*	+**	β_5LN_CEO_TENU	+**	+**
	β_6CEO_INTERN	-	+	+	β_6CEO_INTERNAL	+	+
	β_7CFO_TENURE	-	+	+	β_7LN_CFO_TENU	+	+
	β_8CFO_INTERN	-	+**	+	β_8CFO_INTERNAL	+**	+

**. Coefficient is significant at the 0.05 level
*. Coefficient is significant at the 0.10 level

7. Analysis of the outcomes

The first question I ask myself based on the outcomes of my study, is: why would impairment charges increase during the course of employment of a CEO? More specifically, what incentives could there be for managers to want to increase impairment charges late, instead of early, in their tenure? An alternative explanation to wanting to take earnings baths early in their tenure, could be the job security argument. Contrary to the arguments behind my hypotheses, it is conceivable that CEOs might want to show good results (immediately) after their appointment and would want to avoid 'unnecessary' losses, to justify their appointment and secure their position. This desire might even induce 'upward earnings management'. CEOs, who have acquired 'relational goodwill' for their positive performance throughout the course of their tenure, could also believe that this would be sufficient to mitigate any harm to their reputation from losses taken in later stages of their tenure, and thus would take these losses easier than 'younger' CEOs.

Furthermore, the influence of CEO employment contracts and compensation schemes, which is not taken into account in this study, could have alternative explanatory power for the established association between the magnitude of impairment charges and CEO tenure. These contracts and payment schemes are usually constructed (in line with the agency theory) in such way as to align management incentives with company's/shareholders best interests. Presuming that earnings management is motivated by management self-interest and that employment contracts are constructed effectively, this should lead to a reduction

of earnings management. Similarly, Beatty and Weber (2005) found that managers who are subject to more binding 'contracts that include effects of accounting changes...will prefer to delay expense recognition'. Including executive compensation (plans) into a research model could be a consideration for future research.

The second question that I ask myself is: why do the outcomes of my study indicate that internally promoted CEOs impair relatively more than CEOs hired from outside the company? First of all, it is important to note that the majority (69%) of CEOs whose data were included in this study, where classified as internal hires. This fact, by itself, might have a distortive effect on the outcomes of the study.

Additionally, perhaps when it comes to employment history, the magnitude of the goodwill impairment charges is not best explained by the duration of CEO prior employment by the same company before his appointment. Reconsidering my prior hypothesis, I believe that the assumption that a manager becomes personally involved in prior acquisition due to his mere presence in the same company, might be too general. Instead, entrenchment could better be defined by the fact whether the manager in question was actually involved in the decision process that preceded a specific acquisition. Some support for this idea was also found in Beatty and Weber's study (2005), which linked the likelihood of a SFAS 142 impairment to the likelihood of a CEO making 'the original acquisition'. Again, future studies can inquire to the feasibility of researching prior employment from this angle.

An alternative explanation could also be that the prior employment of an executive could represent experience and knowledge. An executive, who has been with the same company for a longer period of time, is likely to have specific inside knowledge that would allow him to make a better judgment about the value of goodwill, and in turn might make it 'easier' to take an impairment charge compared to a counterpart who lacks similar experience and knowledge. This could result in the observed relationship between prior employment and the size of impairment charges.

Thirdly, I ask myself what other issues there might be that might have influenced or limit the outcomes of my study. First, there is the fact that contrary to most of prior research that has been done on the subject of goodwill impairment and/or the influence of CEO properties (which often have been performed in the United States), my study is aimed at European companies. For example, this could account for the existence of cultural differences between my and the prior research. Perhaps, the European context and tradition with regard to expectations and the regulation of executive behavior, contribute to a less competitive executive environment, which results in less opportunistic behavior.

Furthermore, there could be other issues with regard to the chosen sample. For instance there is a noticeable presence of former state owned companies in my sample. As such the oil & gas and the telecommunication sectors combined, account for almost a quarter of the companies in the sample. One can speculate whether these companies are subject to a specific kind of (government-like) corporate culture, which most probably does not exist in the American context. These companies might also still be subject to governmental

influence and specific regulation, which would reduce the amount of discretion available to managers.

In addition, the descriptive statistics reveal that that the telecommunications industry accounts for the largest goodwill impairment losses observed within my sample. It is a commonly known fact that during the observed period companies in that particular industry underwent several economic adversities, such as the devaluation of purchased UMTS frequencies. The heterogeneity problem surfaces with regard to this issue. It is possible that there were real economic causes to the impairment losses taken in the telecommunications industry. As these are the most significant impairment losses within my sample, this could undermine the validity of the detected relationship between impairment charges and CEO properties. To control for this problem, I ran an additional regressions, which included both CEO and CFO properties, on my data, while removing the entire telecommunication sector. The association between both absolute and relative impairment charges, and CEO tenure remained significant at α < .05 (also, when the decision not to take impairment charges was disregarded). However, the fit of the model measured in R^2, decreased significantly to levels lower than 0.10. The CEO prior employment variables and both CFO variables were insignificant.

The heterogeneity problem could be addressed through the expansion of the sample and the amount of observations. These are of course the obvious limitations of my study, as it does cover only two years worth of financial data of a limited number of companies. This is an inherent consequence of the nature of the intensive data hand-collection process with regard to the information about CEO tenure and prior employment in the European context. Furthermore, the sample could be expanded with regard to the amount of companies in it. A matter for future research is to consider an entire different sample of companies, or consider including financial institutions in the sample.

Finally, based on my own analysis of reporting standards with regard to goodwill impairment and predictions formed in prior research about the susceptibility of goodwill impairment testing to managerial discretion, I formed expectations about goodwill impairment charges to be a likely item to be used for earnings management. This assumption can also be a subject for critical review. It could be a subject to future research to consider to what degree it is really likely that goodwill impairment test is used as a 'tool' to manage earnings. Perhaps, other 'gaps' in financial reporting standards are used relatively more often to manage earnings (on a larger scale), and these 'earnings management tools' could also be tested for association with executive tenure and employment information.

8. Summary and conclusions

The outcomes of this study indicate that the tenure and prior employment of the CEO are significantly associated with a company's financial reporting behavior in relation to the magnitude of goodwill impairment. Contrary to my expectations I have found that CEO tenure is positively associated with the magnitude of goodwill impairment charges. These

results mean that the hypothesis that CEOs tend to take earnings baths in the early stages of their tenure, so losses can more easily be blamed on their predecessors, is false for the data in my sample. Surprisingly, this outcome contradicts the association described in the prior research such as Moore (1973), DeAngelo (1987), Pourciau (1993), Francis e.a. (1996), Lapointe (2005), Ramanna and Watts (2007), Zang (2008), Bengtsson e.a. (2007), Masters-Stout e.a. (2007).

Additionally, compared to CEOs hired from outside the company, internally hired CEOs correspond with lager goodwill impairment charges. This falsifies the second type of hypotheses of my thesis that compared to their counterparts, internally hired executives would impair goodwill by smaller amounts, as they are more 'personally invested' in previously taken strategic acquisition decisions, and thus would lack a 'fresh perspective'. This outcome is less surprising as the results of prior research on this topic were inconclusive (Pourciau 1993, Bengtsson e.a. 2007, Masters-Stout e.a. 2007).

Contrary to my expectation, I have not established a significant association between the CFO tenure and prior employment variables and the magnitude of impairment charges. At best, I can say that, if the decision not to take impairment charges is disregarded and only the data of the remaining subsamples is tested, CFO prior employment is significantly associated with the magnitude of impairment charges. Within the subsample compared to CFOs hired from outside the company, internally hired CFOs are associated with larger impairment amounts.

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Appendix: companies in the sample

Company Name:	Ceo Name:	Ceo appointment year:	Ceo prior employment:	Cfo Name:	Cfo appointment year:	Cfo prior employment:
Arcelor Mittal	Lakshmi N. Mittal	1989	inside	Aditya Mittal	2004	inside
A.P. Moller - Maersk	Jess Søderberg	1994	inside	Søren Thorup Sørensen	2006	outside
Air Liquide	Benoît Potier	2001	inside	John Glen	2001	outside
Anglo American	Tony Trahar	2000	outside	René Médori	2005	outside
Astra Zeneca	David Brennan	2005	inside	Jon Symonds	2005	outside
BASF	Jürgen Hambrecht	2003	inside	Kurt Bock	2003	inside
Bayer AG	Werner Wenning	2002	inside	Klaus Kühn	2002	inside
BG Group	Frank Chapman	2000	inside	Ashley Almanza	2002	inside
BHP Billiton	Chip Goodyear	2003	inside	Alex Vanselow	2006	inside
BMW Group	Norbert Reithofer	2006	inside	Stefan Krause	2002	inside
BP	John Browne	1995	inside	Byron Grote	2002	inside
British American Tobacco	Paul Adams	2004	inside	Paul Rayner	2002	inside
Carrefour	José Luis Durán	1990	inside	Eric Reiss	2005	inside
Danone	Franck Riboud	2006	inside	Antoine Giscard d'Estaing	2005	outside
Deutsche Post	Klaus Zumwinkel	1990	outside	Edgar Ernst	1995	inside
Deutsche Telekom	René Obermann	2006	inside	Karl-Gerhard Eick	2004	inside
Diageo	Paul Walsh	2000	inside	Nick Rose	1999	inside
EADS	Noël Forgeard	2005	inside	Hans Peter Ring	2002	outside
Electricite de France (EDF)	Pierre Gadonneix	2004	outside	Daniel Camus	2002	outside
Endesa	Rafael Miranda Robredo	1997	outside	Jose Luis Palomo Alvarez	1991	inside
Enel	Fulvio Conti	2005	inside	Claudio Machetti	2005	inside

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Company Name:	Ceo Name:	Ceo appointment year:	Ceo prior employment:	Cfo Name:	Cfo appointment year:	Cfo prior employment:
Ericsson	Carl-Henric Svanberg	2003	outside	Karl-Henrik Sundstroem	2003	inside
ENI	Paolo Scaroni	2005	outside	Marco Mangiagalli	2001	inside
France Telecom	Didier Lombard	2005	inside	Philippe Jeunet	2000	inside
GlaxoSmithKline	Jean-Pierre Garnier	2000	inside	Julian Heslop	2005	inside
Iberdrola	José Ignacio Sanchez Galán	2001	outside	José Sáinz Armada	2002	outside
InBev	Carlos Brito	2004	inside	Felipe Dutra	2005	inside
Inditex	Pablo Isla Álvarez de Tejera	2005	outside	Antonio Rubio Merino	2006	inside
L'Oreal	Jean-Paul Agon	2005	outside	Christian Mulliez	2003	outside
LVMH	Bernard Arnault	1989	inside	Jean-Jacques Guiony	2004	outside
National Grid	Roger Urwin	2001	inside	Steve Lucas	2002	inside
Nestlé	Peter Brabeck-Letmathe	1997	inside	Paul Polman	2006	outside
Nokia	Olli-Pekka Kallasvuo	2006	inside	Richard A. Simonson	2004	inside
Novartis	Daniel Vasella	1999	inside	Raymund Breu	1996	inside
Reckitt Benckinser	Bart Becht	1995	inside	Colin Day	2000	outside
Repsol	Antonio Brufau Niubó	1997	outside	Fernando Ramírez Mazarredo	2006	outside
Rio Tinto	Tom Albanese	2006	inside	Guy Elliott	2002	inside
Roche Group	Ranz Humer	1998	inside	Erich Hunziker	2001	outside
Royal Dutch Shell	Jeroen van der Veer	1997	inside	Peter Voser	2005	outside
Royal KPN	A.J. Scheepbouwer	2001	inside	M.H.M. Smits	2004	outside
Royal Phillips Electronics	Gerard Kleisterlee	2001	inside	Pierre-Jean Sivignon	2005	outside
RWE	Harry Roels	2003	outside	Klaus Sturany	1999	outside
SAB-Miller	Graham Mackay	1999	inside	Malcolm Wyman	2001	inside
Saint-Gobain	Pierre-André	2005	inside	Benoît	2005	inside

Company Name:	Ceo Name:	Ceo appointment year:	Ceo prior employment:	Cfo Name:	Cfo appointment year:	Cfo prior employment:
	de Chalendar			Bazin		
Sanofi-Aventis	Jean-Francois Dehecq	1999	inside	Jean-Claude Leroy	2004	inside
Suez	Gérard Mestrallet	2001	inside	Philippe Jeunet	2000	inside
Telecom Italia	Riccardo Ruggiero	2002	outside	Enrico Parazzini	2001	outside
Telefonica	Cesar Alierta	2000	inside	Santiago Fernández Valbuen	2002	inside
Telia Sonera	Anders Igel	2002	outside	Kim Ignatius	2000	outside
Tesco	Terry Leahy	1997	inside	Andrew Higginson	1997	outside
Total	Thierry Desmarest	1995	inside	Robert Castaigne	1994	inside
Unilever	Patrick Cescau	2005	inside	Rudy Markham	2000	inside
Vivendi	Jean-Bernard Lévy	2005	inside	Jacques Espinasse	2002	outside
Vodafone	Arun Sarin	2003	inside	Andy Halford	2005	inside
Volkswagen	Bernd Pischetsrieder	2002	inside	Hans Dieter Pötsch	2003	outside
Xstrata	Mick Davis	2001	outside	Trevor Reid	2002	outside

Risk Reporting: An Analysis of the German Banking Industry

Laura van Oorschot MSc.[1]

Executive summary

The recent financial crisis resulted in an increased attention on the risks of banks and their financial instruments. This article discusses the outcomes of a study on the quantity and quality of market, credit, and liquidity risk disclosures and the relationship 1) between the quantity and quality of disclosures, 2) between disclosures and bank size, 3) disclosures and bank profitability, and 4) disclosures and time. The 2005-2008 annual reports of a sample of German banks are studied and the disclosures are measured by using two disclosure index frameworks. The results provide a sound basis for future research like capital market research, event studies, and behavioral studies in relation to risk disclosures.

For the full text of this master thesis refer to the following webpage: http://hdl.handle.net/2105/5413.

1. Introduction

> '*Banks are especially unpopular in two circumstances: first, when they are very profitable; and second, when they are very unprofitable (Sir Davies, LSE[2]).*

In 2007, and even more in 2008, the world got confronted with an international financial crisis, also called the credit crisis. One of the industries that is hit hard by this crisis is the German banking industry, that even needed support from the government to survive.

Since the existence of banks these are known to be major risk taking and risk management entities. According to Linsley and Shrives (2005, 205) they are therefore "expected to release relevant risk-related information to the marketplace, as part of good corporate governance". The annual report is for many years used to communicate firm performance with share- and stakeholders and includes, in general, both mandatory and voluntary disclosures. Although some suggest that companies will disclose more bad news when their financial position is threatened (Darrough and Stoughton, 1999; Suijs, 2005), Linsley and

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[2] Sir Howard Davies, director of the London School of Economics in 'New banking rules: tread carefully', The Financial Times, September 30, 2008.

Shrives (2006, 279) state that banks might wish to keep discussion about their risk levels out of the public domain.

The discussion about risk disclosures was already going on for several years due to major corporate scandals, but it took the International Accounting Standards Board however until 2005 to publish an exposure draft to come to regulation to improve the disclosures about financial instruments and their risks. From 2007 specific disclosures are required by IFRS 7 *Financial Instruments – Disclosures*. Other risk disclosures are required by Basel II pillar 3 (2008) and for German banks already since 1998 by the Commercial Code and since 2001 by the German Accounting Standard 5-10. Comprehensive risk disclosures in the annual reports of German banks are therefore expected, even in the years before IFRS 7 and Basel II.

Since there are only a few empirical studies on risk disclosures by banks (Basel Committee, 2001, 2002, 2003; Linsley et al., 2006; Helbok and Wagner, 2006) and the interest in it has strongly increased recently, it is interesting and relevant to examine this topic. This study focuses on a recent time period and incorporates as one of the first the disclosure requirements of IFRS 7. Next to that, a different way of measuring the quality of information is developed, as opposed to other studies that use the quantity as a proxy for the quality of information.

The problem of this research is defined by the following main research question:

How can differences in the quantity and quality of financial instrument risk disclosures in the annual reports of German banks be measured and explained?

In conclusion, this article discusses research on the risk disclosures of financial instruments in the annual reports of German banks and analyzes some factors that might be of influence on the differences in disclosures over time and between banks. In section 2 some information on the background of risk and disclosures is provided, together with the discussion of prior literature. Section 3 hereafter provides information on the disclosure frameworks used, the developed hypotheses and the way the results are calculated. In section 4 the results and analysis are discussed and section 5 includes the limitations of this study and the conclusion.

2. Background and prior literature

2.1. Background risk and risk disclosures
Risk is driven by internal and external factors, and both the ASB and ICAEW view risk as the "*uncertainty as to the amount of benefits*" which "*includes both potential for gain and exposure to loss*" (ICAEW, 1998, 5). According to Beretta and Bozzolan (2004, 269) risk disclosures can as a consequence of this definition be defined as "*the communication of factors that have the potential to affect expected results*".

Since this research focuses on risk disclosures of financial instruments it is useful to make clear what financial instruments are. According to the International Accounting Standards this is "*any contract that gives rise to a financial assets of one entity and a financial liability or equity instrument of another entity*" (IAS 32.11) and can be divided into primary (receivables, payables, and equity instruments) and derivative financial instruments (options, futures, forwards, and swaps). Although the goal of having financial instrument is to make a profit on them or prevent losses with it, there is always some uncertainty about whether this goal will be achieved. This uncertainty can be divided in three main categories: credit risk, liquidity risk, and market risk whereby the latter includes currency risk, interest rate risk, and other price risk.

The rationale behind risk reporting can be explained by the agency theory, the information asymmetry perspective, the information risk perspective, the Modern Portfolio Theory, the political cost perspective and the signalling perspective. Due to their position the information that banks and the users of their annual reports have differs. Disclosing part of this information will reduce the information asymmetry between the parties and might result in reduced costs of capital, better decision making by shareholders, less attention from supervisors like the Authority of Financial Markets (AFM) or central banks and the prevention of reputation damage. Managers might however be reluctant to release risk information since this might be commercially sensitive and can give competitors an advantage. Second, there is the issue of forward-looking information which is according to the ICAEW "unreliable and could leave directors open to potential claims from investors who have acted upon this information" (Linsley et al. 2006, 269).

Although risks in business have always existed, major corporate scandals in the past 30 years, the increasing complexity of business structures, a changing environment and technology, and the current crisis on the financial markets have increased the focus on risk and risk management. In the past years different reports gave considerable attention to this topic (Cadbury Report, 1992; AICPA, 1995; ICAEW, 1998; Turnbull Report, 1999; ICAEW, 1999; ICAEW, 2002) and the disclosures of risks have become less voluntary.

When it comes to comprehensive risk reporting, Germany was a forerunner by introducing the Law on Corporate Control and Transparency in 1998. This resulted in amendments of paragraphs 289 (1) and 315 (1) of the German Commercial Code, which required companies to report in their annual reports about risks, chances and expected future developments, including the assumptions for this (HGB § 289 (1) and § 315 (1)). Later on, in 2001, the German Accounting Standard Board adopted German Accounting Standard No.5. *Risk reporting,* with GAS 5-10 about risk reporting by banks. Another few years later the International Accounting Standards Board revised and enhanced the already existing regulation regarding the disclosures of financial instruments (IAS 32) due to the fact that "*the techniques used by entities for measuring and managing exposure to risks arising from financial instruments have evolved and new risk management concepts and approaches have gained acceptance*" (IASB, 2004, 3). From 2007 companies with financial instruments and that report in conformity with IFRS have to comply with IFRS 7, which requires specific risk disclosures in the annual report. For banks the requirements of Basel

II pillar 3 are added to this since 2008, although a part of these requirements are similar to those in IFRS 7. If incorporated into national laws, companies in the EU member states already had to report on risks and uncertainties however since 2005, due to a change in article 1(14)(a)[3]. This resulted in similar requirements by the EU as the requirements in the German Commercial Code since 1998.

2.2. Prior risk disclosure literature

The past 30 years many researchers have examined voluntary disclosures in annual reports from different perspectives, including the capital market and positive accounting perspective. Recent studies focus more specifically on the topic of risk reporting in annual reports (e.g. Kajüter and Winkler, 2003; Beretta and Bozzolan, 2004; Linsley and Shrives, 2006; Abraham and Cox, 2007).

Most of the research on risk disclosures focuses on non-financial companies in a particular country and examine among others the relationship between the level of risk disclosures and company size. For instance Linsley and Shrives (2006) who found, in according to a study by Beretta and Bozzolan (2004), that for a sample of 79 UK FTSE 100 listed firms there exists a positive relationship between the amount of risk disclosures and company size[4].

A more specific stream of risk disclosure studies focuses on risk disclosures in relation to derivatives and other financial instruments by financial and non-financial companies (Adedji and Baker, 1999; Rajgopal, 1999; Jorion, 2002; Dunne et al., 2004). Dunne et al. (2004) and Dunne and Helliar (2003) thereby found that the implementation of FRS 13 *Derivatives and Other Financial Instruments – Disclosures* resulted in an increase in disclosures, but also a market reaction.

Studies on risk reporting by German, mostly non-financial firms are performed by Kajüter and Winkler (2003), Fischer and Vielmeyer (2004) and Kajüter and Esser (2007). For example, by examining the management reports of a sample of 83 German stock-listed companies and using content analysis, Kajüter and Winkler (2003, 219-228) found that the quantity of risk disclosures increased in the period 1999-2001, but that there was non-compliance with GAS 5 which became effective in 2001.

Literature on risk reporting by banks is still rather rare due to the limited amount of research on this topic. The literature that is available can be divided in two different streams: 'academic' research (Basel Committee, 1999, 2000, 2001; Linsley et al., 2006; Helbok and Wagner, 2000) and research by audit firms (e.g. PricewaterhouseCoopers, 2008; Ernst & Young, 2008; KPMG, 2008).

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[3] Modernisation Directive 2003/51/EC of June 18th, 2003

[4] Company size is measured by taking the natural logarithm of market value and the natural logarithm of turnover. The Pearson correlation for market value is 0.467 and for turnover 0.364, both significant at a 0.01 level.

The Basel Committee on Banking Supervision was the first to study this specific topic by analyzing the disclosure levels in the 1999, 2000 and 2001 annual reports of approximately 55 different banks from 13 countries all over the world. The finding were based on a survey of 104 questions in 12 categories about different types of risk in the annual reports and were filled in by the national banking supervisors with yes, no or not applicable. Conclusion by the Basel Committee were based on the comparison of disclosure rated during the years. For the year 2000 for instance they concluded that the internal models for market risk are rather extensively disclosed, but that the disclosures of the results of stress tests should be improved (Basel Committee, 2002, 7).

Linsley et al. (2006) conducted one of the first studies using content-analysis by counting sentences in the 2002 annual reports of a sample of in total 18 British and Canadian banks, divided into two groups of 9 banks selected from the database The Banker. By conducting this research they examined whether the size, profitability, risk level, and quantity of risk definitions of the bank have a positive relationship with the total quantity of disclosure levels (Linsley et al., 2006, 274). Hereby they made use of the disclosure model as used by Linsley and Shrives (2006) and Kajüter (2001).

In accordance with the studies by Linsley and Shrives (2006) and Beretta and Bozzolan (2004) of non-financial companies, Linsley et al. (2006) also found a positive relationship between bank size, as measured by the natural logarithm of total assets and the natural logarithm of market capitalization, and the total quantity of risk disclosures of banks[5]. No association was found between the amount of risk disclosures and bank profitability, and the amount of risk disclosures and risk level. Although there was not found a statistically different level of risk disclosures between Canadian and UK banks, further research is useful before more general statements about risk disclosures by banks can be made.

Apart for the academic studies, audit firms also study the topic of risk reporting and IFRS 7. For instance KPMG (2008) examined a sample of 25 European bank and 14 insurance companies and their 2007 annual reports by using a disclosure index framework. This framework consists of 6 types of risk and in total 160 items, which are based on regulatory requirements, recommendations, emerging ideas, and best practices (KPMG, 2008, 12). One of their results is that credit risk turns out to be the risk area in which disclosures are the most developed and another result is that requirements by regulation are in general less developed that the best practices by banks.

3. Hypotheses development and research design

3.1. Risk disclosure frameworks
The objective of this research is to examine the risk disclosures of banks and to analyze the possible differences is disclosures. In many prior research this is done by using content

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[5] The results show a Pearson-correlation of 0.734 and significance of 0.001 for total assets, and a Pearson-correlation of 0.615 and significance of 0.015 for market capitalization. For total assets the correlation is significant at the 0.01 level and for market capitalization at the 0.05 level (Linsley et al., 2006, 279)

analysis (e.g. Kajüter and Winkler, 2003; Beretta and Bozzolan, 2004; Linsley and Shrives, 2006, Linsley et al., 2006; Abraham and Cox, 2007; Amran et al., 2009). This is according to Babbie (2007, 319) "the study of recorded human communication" and can be classified as unobtrusive research in which social behaviour is studied but not affected.

One of the approaches of content analysis is the disclosure index study "that specifies ex ante a list of items and scrutinise the text for presence, ignoring sections of the text that do not relate to this list" (Beattie et al., 2004, 208). For this study this research method is used.

In order to measure both the quantity and quality of risk disclosures, two disclosures frameworks are developed. One to measure the quantity of disclosures and one to measure the quality of disclosures. Since other research does not make use of comparable frameworks, for instance Linsley et al. (2006) count the sentences in the annual reports about specific risks, new indexes are constructed. The items included in the quantity framework are based on IFRS 7.31-42 , which correspond to the requirements of Basel II pillar 3 and the German Commercial Code. The items in the quality framework are based on the qualitative characteristics of information[6] as defined by the conceptual frameworks of the IASB (2001) and The Basel Committee (1998). The two frameworks are included in appendix A and appendix B.

The frameworks are cross-country and in different industries applicable since they are based on worldwide adopted accounting standards and characteristics of information. For banks the risk disclosures are however much more important and therefore expected to be more comprehensive. In this study the frameworks are not intended to be used as a compliance study and no statements about whether a particular bank complies with the regulation will be made. The focus will be on a single industry and a single country. More research is therefore necessary to examine the differences between industries and countries.

For every disclosed item an annual report can score one point. Based on the number of items in the framework that are applicable to the annual report of a bank a maximum amount of points can be scored[7]. The quantity and quality of disclosures can be measured by calculating a score for every annual report according to the following formula:

$$DSCORE_{BY} = \frac{1}{MAX_{BY}} \sum_{i=1}^{N} SCORE_{iBY}$$

By dividing the sum of the scores of all items of bank *B* by the maximum score of bank *B*, the result will be a disclosure score between 0 and 1. If for example the number of items in the framework is 30 and the maximum score as well, and in the annual report 25 items

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[6] Relevance, comparability, reliability and understandability.

[7] The maximum score for an annual report can differ since not all the items in the frameworks have to be relevant for every bank and every year. Therefore not all the items should always be taken into account.

are disclosed, the disclosure score is 25/30 = 0,833. After calculating all the scores these can be compared with each other since the scores are scaled.

3.2. Sample size and selection of years

The sample of this study consists of 32 annual reports of the period 2005-2008 of the 8 German banks as included in table 1. The rationale behind selecting those years is due to the fact that from January 1, 2007 the requirements of IFRS 7 are mandatory. Two years before and two years after the introduction are therefore selected since an increase in disclosures is expected to be shown in the annual reports.

Table 1 Banks included in sample

Commerzbank*	Hypovereinsbank
DekaBank Deutsche Girozentrale	KfW Bankengruppe
Deutsche Bank*	LandesBank Berlin Holding*
Deutsche Postbank*	WestLB

stock-listed in Germany and/or abroad

3.3. Hypotheses

A limited amount of hypotheses is developed in order to find explanations for possible differences in disclosure scores. These hypotheses will be described in short below.

Quantity versus quality

Since researchers and their studies do not agree on whether quantity is a good proxy for quality, two disclosure frameworks are developed to measure both quantity and quality aside from each other. Since there is no clear theoretical background for the expectation that banks that disclose a lot of information also provide qualitative better information the following hypothesis is drawn up:

> **H1:** Banks with high quantity scores do not have high scores on the quality items.

Risk disclosures and bank size

In general, larger companies attract more attention from share- and stakeholders than smaller companies. According to the Political Cost Theory this might lead to higher political costs and one way of reducing these costs is to disclose more information. Also the problems of information asymmetry, agency costs and higher demand of returns for shareholders will be higher for larger companies. In accordance with Diamond and Verrechia (1991,1325) larger companies and banks are therefore expected to disclose more risk information. The following hypothesis is based on this:

> **H2a:** *There is a significant positive relationship between the quantity of risk disclosures in the annual reports of German banks and bank size in the period 2005-2006.*

Since the disclosure requirements are equal for all banks in the period 2007-2008 the following hypothesis is drawn up for this period:

> **H2b:** *There is no significant positive relationship between the quantity of risk disclosures in the annual reports of German banks and bank size in the period 2007-2008.*

Larger banks are expected to produce qualitative better annual reports since they have more political exposure and in general more stakeholders that make use of the annual reports. The following hypotheses are therefore drawn up:

> **H2c:** *There is a significant positive relationship between the quality of risk disclosures in the annual reports of German banks and bank size in the period 2005-2006.*

> **H2d:** *There is a significant positive relationship between the quality of risk disclosures in the annual reports of German banks and bank size in the period 2007-2008.*

Risk disclosures and profitability

According to Helbok and Wagner (2006a, 11) banks that are more profitable will be early adopters of risk disclosures since they want to distinguish themselves from the other, less profitable banks. Next to that, the political cost theory gives rise to the expectation that more profitable banks will disclose more risk information, although in general mixed results are found[8]. In accordance with the theory and expectations the following hypotheses are drawn up, taking into account that from 2007 the risk disclosures are mandatory:

> **H3a:** *There is a significant positive relationship between the quantity of risk disclosures in the annual reports of German banks and the relative profitability of the banks in the period 2005-2006.*

> **H3b:** *There is no significant positive relationship between the quantity of risk disclosures in the annual reports of German banks and the relative profitability of the banks in the period 2007-2008.*

> **H3c:** *There is a significant positive relationship between the quality of risk disclosures in the annual reports of German banks and the relative profitability of the banks in the period 2005-2006.*

> **H3d:** *There is a significant positive relationship between the quality of risk disclosures in the annual report of German banks and the relative profitability of the banks in the period 2007-2008.*

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[8] See Ahmed and Courtis. 1999. Associations between corporate disclosure characteristics and disclosure levels in annual reports: A meta-analysis, *British Accounting Review* 31: 35-61.

<u>Risk disclosures and time</u>

In previous research by Kajüter and Winkler (2003) a positive relationship between the quality of risk disclosures in the German annual reports of 1999-2001 of non-financial stock listed companies and time was found. This result is consistent with the increase in demand of risk disclosures and the general trend that is observed in the disclosures of banks (Linsley and Shrives, 2005, 210). Next to that the disclosure scores of the German banks in tables 2 and 3 also show at first sight an increase in the quantity and quality of disclosures and therefore the following hypotheses are drawn up:

> **H4a:** *The quantity of risk disclosures in the annual reports of German banks has increased significantly between the period 2005-2006 and 2007-2008.*

> **H4b:** *The quality of risk disclosures in the annual reports of German banks has increased significantly in the period 2005-2006 and 2007-2008.*

3.4. Variable measurement and statistical methods

In order to calculate the correlation between bank size, profitability and disclosure scores, the measurement of the variables have to be determined. Since not all banks in the sample are stock-listed, bank size is not measured by market value of equity but by total assets, and in order to prevent heteroscedasticity by taking the *natural logarithm of total assets*. The relative profitability is measured by the financial ratios Return on (Average) Total Assets (ROA) and Return on (Average) Equity (ROE).

Due to the normal distribution of the variables (by excluding possible outliers) parametric tests can be applied to all the hypotheses. For hypotheses 1-3 Pearson correlation coefficients are calculated at a 95 % confidence interval. For the fourth hypotheses a paired samples t-test is used. The average disclosure score of the years 2005-2006 and 2007-2008 for every bank is calculated and these results are pair-wise compared to each other.

4. Results and analysis

Applying the disclosure frameworks and statistical analysis as explained in sections 3.1. and 3.4. shows the results as presented in tables 2, 3 and 4.

Table 2 Disclosure scores quantity

	2005	*2006*	*2007*	*2008*
Mean	0,62	0,66	0,83	0,87
Min	0,29	0,41	0,75	0,81
Max	0,78	0,81	0,95	0,95
Stand.dev.	0,16	0,13	0,07	0,05

Table 3 Disclosure scores quality

	2005	*2006*	*2007*	*2008*
Mean	0,75	0,78	0,89	0,90
Min	0,50	0,67	0,85	0,85
Max	0,92	0,83	1,00	1,00
Stand.dev.	0,12	0,06	0,07	0,05

As opposed to the expectation of no significant correlation between the quantity and quality the results show a significant positive relationship (at a confidence level of 99%). This can be interpreted as banks that disclosure more items based on the quantity

framework apparently also provide information of higher quality, for instance by disclosing information in a specific way (e.g. including graphs and tables, comparable figure of previous years). Since most of the banks score high on quality is it possible that banks imitate each other.

No significant positive relationship between the quantity of disclosures and bank size was found for the years 2005-2006, which might be explained by the influence of the German disclosure requirements of GAS 5-10. Since these disclosures have been mandatory for banks for several years before the introduction of IFRS 7 the disclosures of banks have apparently become more similar. Institutional isomorphism or the influence of a large, dominant bank might be an explanation but cannot be tested with the obtained results. The surprising positive relationship in the period 2007-2008 might be explained by the influence of the financial crisis on bank sizes. No unambiguous conclusion can be drawn on whether the size of a bank is of significant influence on the risk disclosures in annual reports.

Table 4 Pearson correlation coefficients

		Quantity All	Quality All	LnTA 05-06	LnTA 07-08	ROAA 05-06	ROAA 07-08	ROAE 05-06	ROAE 07-08
Quantity All	Pearson Correlation	1	0.820**						
	Sig. (2-tailed)		0.000						
	N	32	32						
Quality All	Pearson Correlation	0.820**	1						
	Sig. (2-tailed)	0.000							
	N	32	32						
Quantity 05-06	Pearson Correlation			0.097		0.078		0.231	
	Sig. (2-tailed)			0.720		0.773		0.390	
	N			16		16		16	
Quantity 07-08	Pearson Correlation				0.548*		-0.422		-0.343
	Sig. (2-tailed)				0.028		0.117		0.211
	N				16		15		15
Quality 05-06	Pearson Correlation			0.144		0.209		0.305	
	Sig. (2-tailed)			0.596		0.437		0.251	
	N			16		16		16	
Quality 07-08	Pearson Correlation				0.567*		0.106		0.142
	Sig. (2-tailed)				0.022		0.708		0.613
	N				16		15		15

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

As explained above, GAS 5-10 might be of influence on the disclosure levels of banks in the period 2005-2006. For profitability there is therefore no significant positive relationship shown either in the period 2005-2006. The fact that risk information is commercially sensitive and involves a lot of uncertainty might also cause larger and more profitable banks not to show significantly more risk information. The non-significant negative results for the period 2007-2008 should be interpreted with care and in general no strong statements about the relationship with profitability can be made based on these results.

The most interesting result is the significant increase in the quantity and quality of disclosure between the periods 2005-2006 and 2007-2008. The paired samples t-test shows results of -3,757 and -3,603, with significance levels of 0,007 and 0,0009 for quantity and quality. This was already expected since the demand for disclosures has increased and due to the introduction of IFRS 7. The financial crisis on the other hand might also be of great influence since the focus of banks and their risk has increased greatly. By disclosing more information banks might want to avoid discussions and prevent reputation damage. Even though according to Linsley et al. (2006, 279) banks rather do not discuss their risk levels publicly, the introduction of IFRS 7 is expected to be the main driver behind the significant increase. Previous research has also shown that accounting standards are of important influence on risk disclosures.

5. Limitations and conclusion

Limitations of this research are subjectivity, a limited amount of selected items in the frameworks and the lack of scientific evidence that support the items in the quality framework. Next to that, due to the limitation of time only a sample of German banks is examined which makes it impossible to make statements about the whole (German) banking industry.

Based on this research a number of other studies are however possible. For instance whether the capital market becomes more efficient and the cost of capital declines due to increased risk disclosures. Also a behavioural study can be done to examine whether increased risk disclosures will lead to better decision making and judgements of the users of the annual reports, and an event study on the introduction of IFRS 7 and the financial crisis. In conclusion, this research is relevant for future research since it provides evidence about the development of risk disclosures in the banking sector which might be explained by a number of other factors and/or have an effect on the decision making of users of the annual reports.

In conclusion, this research has mainly showed that the demand and supply of risk disclosures has increased over the years. For the German banking sector the presence of regulation (GAS 5-10, IFRS 7) is however the expected main driver for the increased supply, and not the size and profitability of a bank.

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Appendix A   Quantity framework

Item	Disclosure requirement	Source	Disclosure score
1	Exposure to risk and how they arise	IFRS 7.33a IFRS 7.IG15	
2	Objectives, policies and processes for managing the risk and the methods used to measure the risk	IFRS 7.33b IFRS 7.IG15	
3	Changes in exposure to risk, measurement of risk, and objectives, policies and processes to manage the risk from the previous period	IFRS 7.33c IFRS 7.IG17	
3a	• Disclosure of changes		
3b	• Explanation for changes		
4	Summary quantitative data about is exposure to risk at the reporting date	IFRS 7.34a	
5	Interest rate sensitivity analysis showing how profit or loss and equity would have been affected by changes in the relevant risk variable that were reasonably possible at that date	IFRS 7.40a	
6	Methods and assumptions used in preparing the sensitivity analysis	IFRS 7.40b	
6a	• Method sensitivity analysis		
6b	• Model used for analysis		
6c	• Assumptions used		
6d	• Explanation of on what the parameters are based		
7	Concentration of interest rate risk if not apparent from summary quantitative data and sensitivity analysis	IFRS 7.34c	

Item	Disclosure requirement	Source	
8	Exposure to risk and how they arise	IFRS 7.33a IFRS 7.IG15	
9	Objectives, policies and processes for managing the risk and the methods used to measure the risk	IFRS 7.33b IFRS 7.IG15	
10	Changes in exposure to risk, measurement of risk, and objectives, policies and processes to manage the risk from the previous period	IFRS 7.33c IFRS 7.IG17	
10a	• Disclosure of changes		
10b	• Explanation for changes		

11	Summary quantitative data about is exposure to risk at the reporting date	IFRS 7.34a
12	Currency risk sensitivity analysis showing how profit or loss and equity would have been affected by changes in the relevant risk variable that were reasonably possible at that date	IFRS 7.40a
13	Methods and assumptions used in preparing the sensitivity analysis	IFRS 7.40b
13a	• Method sensitivity analysis	
13b	• Model used for analysis	
13c	• Assumptions used	
13d	• Explanation of on what the parameters are based	
14	Concentration of currency risk if not apparent from summary quantitative data and sensitivity analysis	IFRS 7.34c

Market risk – other price risk

Item	Disclosure requirement	Source
15	Exposure to risk and how they arise	IFRS 7.33a IFRS 7.IG15
16	Objectives, policies and processes for managing the risk and the methods used to measure the risk	IFRS 7.33b IFRS 7.IG15
17	Changes in exposure to risk, measurement of risk, and objectives, policies and processes to manage the risk from the previous period	IFRS 7.33c IFRS 7.IG17
17a	• Disclosure of changes	
17b	• Explanation for changes	
18	Summary quantitative data about is exposure to risk at the reporting date	IFRS 7.34a
19	Other price risk sensitivity analysis showing how profit or loss and equity would have been affected by changes in the relevant risk variable that were reasonably possible at that date	IFRS 7.40a
20	Methods and assumptions used in preparing the sensitivity analysis	IFRS 7.40b
20a	• Method sensitivity analysis	
20b	• Model used for analysis	
20c	• Assumptions used	
20d	• Explanation of on what the parameters are based	
21	Concentration of other price risk if not apparent from summary quantitative data and sensitivity	IFRS 7.34c

analysis

Item	Disclosure requirement	Source
22	Exposure to risk and how they arise	IFRS 7.33a IFRS 7.IG15
23	Objectives, policies and processes for managing the risk and the methods used to measure the risk	IFRS 7.33b IFRS 7.IG15
23a	• Objectives, policies and processes for managing the risk	
23b	• Methods used to measure the risk	
24	Changes in exposure to risk, measurement of risk, and objectives, policies and processes to manage the risk from the previous period	IFRS 7.33c IFRS 7.IG17
24a	• Disclosure of changes	
24b	• Explanation for changes	
25	Summary quantitative data about is exposure to risk at the reporting date	IFRS 7.34a
26	Concentrations of credit risk if not apparent from summary quantitative date and sensitivity analysis	IFRS 7.34c
27	Amount of maximum exposure to credit risk (before deducting value collateral)	IFRS 7.36a
28	Description of collateral held as security and other credit enhancements	IFRS 7.36b
29	Information about the credit quality of financial assets with credit risk that are neither past due nor impaired	IFRS 7.36c IFRS 7.IG23
29a	• Information about credit quality	
29b	• Explanation rating system	IFRS 7.36c IFRS 7.IG24 IFRS 7.IG25
30	The carrying amount of financial assets that would otherwise be past due or impaired whose terms have been renegotiated	IFRS 7.36a
31	By class of financial assets an analysis of the age of financial assets that are past due as at the reporting date but not impaired	IFRS 7.37a
32	By class of financial assets an analysis of financial assets that are individually determined to be impaired at the reporting date,	IFRS 7.37b IFRS 7.IG29

	including the factors the entity considered in determining that they are impaired	
32a	• Disclosure of factors the entity considered in the impairment	
32b	• Carrying amount of impaired financial assets	
32c	• Amount of impairment loss	
33	Description of collateral held by the entity as security and other credit enhancements for the amounts as disclosed in IFRS 7.37a and b and, unless impracticable, an estimate of their fair value	IFRS 7.37c
34	Nature and carrying amount of assets obtained by taking possession of collateral it holds as security or called on other credit enhancements, and such assets meet the recognition criteria on other standards	IFRS 7.38a
35	Policies for disposing assets or use of it in its operations when the assets are not readily convertible into cash	IFRS 7.38b

Liquidity risk

Item	Disclosure requirement	Source
36	Exposure to risk and how they arise	IFRS 7.33a IFRS 7.IG15
37	Objectives, policies and processes for managing the risk and the methods used to measure the risk	IFRS 7.33b IFRS 7.IG15
37a	• Objectives, policies and processes for managing the risk	
37b	• Methods used to measure the risk	
38	Changes in exposure to risk, measurement of risk, and objectives, policies and processes to manage the risk from the previous period	IFRS 7.33c IFRS 7.IG17
38a	• Disclosure of changes	
38b	• Explanation for changes	
39	Maturity analysis for financial liabilities that show the remaining contractual maturities	IFRS 7.39a

	Other disclosures		
Item	Disclosure requirement		
40	Information on subprime exposure and financial crisis		

Appendix B   Quality framework

Item	Qualitative characteristic	Quality item	Disclosure score
1	Relevance	Disclosure of information on stress scenarios	
2*		Disclosure of the expected future impact of the financial crisis on the bank and its results	
3		Disclosure of information of risk management of credit, liquidity and market risk	
4		Disclosure of whether VaR estimates and limits have been exceeded in the year	
5	Comparability	Comparability of the presentation of information of a specific bank over the years	
6		Comparable figures of previous years disclosed	
7		Comparable measurement methods used or explanation for changes given by a specific bank over the years	
8		Accounting standards for (risk) disclosures mentioned	
9	Reliability	Mentioned whether or not the risk information in the management report is audited	
10	Understandability	Use of tables and graphs to support the text	
11		Definitions of types of risk	
12		Definition of measurement methods used	
13		Explanation of limitations of measurement methods used	

* Only applicable in the years 2007 and 2008

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Pay-for-performance?

An Empirical Investigation of the Relationship between Executive Compensation and Firm Performance in the Netherlands

A.A. (Bart) Bootsma[1]

Executive Summary

This paper investigates the relationship between CEO compensation and company performance for Dutch listed companies for the period 2002-2007. The study examines if absolute or relative changes in CEO pay are related to changes in company performance. Furthermore, the study investigates if the pay-performance relationship has strengthened after the introduction of the Dutch corporate governance code in 2004. The results suggest that the Dutch corporate governance code had a positive effect on the pay-performance relationship. This effect is mainly driven by the increased use of equity-based compensation. Compared internationally, the pay-performance relationship in the Netherlands remains relatively low.

For the full text of this master thesis refer to the following webpage: http://hdl.handle.net/2105/6150.

1.   Introduction

Executive compensation has been a topic of much discussion for a long period of time. Continuous debates among employers, employees, regulators and the press about the level, structure and role of CEO compensation take place in most industrialized countries (Duffhues and Kabir 2008). This political, social as well as academic debate also takes place in the Netherlands. It is said that CEO compensation is not sufficiently connected to performance: pay-for-failure instead of pay-for-performance (e.g. Couwenbergh 2007).

The main purpose of this study is to examine empirically if there is a relationship between CEO compensation and firm performance of Dutch companies listed at Euronext Amsterdam during the period 2002-2007.

In the master thesis three research questions have been formulated:

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[1] This paper is based on my master thesis, which is supervised by Dr. J. Noeverman, Department of Accounting, Auditing & Control, Erasmus School of Economics, Erasmus University Rotterdam.
Bart Bootsma has graduated from Economics & Business (Accounting & Finance) at the Erasmus School of Economics. He is currently finishing the master's program *Bedrijfsrecht* (Commercial Law) at the Erasmus School of Law.

1. What are the determinants of the level and structure of CEO compensation?
2. How strong is the relationship between top executive compensation and company performance?
3. Has the pay-performance relationship strengthened during the period 2002-2007?

In this paper I will mainly focus on the second and third research question, the strength of the pay-performance relationship and its development during the period 2002-2007. The results of the first research question will not be presented in this paper.

The research is relevant for several reasons. Previous studies do not show unequivocal results. Some studies found a strong positive relationship between CEO compensation and company performance (e.g. Hall and Liebman 1998), other research found a weak positive relationship (e.g. Jensen and Murphy 1990). There are even a few studies that report a negative relationship (e.g. Duffhues and Kabir 2008).

Few research about this topic has been done conducted on Dutch data. A few notable exceptions are the research of Duffhues et al. (2002), Cornelisse et al. (2005), Mertens et al. (2007) and Duffhues and Kabir (2008). I hope this study can make a contribution to the existing literature, by exploring the topic for Dutch listed companies, an area that has not been investigated to its full extent previously.

It is also of practical relevance to conduct the research for the Netherlands. Since 2004 the Dutch Corporate Governance Code (*Staatscourant* 2004, 250) is effective. This code advices a strong connection between compensation and performance of top executives (paragraph II.2 of the code). Investigating how strong the relationship is between remuneration of top executives and the performance of the company, is useful to monitor this aspect of the code (Van Praag 2005).

The remainder of this paper is structured as follows. Section 2 will provide an overview of prior literature. Hypothesis development, research design and the sample will be outlined in section 3. Section 4 presents the empirical results. These results will be analyzed in section 5. Finally, section 6 summarizes the main conclusions of this paper.

2.   Prior literature

In order to provide a structured overview of the empirical studies it is necessary to make choices in which studies are discussed and which not. I use several criteria to delimitate the overview. First, studies should refer to Europe or the United States. Furthermore, the studies should be based on listed companies in a cross-section of industries. Moreover, performance of the company should be measured in current financial performance measures. The sample should include CEOs. Another criterion is that the empirical studies should explain (components of) compensation with performance. Moreover, studies should be recent. Literature published before 1998 will not be discussed. An exception is the influential study of Jensen and Murphy (1990).

The papers are used to find out what is best practice in conducting empirical research of the pay-performance relationship. The papers show that the relationship differs in the selected countries. The results of selected papers are compared with the results of the conducted research in section 5. The selected papers and their main findings are presented in table 1 on the next page.

Table 1: Brief overview of the main findings in the pay-for-performance literature

Authors and year	Country	Period	Board position	Main findings
Jensen and Murphy (1990)	US	1974-1986	CEOs	The relationship between total pay and performance, the PPS, is small, but positive and significant.
Hall and Liebman (1998)	US	1980-1994	CEOs	A strong pay-performance relationship is found based on four different methods.
Conyon and Murphy (2000)	US / UK	1997	CEOs	The PPS in the US is much larger than in the UK, mostly because in the US more stock-based pay is granted.
McKnight and Tomkins (1999)	UK	1992-1995	Highest paid executive board members	There is a pronounced link between pay and performance for both the short and long term.
Girma et al. (2007)	UK	1981-1996	CEOs	The effects of the 'Cadbury' reforms on CEO compensation are disappointing.
Conyon and Schwalbach (2000)	UK / Germany	1969-1994	CEOs	The relationship between CEO compensation and firm size and the relation between cash compensation and company performance is similar in the UK and Germany.
Kaserer and Wagner (2004)	Germany	1990-2002	All executive board members	No stronger pay-performance relationship due to corporate governance changes.
Yurtoglu and Haid (2006)	Germany	1987-2003	All executive board members together	Company size is much more important in comparison to performance to determine the level of executive pay. Moreover, a small positive PPS is reported.
Duffhues et al. (2002)	NL	1996-1998	All management board members together	Positive relationship between fraction of management options and accounting performance measures.
Cornelisse et al. (2005)	NL	2002-2003	CEOs separately and all executive board members together	No relationship between cash compensation and company performance.
Duffhues and Kabir (2008)	NL	1998-2001	All executive board members together	Compensation is negatively related to both accounting- and market-based performance measures.
Mertens et al. (2007)	NL	2002-2006	CEOs, CFOs and other board members separately	Small positive relationship between short-term bonus and performance.

3. Hypothesis development and research design

This section is structured as follows. First the theoretical background is described in paragraph 3.1. The hypotheses are formulated in paragraph 3.2. The research design is described in paragraph 3.3. Finally, paragraph 3.4 is dedicated to the sample.

3.1 Theoretical background

Executive compensation is part of corporate governance. To gain more insight in what corporate governance is, a distinction can be made between a business administrative, legal, economical and management control view (Strikwerda 2002). Corporate governance will be approached in this paper primarily from the economic point of view. Corporate governance is from an economic point of view about "(...) the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment" (Shleifer and Vishny 1997, p.737).

Agency theory

If ownership and control are separated in a company, this can lead to conflicts of interest. Adam Smith already noticed this in 1776 in The Wealth of Nations (pp.669-700 in Cannan, ed. (1937)). The principle of separation of ownership and control has been further elaborated by Berle and Means (1932) and has since then played an important role in the agency theory. Jensen and Meckling (1976) define an agency relationship as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf. This involves for the principal delegating of decision-making authority to the agent.

Agency theory is based on a number of assumptions: a conflict of interest, information asymmetry and different risk characteristics between the principal and agent (Eisenhardt 1989). The relationship between stockholders and the management of a company is a prominent example of an agency relationship. The separation of ownership and control of the company with the stockholders as principals and the management as agents gives rise to the principal-agent problem. Stockholders have delegated decision-making authority of the company to the management. But management has not the same interests as stockholders. Stockholders maximize the return on their investment in the company and strive to long-term stockholder value creation. For a part management has other interests: their own career and welfare. Managers prefer to run large businesses rather than small ones, other things equal. This may not be in the best interest of the stockholders, as this 'empire building' may not result in investing in positive net present value projects (Brealy et al. 2006). Another problem is managerial entrenchment (Shleifer and Vishny 1989). Managers will invest in projects that fit with their personal skills, to improve their value for the company. This temptation to overinvest, apparent in empire building and managerial entrenchment, is called the free-cash-flow problem by Jensen (1986). Information asymmetry is also apparent. Management has more information than the stockholders. Moreover, management and stockholders have different risk characteristics. In general, stockholders hold a diversified portfolio of stocks and are risk-neutral. Managers are for their career and human capital dependent on one specific company and are for that reason risk-averse (Mehran 1995).

Different solutions are possible to solve the principal-agent problem. Examples are an internal control system (e.g. Fama and Jensen 1983), the labor market for managers (e.g. Fama 1980; Jensen and Murphy 1990), the market for corporate control (e.g. McColgan 2001; Jensen and Ruback 1983), the financial structure of the company (e.g. Easterbrook 1984; Jensen 1986) and executive compensation (e.g. Jensen and Murphy 1990; Jensen et al. 2004). This paper focuses on executive compensation as solution to the agency problem. The application of performance pay can diminish value destruction (agency costs). If executive compensation is based on performance measures that align their interest with the interests of the stockholders, the conflict of interest between them can be diminished.

Managerial power theory
The managerial power theory dates back to the work of the famous economist Galbraith. Galbraith coined the term "managerial capitalism" in the book The New Industrial State (1967). This term refers to the view that managers detain more power and influence than the stockholders on the decisional and directional process. Recently there is renewed interest in this theory (e.g. Bebchuk and Fried 2004; 2006; Bebchuk et al. 2002; Jensen and Murphy 2004).
Bebchuk and Fried (2004) state that there is "pay-without-performance". The authors explain this with their managerial approach to executive compensation. From this point of view, the remuneration of top executives is not an instrument to reduce the agency problem, but it can be seen as part of the agency problem. Managers of companies with dispersed stock ownership have themselves a substantial influence on their own compensation. Due to the dispersed ownership, managers can use their influence to get high compensation which is in booming times strongly connected to stock prices and in bad economic times not (Bebchuk and Fried 2003). So executive compensation should in this theory not be seen as a tool to align the interests between stockholders and managers. To understand the processes of setting pay the actual conditions under which pay is set should be taken into account. In the agency theory optimal contracting is assumed. Executive compensation can only take place at arm's length contracting, which means careful processes and procedures in which the contract consists of incentives to maximize stockholder value (Jensen and Meckling 1976).
The managerial power approach results in sub-optimal incentives and the associated act of rent extraction plays a role. Managers with power are able to extract rents and managers with more power can extract more rents. Rents are defined as value in excess of what managers would receive under optimal contracting (Bebchuk et al. 2002). The amount of compensation that is paid to managers is camouflaged from the eyes of stockholders and other stakeholders, so that it is no more related to company performance.
Although the managerial power approach is from a conceptual point of view quite different from the optimal contracting approach, Bebchuk and Fried (2003) note that the former cannot replace the latter. Compensation packages will be influenced by both market influences, which push toward value maximizing contracts and by managerial influences, which push toward directions favorable for managers.

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3.2 Hypothesis development

As outlined before, agency theory sees performance-related top-executive compensation as a solution to the conflict of interest between stockholders and management. The compensation aligns the interest of the management with the objectives of the stockholders. So the agency theory is in support of the following hypothesis:

A positive relationship exists between CEO compensation and company performance (H1)

CEO compensation usually exists of the following elements: base salary, bonus, other compensation, pensions, stock options and stocks. The sum of base salary and bonus is called cash compensation and the aggregate of all compensation elements is called total compensation. The hypothesized positive relationship between CEO compensation and company performance is based on the performance-related elements bonus, options and stocks. No relationship is hypothesized between base salary, other compensation, pensions and company performance.

During the sample period 2002-2007 several changes have been made to the Dutch corporate governance system, which may have influenced top-executive pay arrangements. Transparency with respect to CEO compensation has increased during these years. Until September 2002 the regulation for the disclosure of the remuneration of the Board of Directors was very limited. Only the total amount of remuneration to all current and former executive and supervisory board members should be reported (Article 383 of Book 2 of the Dutch Civil Code). The 'Disclosure on Remuneration and Stock Ownership of Executive and Supervisory Directors Act' took effect on 1st of September, 2002 (*Staatsblad* 2002, 225). The Foundation for Annual Reporting (RJ) published guidelines based on this act and on IAS 19 Employee benefits, which prescribe that companies provide information in the annual report on granted rights and exercised and expired rights during the financial year. The RJ (240.111) requires further that Dutch listed companies provide in the annual report information on an individual basis of cash compensation, stock option plans, granted options and stock-based compensation.

Since January 1, 2004 the Dutch corporate governance code (Tabaskblat 2003) came in place. This code requires additional information in the annual report about the remuneration of management board members. Paragraph II.2 of the code is dedicated to remuneration of members of the management board. The amount and composition of the remuneration packages as well as the transparency of the compensation are discussed in this paragraph of the code. Furthermore, the code advises a strong connection between CEO compensation and company performance. Based on the aforementioned changes in the Dutch corporate governance system it is hypothesized that:

The relationship between CEO compensation and company performance has
strengthened in the Netherlands during the period 2002-2007 (H2)

3.3 Research design
In order to calculate the strength of the pay-performance relationship two models are used: the pay-performance sensitivity (PPS) model of Jensen and Murphy (1990) and the pay-performance elasticity (PPE) model of Hall and Liebman (1998).

Pay-performance sensitivity
PPS is an absolute measure. It measures with which amount CEO compensation increases if company performance increases with €1.000. The PPS ordinary least squares regression model is specified as follows:

$$\Delta \, (Pay)_{it} = \alpha + \beta \, \Delta \, (Perf)_{it} + \varepsilon_{it} \tag{1}$$

The dependent variable $\Delta \, (Pay)_{it}$ represents the change in CEO compensation of company i in period t compared to period t-1. In section 4 the PPS of cash compensation (sum of base salary and bonus) and total compensation (sum of all compensation elements) are reported. Delta stock options is computed with the Black-Scholes (1973) European call option valuation model, which is modified for dividends by Merton (1973). The change in the value of options is taken into account by comparing the value of the options at the beginning of the year with the value at the end of the year after Hall and Liebman (1998). Delta stocks is also calculated as the difference in value at time t and time t-1. Delta stocks is also based on total compensation (i.e. the change in the value of stocks held by the CEO is taken into account).
The absolute change in firm performance is measured in four different ways: delta shareholder wealth, delta sales, delta net income and delta operating income. In accordance with earlier empirical literature $\Delta \, (Shareholder \; wealth)_{it}$ is calculated as market capitalization at period t-1 multiplied with total stockholder return (TSR) at period t (e.g. Jensen and Murphy 1990, Murphy 1999, Mertens et al. 2007). Besides TSR three accounting-based measures for performance are used in this equation. After Jensen and Murphy (1990) profit and sales are used. Profit is operationalized as operating income and net income (Mertens et al. 2007). The research of Mertens et al. (2007) points out that these variables are often used by Dutch listed firms as financial performance measures in the period 2002-2006. These three accounting-based measures are calculated as the value at period t minus the value at period t-1.

Pay-performance elasticity
The PPE model is expressed in relative terms. It measures the increase in CEO pay in percentages, if firm performance rises with 1%. The PPE model is among others used by Hall and Liebman (1998), McKnight and Tomkins (1999) and Conyon and Murphy (2000). This model can be specified as follows:

$$\Delta \, LN \, (Pay)_{it} = \alpha + \beta \, \Delta \, LN \, (Perf)_{it} + \varepsilon_{it} \tag{2}$$

$\Delta \, LN \, (Pay)_{it}$ is the natural logarithm of CEO pay of company i at moment t minus the natural logarithm of CEO compensation of firm i in the former period t-1. The compensation elements are computed in the same way as in the previous pay-performance

sensitivity equation. The difference with the PPS model is that the equation is now in relative terms by using the natural logarithm.

The change in performance is measured as the change in shareholder value. The change in shareholder value ignores share issues or repurchases and therefore equals the continuously accrued rate of return on common stock (e.g. Murphy 1999, Conyon and Murphy 2000). Δ LN (Shareholder value)$_{it}$ is calculated as the natural logarithm of (1+TSR) at moment t for company i. This computation is also used by Murphy (1999), Conyon and Murphy (2000) and Mertens et al (2007). Again, several accounting-based measures are also used as a proxy for company performance: Return on assets (ROA), Return on equity (ROE) and sales growth. Sales growth is defined as LN sales at moment t minus LN sales at moment t-1. This definition is also used by McKnight and Tomkins (1999). Delta ROA is computed as ROA at period t minus ROA at period t-1. The same computation holds for ROE. This computation is also used by Kato and Kubo (2006) and Mertens et al. (2007). This way of calculating, implies that the changes in ROA and ROE are semi-elasticities.

It might be useful to further elaborate on the econometric method. This can explain why no control variables are added to equation (1) and (2). Year-to-year performance related changes in CEO compensation are typically modeled as:

$$(Pay)_{it} = \gamma_i + \alpha_{it} + \beta_i (Perf)_{it} + \varepsilon_{it} \qquad ,i = 1,2,\ldots,N ; t = 1,2,\ldots T \qquad (3)$$

where γ_i is a CEO or firm-specific effect that varies across CEOs but does not vary over time for a given CEO, α_{it} is a CEO or firm-specific time trend (company size, CEO age and tenure, etc.), Perf is a firm performance measure, β_i is the coefficient indicating the pay-performance relationship and ε_{it} represents the equation error.

For relative small times series (T<10) researchers regularly assume that time trends and pay-performance relationships are constant across executives/companies. In terms of the model this means $\alpha_i = \alpha$ and $\beta_i = \beta$. Equation (3) can then be re-estimated using fixed-effect methodologies or first differences. The result is, not surprisingly, the PPS-model presented by equation (1). See Murphy (1999, p.30-31) and Conyon and Swalbach (2000, p.521-522).

Pay-performance relationship over time
It was hypothesized (H2) that CEO compensation will show a stronger relationship with company performance during the period 2002-2007 due to corporate governance changes. An important development in that respect was the Dutch corporate governance code (code Tabaksblat) which took effect from 2004. In this study the period 2002-2003 (the pre-Tabaksblat period) is compared with the period 2004-2007 (the period after the code Tabaksblat came in place). After Girma et al. (2007) a dummy variable δ is added with value "0" in the period 2002-2003 and "1" in the period 2004-2007. This dummy variable δ measures differences in the change in CEO compensation before and after the introduction of the Dutch corporate governance code. Moreover, an interaction variable is added to the PPS and PPE model specifications. This interaction variable is computed as dummy variable δ times the performance variable. If the link between pay and performance has increased, then a statistically significant positive coefficient (i.e., $\beta_2 > 0$) will be observed on this variable.

The PPS equation is then adjusted as follows:

$$\Delta (Pay)_{it} = \alpha_1 + \beta_1 \Delta (Perf)_{it} + \alpha_2 \delta + \beta_2 (\delta * \Delta (Perf))_{it} + \varepsilon_{it} \qquad (1')$$

The PPE equation is then reformulated as follows:

$$\Delta LN (Pay)_{it} = \alpha_1 + \beta_1 \Delta LN (Perf)_{it} + \alpha_2 \delta + \beta_2 (\delta * \Delta LN (Perf))_{it} + \varepsilon_{it} \qquad (2')$$

I use cash compensation (after Girma et al. 2007) as well as total compensation (after Kaserer and Wagner 2004) as dependent variable in these equations. Corporate performance is measured as discussed previously for the PPS and PPE model.

3.4   Sample

The data on CEO compensation have been collected from the website <http://www.veb.net/bestuursvoorzitter/> of the Dutch Investor's Association (VEB). The crude assumptions the VEB uses for the parameters of the Black-Scholes formula (risk-free interest rate, expected dividend rate and expected volatility) are adjusted. The data to calculate the performance-related variables have been collected from the financial databases Datastream and Worldscope.

The original sample consists of 160 companies listed at Euronext Amsterdam during (some part of) the sample period 2002-2007. These funds can be listed at the AEX or AMX index or are Small Caps or local funds. The total sample consists of 685 year observations (on average 4 observations per company). Companies for which compensation or financial data were not available for one or more years are eliminated from the sample for those years. The regression results are based on CEOs that have been in function during the whole year. Comparing compensation for the whole year t with part of t-1 (because the CEO was appointed during that year) or with part of t+1 (because the CEO left the company during that year) would have a distortive effect on the results. Extrapolating compensation for a part of the year would also be arbitrary, especially for variable compensation elements. Furthermore, extreme observations are eliminated from the final sample, because they have a distortive effect on the results. Outliers are defined as cases which deviate more than three standard deviations from the median (Wiggins 2000). The influence of this elimination procedure on the number of observations is limited. In none of the models more than thirteen observations are deleted due to extreme observations.

4.   Results

Table 2: Pay-performance relationship over time

The table reports the regression results of pay-performance sensitivity and elasticity for cash compensation and total compensation. An additional variable (Dummy) is added to the equation with value 0 in the period 2002-2003 and value 1 in the period 2004-2007. Moreover, an interaction variable (Dummy*Perf) is added to the model specifications. The reported coefficients of delta performance in the PPS models are reported as Euro cents per € 1.000 change in company performance. The coefficient of the constant and dummy term are reported in Euros. To allow a meaningful comparison over time all monetary amounts are expressed in constant prices of 2006, based on the Consumer Price Index of Statistics Netherlands. The unstandardized coefficients (B) and the absolute t-statistics (t) are reported in the table. Explanatory power (Adj R2), F-statistic and the number of observations (N) are reported in the lower part of each model specification. Significance at the 1%, 5% and 10% level is indicated by ***, **, * respectively.

Panel A: PPS cash compensation

	(1) B	t	(2) B	t	(3) B	t	(4) B	t
(Constant)	-16775,508	-0,672	6926,257	0,268	3847,348	0,151	749,906	0,03
Delta Shareholder Wealth	6,5	3,99 ***						
Delta Sales			1,0	0,646				
Delta Net Income					-0,9	-0,187		
Delta Operating Income							-11,1	-2,054 **
Dummy	78334,202	2,793 ***	57098,38	1,973 **	60597,325	2,117 **	66353,265	2,334 **
Dummy*Delta Perf	-4,2	-2,456 **	0,4	0,234	10,0	1,76 *	15,9	2,62 ***
Adj R2	0,085		0,034		0,029		0,025	
F-statistic	12,558		5,377		4,747		4,233	
N	372		372		373		373	

Panel B: PPE cash compensation

	(1) B	t	(2) B	t	(3) B	t	(4) B	t
(Constant)	-0,018	-0,703	0,025	0,969	0,04	1,781	0,019	0,801
Delta Shareholder Wealth	0,207	3,471 ***						
Delta Sales			0,019	0,158				
Delta ROA					-0,002	-1,444		
Delta ROE							0,001	4,189 ***
Dummy	0,076	2,584 ***	0,044	1,552	0,039	1,515	0,065	2,425 **
Dummy*Delta Perf	-0,086	-1,223	0,129	0,997	0,006	2,848 ***	0,001	1,687 *
Adj R2	0,062		0,028		0,024		0,093	
F-statistic	9,139		4,44		3,652		12,028	
N	369		365		326		325	

Panel C: PPS total compensation

	(1) B	t	(2) B	t	(3) B	t	(4) B	t
(Constant)	127827,164	1,046	117576,997	0,858	159040,972	1,192	163122,443	1,222
Delta Shareholder Wealth	11,6	1,455						
Delta Sales			-12,0	-1,469				
Delta Net Income					1,7	0,202		
Delta Operating Income							-1,7	-0,062
Dummy	273713,473	1,993 **	351045,101	2,282 **	297875,842	1,983 **	310432,579	2,063 **
Dummy*Delta Perf	16,1	1,904 *	18,1	2,15 **	59,1	3,56 ***	39,4	1,288
Adj R2	0,22		0,031		0,052		0,029	
F-statistic	35,999		5,007		7,805		4,649	
N	373		373		374		374	

Panel D: PPE total compensation

	(1)				(2)				(3)				(4)		
	B	t			B	t			B	t			B	t	
(Constant)	0,079	2,212	**		0,12	3,123	***		0,12	3,605	***		0,1	2,8	***
Delta Shareholder Wealth	0,138	1,694	*												
Delta Sales					0,049	0,298									
Delta ROA									-0,001	-0,484					
Delta ROE													0,001	2,593	***
Dummy	0,01	0,253			0,06	1,406			0,076	1,986	**		0,107	2,619	***
Dummy*Delta Perf	0,434	4,547	***		0,142	0,774			0,01	3,24	***		0,001	0,852	
Adj R2	0,272				0,017				0,051				0,041		
F-statistic	47,206				3,104				6,815				5,602		
N	372				367				328				328		

5. Analysis

The indicator variable (*Dummy*) measures changes in the level of CEO compensation before and after the introduction of the Dutch corporate governance code. This variable is statistically significant in 12 out of 16 model specifications. The interaction variable (*Dummy*DeltaPerf*) is statistically significant in 10 out of 16 model specifications. In one of these cases (for the PPS of cash compensation) a negative relationship is found. In all other statistically significant cases the interaction variable is positive. These findings indicate that the PPS and PPE have changed significantly between the period 2002-2003 and 2004-2007. The PPS and PPE have increased in the latter period compared to the former.

The results on the PPS model for cash compensation are reported in panel A. The figures should be interpreted as follows. In the pre-Tabaksblat period (2002-2003) the CEO receives 6,5 eurocents extra per €1.000 increase in shareholder wealth. In the post-Tabaksblat period (2004-2007) the CEO received 4,2 eurocents less per € 1.000 increase in shareholder wealth. So, overall the CEO received 6,5 – 4,2 = 2,3 eurocents extra per €1.000 increase in shareholder wealth. The overall PPS of cash compensation amounts 1,4, 9,1 and 4,8 eurocents extra per €1.000 increase in sales, net income and operating income respectively. These figures are comparable with the findings of Mertens et al. (2007). These authors report a PPS for cash compensation of 2,7, 1,6 6,5 and 4,2 for each € 1.000 increase in shareholder wealth, sales, net income and operating income respectively. The results on the PPE model for cash compensation (panel B) show that the CEO receives in the pre-Tabaksblat period 0,207% extra cash compensation for a 1% increase in shareholder wealth. In the post-Tabaksblat period the CEO receives 0,086% less cash compensation for a 1% increase in shareholder wealth. However, this finding is not statistically significant. For the whole period 2002-2007 the PPE amounts then 0,2047 – 0,086 = 0,121. For sales, ROA and ROE the PPE amounts 1,155, 0,004 en 0,002. Again, these figures are in line with the findings of Mertens et al. (2007). The PPS and PPE of cash compensation have decreased after the introduction of the code Tabaksblat for delta shareholder wealth. This finding does not hold for the accounting-based measures. The results on the PPS model for total compensation (panel C) show that CEOs received in the pre-Tabaksblat period 11,6 euro cents total compensation for a €1.000 increase in shareholder wealth. In the post-Tabaksblat period the CEO receives 16,1 euro cents extra total compensation for each €1.000 increase in shareholder wealth. So, the PPS for total compensation amounts 11,6 + 16,1 = 27,7 euro cents for an increase in shareholder wealth of €1.000. The PPE relationship between shareholder wealth and total compensation (panel D) amounts in the pre-Tabaksblat period 0,138. The PPE has increased with 0,434 to 0,572 in the post-Tabaksblat period. The accounting-based measures do also show increases after the introduction of the Dutch corporate governance code.

Changes in the value of options and stocks contribute to a large part to the total PPS and PPE. The increase in the PPS and PPE for total compensation is mainly driven by the increased use of equity-based compensation in recent years in the Netherlands (cf. Swagerman and Terpstra 2007). For cash compensation, mainly driven by bonus, no large increases (even a decrease for delta shareholder wealth) are reported after the introduction of the code.

Although the results should be interpreted carefully due to the limited number of years that are compared, they suggest that corporate governance changes have improved the pay-performance relationship in the Netherlands. This is in contrast to the findings of Kaserer and Wagner (2004) for Germany and Girma et al. (2007) for the UK. However, the pay-performance relationship still remains weak compared to the US. Jensen and Murphy (1990) report a PPS of about 30 dollar cents for every $1.000 increase in shareholder wealth. The overall PPE measured by Hall and Liebman (1998) for US companies is ranging from 1,2 in 1980 to 3,9 in 1994.

The explanatory power of the PPS and PPE models that are used to investigate the strength of the pay-performance relationship is comparable to previous research. The limited overall explanatory power (Adjusted R2) has several reasons. In the first place, only financial performance measures are analyzed. Qualitative/individual objectives are not included in the regression analyses. As pointed out by Mertens et al. (2007) the ratio quantitative/financial versus qualitative/individual measures amounts in the Netherlands around 70%/30%.
Another possible explanation is given by Perry and Zenner (2001). This explanation is especially relevant for bonuses. Bonus is measured as a linear function of performance. In reality bonus-plans are fixed-target plans in which executives do not receive any payoff until they reach a lower bound of the performance measure. Between the lower and the higher bound, the bonus increases linearly with the performance measure. Beyond the higher bound and the maximum bonus, additional performance is not reflected in the bonus. Such features can reduce the explanatory power of the models.

Hypothesis 1, assuming a positive relationship between CEO compensation and company performance, and hypothesis 2, assuming a stronger relationship after the introduction of the Dutch corporate governance code in 2004, can not be rejected based on the empirical results presented in this paper.

6. Summary and conclusions

This study contributes to the growing literature on CEO compensation by analyzing data from the Netherlands. The timeframe 2002-2007 provides an interesting scenario for the Netherlands. The Dutch corporate governance system changed significantly during this period of time. An important development with respect to CEO compensation in the period has been the introduction of the Dutch Corporate Governance Code in 2004. Since 1998-2001, the research period of Duffhues and Kabir (2008), the level of corporate governance in the Netherlands has improved.

The available theoretical framework and previous empirical studies do not provide a clear-cut picture on the pay-performance relationship. On the one hand, the agency theory assumes a positive pay-performance relationship. On the other hand, the managerial power theory will not necessarily result in a positive pay-performance relationship.

The remuneration data of CEOs of a large sample of Dutch listed firms during the period 2002-2007 is analyzed. The strength of the pay-performance relationship has been investigated based on the PPS model of Jensen and Murphy (1990) and the PPE model of Hall and Liebman (1998). The sensitivity and elasticity of cash compensation (i.e. the sum of base salary and bonus) are mainly driven by delta bonus. Changes in the value of options and stocks contribute largely to the PPS and PPE of total compensation (i.e. the aggregate of cash compensation, options and stocks).

Although the results should be interpreted carefully, the data suggest that the Dutch corporate governance code, which took effect in 2004, had a positive effect on the pay-performance relationship. Compared internationally, the pay-performance relationship in the Netherlands remains relatively low.

This study is subject to several limitations. These limitations are mentioned in such a way that they can be addressed in future research.

First of all this research is only based on CEO compensation. In reality, firms are run by teams of managers. It may be interesting to extend the research with other members of the management board (e.g. Aggarwal and Samwick 2003).

Another limitation concerning the data is the relative small size of the sample and the limited time period for which compensation data are available (since 2002). This will result in a lower quality research compared to American studies like Hall and Liebman (1998). This study has focused solely on financial (accounting and market-based) performance measures. However, recent evidence indicates that companies make increasingly use of non-financial performance like for instance customer satisfaction and market share (e.g. Ittner et al. 1997; Banker et al. 2000). These non-financial performance measures affect CEO (cash) compensation as indicated by Davila and Venkatachalam (2004).

Endogeneity may be a problem in this study. Future research can use a simultaneous equation framework to mitigate the endogeneity problem.

Finally, stock option valuation is a major limitation of this study. Several more or less trivial assumptions had to be made in order to use the Black-Scholes formula to value stock options. The estimation of the value of stock options is not controlled for conditional compensation. Conditional compensation means that during the vesting period of the options several performance criteria have to be met and the actual number of options awarded depends on the extent to which the performance criteria are met. The conditionality can be based on the rank in a peer group, earnings per share, (relative) TSR, etcetera. Especially after the introduction of the Dutch corporate governance code (paragraph II.2.1 and II.2.3) in 2004 this conditionality is more common in compensation contracts in the Netherlands.

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Adaptive Communication as a Means toward better Performance

Can fit for purpose communication capability building activities help organizations in communicating to deliver strategy and to improve performance?

Mariska Schipper[1]

Executive Summary

The focus on the success factors for excellent performance has been growing in the last decades. One of the factors that is generally believed to have a positive relationship with organizational performance, is the internal communication process. Even though many practitioners and academics believe that there is a relationship between internal communication and organizational performance, there is little scientific evidence supporting this relationship. This study attempted to fill this gap in literature, by providing a definition on the concept of communication capability building and by empirically testing the existence of a relationship between communication capability building and organizational performance.

For the full text of this master thesis refer to the following webpage:
http://hdl.handle.net/2105/5446.

1. Introduction

1.1 Context

Nowadays we live in a world with extreme competitiveness, globalization, rapid technological developments, improved accessibility worldwide, economic liberalization, more and bigger acquisitions, and clients and citizens who have become increasingly demanding. Organizations are facing a tough world, though managers are still expected to deliver excellent results. They have to deal with trends and developments in a flexible manner, gain money out of it, while at the same time control costs, increase quality and service and satisfy stakeholders. Due to these developments, managers are keen to find

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[1] Master thesis Erasmus School of Economics, Department of Accounting, Auditing & Control. This study was supervised by drs. R. van der Wal. The author is currently studying Dutch Law at the Erasmus University Rotterdam.

out more about the characteristics that could lead their organization to better performance than their peer groups (De Waal, 2007).

Several authors have tried to identify factors that have a relationship with organizational performance. The influence of one of the aspects of management control systems that has not been examined very often is the impact of internal communication on performance. This seems extraordinary since the role of communication within in any organization cannot be overemphasized. A lot of organizational problems and conflicts arise from a lack of communication (Ogunsanwo, 1991). Internal communication is vital for the performance of any organization (Richmond, McCroskey & McCroskey, 2005), especially in the last decades, where managing communication has become increasingly complex due to technological changes and changed social practices.

1.2 Research Question
This research is an exploratory study to the influence of communication capability building on organizational performance. The study examines which aspects of internal communication, if at all, contribute to organizational performance. To this end, the following research question is formulated:

'Do the organizational communication capability building activities have a positive relation with organizational performance?'

Although there is no excess supply of literature on the process of communication capability building, there are some studies which provide evidence for a positive relationship between effective internal communication and organizational performance. The Watson Wyatt Worldwide Reports (2007/2008) revealed that effective organizational communication leads to superior financial performance. For that reason, I expect that the organizational communication capability building activities do have a positive relationship with organizational performance. This study attempts to provide evidence on which communication capability building aspects contribute to organizational performance. It is aiming at building knowledge, for the provision of knowledge to both academics and practitioners.

1.3 Outline
The remainder of this paper is organized as follows. The second chapter gives a brief overview of the theoretical framework used to structure this study, the Resourced Based View of the Firm. Also the two concepts of interest, communication capability building and organizational performance, will be discussed within this chapter. Chapter three contains the research design , followed by the results in chapter four. Finally, chapter five contains the conclusions for this study, limitations and suggestions for further research.

2. Prior literature

2.1 Resource Based View of the Firm
A possible framework that can be used for augmenting the conceptual analyses of communication capability effects on organizational performance is the Resource Based

View (RBV) of the firm. The RBV of the firm belongs to the research stream that believes that the fit of organizational characteristics with the environment determines organizational success. The organizational research paradigm suggests that managers of an organization can influence their employees in a positive way, and thus increase organizational performance, by taken into account factors as the formal and informal structure, planning, control, information systems, skills and the relation of these factors to the environment (Hansen & Wernerfelt, 1989).

Within the RBV, the organization is seen as a bundle of valuable resources, or in other words, a bundle of strengths and weaknesses (Wernerfelt, 1984). Caves (1980) defined resources more formally as the tangible and intangible assets which are tied semi-permanently to the organization. The RBV is relevant in the scope of this thesis because it offers an explanation for excellent organizational performance, by attributing superior performance to the organization's attributes and resources (Barney, 2001). Resources that are valuable, rare, hard to imitate and not-substitutable, can generate sustainable competitive advantage for organizations (Barney, 2001). Resources can include assets, knowledge, organizational processes and capabilities (Bharadwaj, 2000). Grant (1991) differentiates between resources and capabilities, Figure 1.
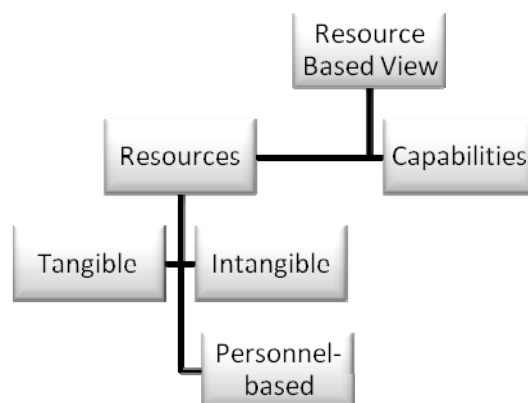
Figure 1 – *Grant's differentiation between resources and capabilities.*

By assembling the resources that work together to build organizational capabilities, organizations can create competitive advantage (Grant, 1991; Bharadwaj, 2000). Capabilities are defined in this setting as the ability of organizations to assemble, integrate and deploy valued resources, generally in combination of co-presence (Amit & Schoemaker, 1993; Schendel, 1994; Russo & Fouts, 1997; Bharadwaj, 2000). Valued resources refers in this context to 'the resources that are valued by the firm for their potential to contribute to competitive advantage' (Oliver, 1997, p. 701). Capabilities include organizational competencies which are embedded in the business processes and routines (Prahalad & Hamal, 1990). According to Grant (1991), capabilities are related to the capacity for a team of resources to perform certain tasks or activities. These capabilities 'involve complex patterns of coordination and cooperation between people, and between people and resources' (Grant, 1991, pp. 122). It is obvious that people are of main importance in communication processes.

Organizational communication is a process by which people stimulate meaning in the minds of other people in the formal context of an organization (Richmond, McCroskey

& McCroskey, 2005). Communication processes fit the definition of organizational capabilities of Grant, since communication involves coordination and cooperation between people and people and resources. Therefore the communication capability building process can be qualified as part of the organization's attributes and resources. When the organizational communication capability building activities increase the value of communicational attributes and resources, they should be able to attribute to organizational performance as well.

2.2 Organizational Performance

Organizations distinguish themselves from other systems by the primary orientation on goal attainment (Parsons, 1956). Usually the objectives of the organization are equal to the objectives of the owners of the organization (Zimmerman, 2006). For-profit organizations usually have the common objective of maximizing owner's equity, that is maximizing total profits.

Performance measurement models provide value for all the contracting individuals within the boundaries of an organization: owners, employees, suppliers, consumers and the community as a whole – figure 2. These models provide a framework against which the contracting parties can understand and evaluate their contributions and expectations (Atkinson, Waterhouse & Wells, 1997).

User	Purpose
Manager	Learning & Self-Improving
Lateral partners	Dynamic coordination of actions and continuous improvement
Supervisors	Create aggregated or corporate wide measures Monitoring subordinates Feeding reward system
All actors within an organization	Establishing a 'sense of belonging' Feed discussions for continuous improvement

External Stakeholders
  Shareholders
  Customers
  Suppliers
  The community
  Financial Institutions
  Regulatory Agencies
	Desire to know how well the organization is doing and how well the organization is likely to perform in the future

Figure 2 - *Organizational Stakeholders according to Lebas (1995, p.24)*

'Performance measurement is intended to produce objective and relevant information on program or organizational performance, that can be used to strengthen management and inform decision making, achieve results and improve overall performance, and increase accountability' (Poister, 2003, pp.4). The need for performance measurement is pointed out by an analogy to sport by Hatry (1978, pp. 28): 'Unless you are keeping score, it is difficult to know whether you are winning or losing'. Measuring performance makes it

possible to compare the organization's performance with its peer groups and it provides information with respect to the effectiveness of the organization's operations. Additionally it makes it possible to separate between 'success' and 'failure' which is necessary for the rewarding of 'success' and correction of 'failure' (Osborne & Gaebler, 1992).

Organizational performance can be measured by a broad variety of measures. Within this study, organizational performance is measured by 2 variables, Return On Assets [ROA] and the Ratio of Revenues to Expenses [RRE]. Both variables are financial ratio's. Financial ratios are frequently used for analyzing purposes for their ability to control for the effects of size differences over time and across different organizations (Foster, 1986). Since a broad variety of organizations have participated in this study, it was important to choose two variables who could give a reliable reflection of organizational performance in all kind of organizations. The measures should be able to reflect performance of both profit and nonprofit organizations.

The first measure, ROA, is a measure of actual financial performance. This popular measure for performance is related to the economic aspects of organizational performance (Ansoff, 1965; Bourgeois, 1980; Gale, 1972; Dess & Robinson, 1984). Hax et al. (1984), found similar results, ROA is most widely used in profitability analyses. ROA indicates how profitable an organization is relative to its total assets. It provides information with respect to the effectiveness of management's use of invested capital – assets – in order to generate profits. Even though non-profit organizations do not have profit-related objectives, ROA still can be used to assess performance in these organizations (Barros & Nunes, 2007).
ROA is calculated as the ratio of earnings before interest and taxes to total assets. (Core et al., 1999; Barros & Nunes, 2007)

$$ROA = \frac{\text{Earnings Before Interest and Taxes}}{\text{Total Assets}} \times 100\,\%$$

The second variable for organizational performance is most often used in nonprofit organizations, but is applicable to profit organizations as well. RRE is calculated as total revenue divided by total expenditures (Siciliano, 1996, 1997; Brown, 2005).

$$RRE = \frac{\text{Total Revenues}}{\text{Total Expenditures}} \times 100\%$$

The second measure for organizational performance, RRE, is chosen for balancing reasons. ROA is a measure often applied in profit organizations, RRE is a measure often applied in non-profit organizations.

2.3 Organizational Communication
Organizational communication can be defined as:

'{...} organizational communication [is] the process by which individuals stimulate meaning in the minds of other individuals by means of verbal or nonverbal messages in the context of a formal organization.' (Richmond, McCroskey & McCroskey, 2005, p.20) Organizational communication can be divided in external and internal communication. The focus in this study will be on the internal communication processes, communication within the organization. Internal communication is the two-way communication that takes place within a company and flows into two directions, horizontal and vertical (Richmond, McCroskey & McCroskey, 2005).Vertical communication takes place between hierarchical positioned people, and involves both upward and downward information flows (Baker, 2002). Horizontal, or lateral communication, involves communication between people who do not stand in a hierarchical relation with each other (Baker, 2002).

Organizational communication has become increasingly important for overall organizational functioning and performance (Baker, 2002). One of the reasons for this is the direct contribution of organizational communication to organizational and employee learning, which is qualified as an critical factor for competitive advantage (Gargiulo, 2005).Due to the enormous challenges offered by worldwide competition, there is an increasing mandate to reduce the barriers of understanding for managing these enormous challenges (Jackson, 1993; Porter, 1990; Thurow, 1992; Tyson, 1992). Organizational communication can decrease barriers of understanding, so that knowledge can flow throughout the organization. Knowledge establishes the basis for efficiencies and competitive advantage (Tucker, Meyer & Westerman, 1996).

Organizations are also confronted with changes that made organizational communication both more complex and more important to the overall performance of organizations. Work has become increasingly complex and requires more interaction and coordination among employees. Additionally, the pace of work has become faster and workers are more distributed.

Another major change that is observable in organizations is that organizations have become more multicultural. That implies that organizations are more diverse in terms of gender, race, ethnicity and nationality than in the past (Cox, 1991). Part of this development generates substantial potential benefits for organizations, such as more creativity and innovation, improved decision making, and more flourishing marketing to different groups of customers. However, there are also potential costs involved with multicultural organizations, like interpersonal conflicts and communication breakdowns (Cox, 1991). Research found evidence for a negative relation between demographic diversity and communication effectiveness (Triandis, 1960; Lincoln & Miller, 1979). This implies that when the members of organizations become more dissimilar, the communication process becomes more complex.

2.4 Communication Capability Building
Organizational capabilities are the collective abilities of an organization to execute its strategy. In other words, the things a business has to do very well (Shaffer, 2008). Communication management is also a capability and it refers to the entire organization's capability to manage the communication system. Organizations should create the space,

opportunity and capability needed for people across the organization to make meaningful connections with each other, small or large.

Communication Capability Building is a rather new concept, there still is a lack of literature on this subject. For that reason, there is no clear definition on this concept available from literature. Together with Lindsay Uittenbogaart, president elect of de Dutch branch of the International Association for Business Communicators, I propose the following definition: 'Organizational Communication Capability Building is the creation of a 'connectivity support framework', consisting out of 10 inter-woven aspects:

1: Value and priority of communication
2: Organizational communication learning resources
3: Commitment of onboard staff to learning resources
4: Single fit-for-purpose knowledge sharing tools
5: Single fit-for-purpose content feedback methods
6: Collaborative team-working tools and practices
7: Social Media strategy
8: Recognition and encouraging of parallel communication role concept
9: Reward and recognition incentives
10: Regular 'cascade routine'.

A formative model is used to operationalize the concept of organizational communication capability building – figure 3.
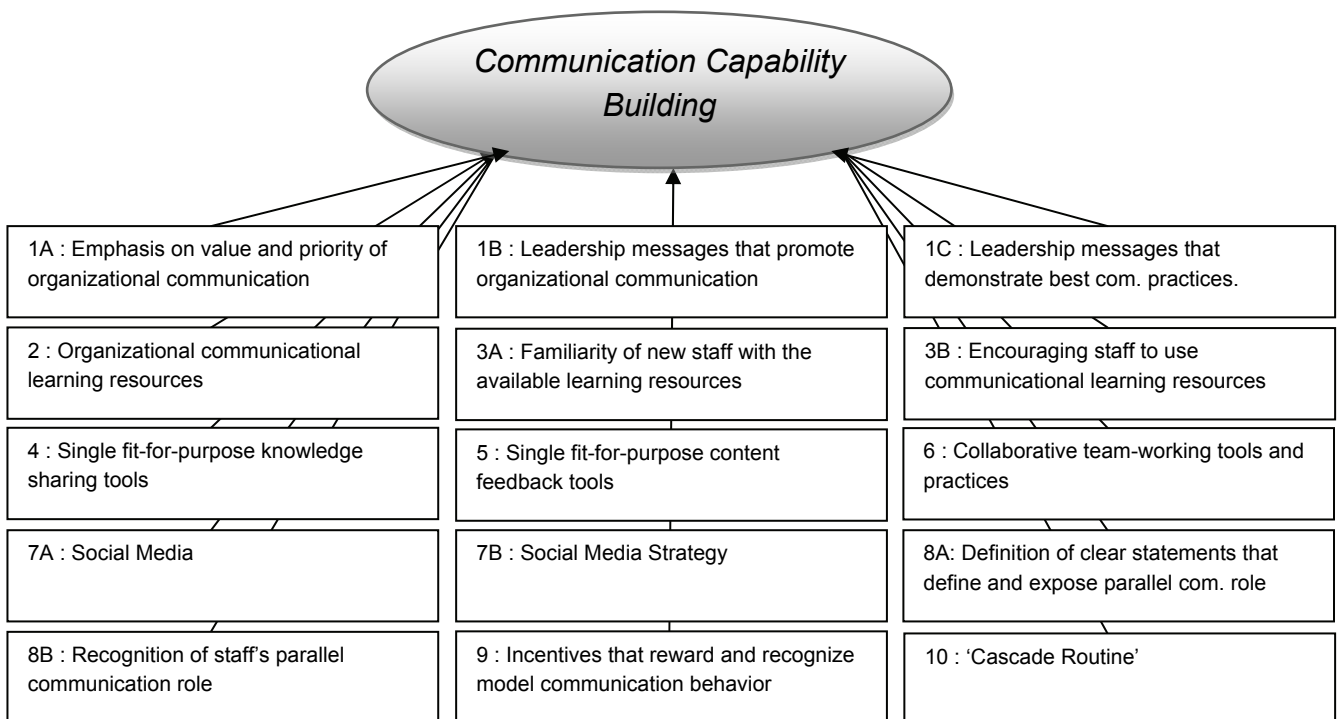
Figure 3 – *Formative Model Communication Capability Building*

Formative models are causal indicator models (Bollen, 1989; Bollen & Lennox, 1991). This implies that the direction of causality is from the different aspects to the construct of communication capability building. These aspects, which are indicators of the construct, define the characteristics of communication capability building. The observable indicators A1A – A10, are separate aspects that define the unobservable construct communication capability building. When there is a change in the indicators, a change in the construct itself will be caused as well.

3. Hypotheses setting and research design

3.1 Hypotheses

Tucker, Meyer & Westerman (1996) argue that organizational communication systems have a direct relation to financial performance and competitive advantage. The Watson Wyatt Worldwide Rapport: 'Secrets of Top Performers: How companies with highly effective employee communication differentiate themselves (January, 2008), found similar results; organizations that communicate effectively are four times as likely to report high levels of employee engagement in comparison with organizations that communicate less effectively. The same report showed a direct relation between communication and performance as well. One of the key findings of this rapport is that effective employee communication is a leading indicator for financial performance. The study amongst 264 participants worldwide revealed that a significant improvement in communication effectiveness is associated with a 15.7% increase in market value.

To test empirically whether the identified communication capabilities have a relationship with performance as well, several hypotheses are formulated – figure 4.
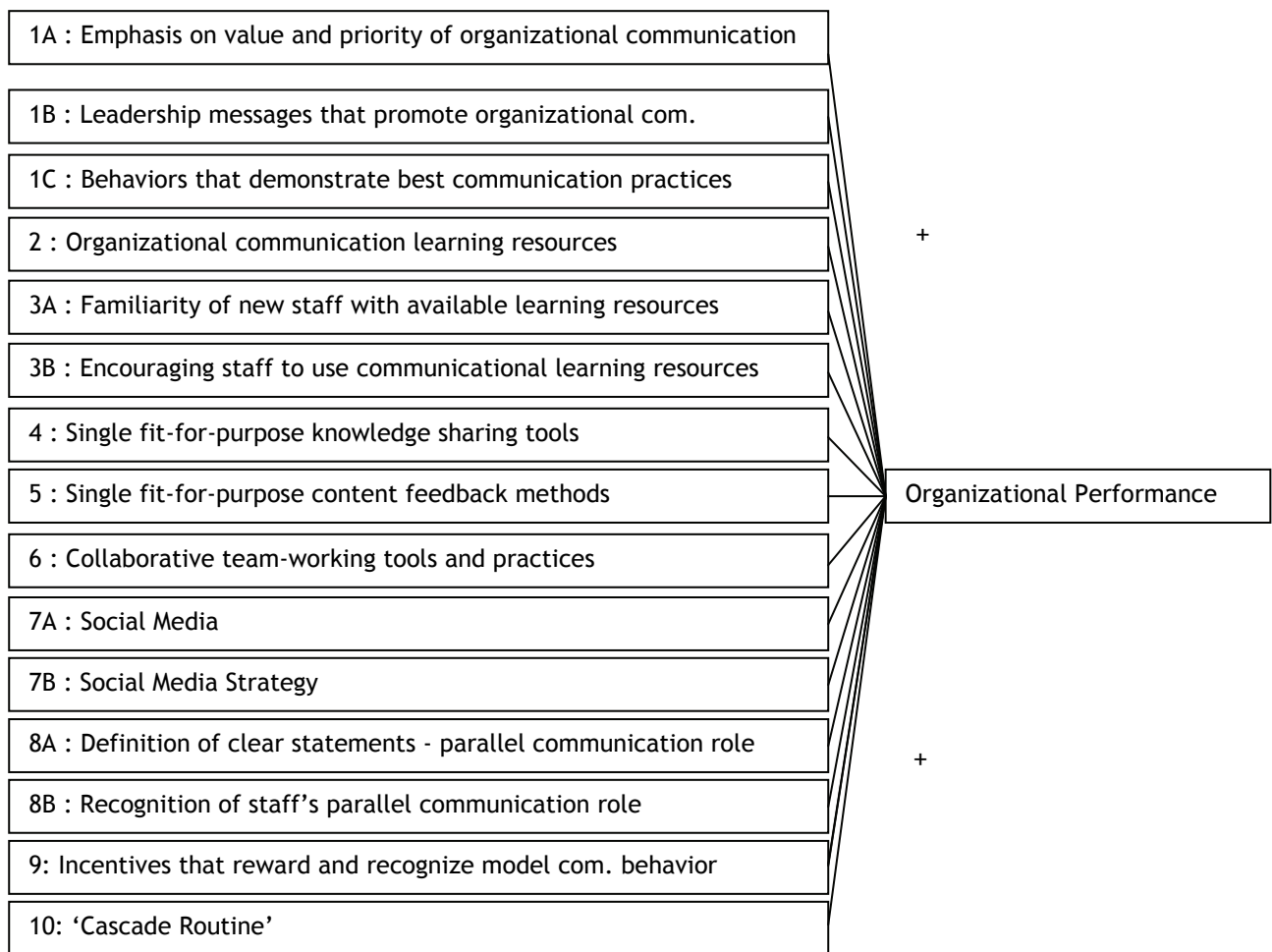
Figure 4 – *Hypotheses*

Because it is believed that communication has a positive influence on performance, I expect that the different communication capabilities, presented in Chapter 2 as valuable resources of organizations, are positively related to performance.

3.2 Research Design

This study can be qualified as a theory building, exploratory study on the relationship between communication capability building and organizational performance. The objective of this study is providing evidence on this not very often studied subject, by empirically testing this relationship.

Libby's Predictive Validity Framework for describing hypotheses testing processes and for explaining the determinants of internal and external validity of a research design is used to present the constructs of this study (Libby et al., 2002) – figure 5. The top part of this figure shows the conceptual level in which theory identifies the constructs of communication capability building and organizational performance. Link 1 represents the relationship between the two constructs and is the specification of the research question of this paper.
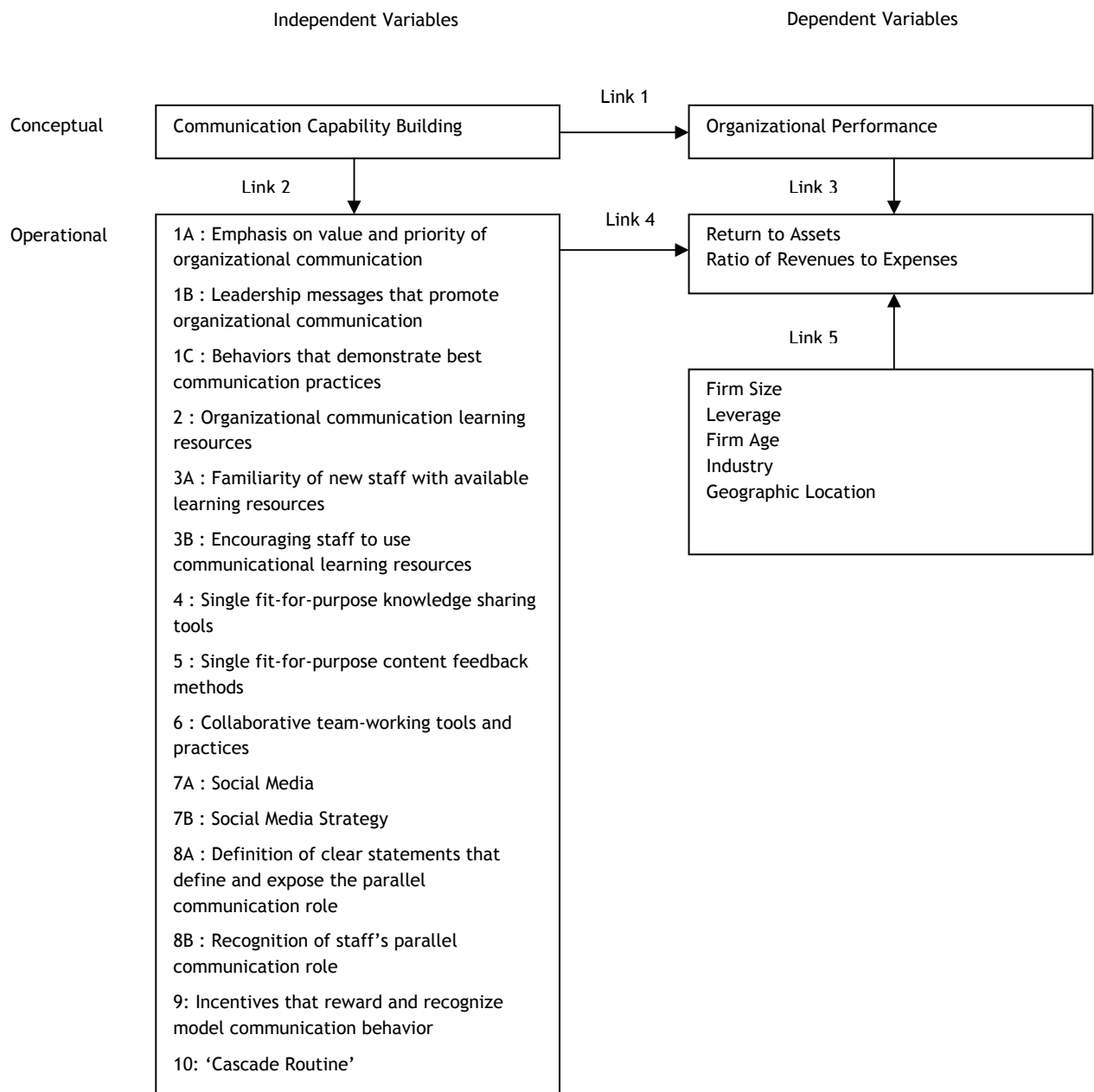
Figure 5 - *Predictive Validity Framework*

The research moves from the conceptual to the operational level by the translation of the constructs into operational variables that measure the variability that is associated with the constructs of the research (Bisbe et al., 2007). Link 2 relates the construct communication capability building to the independent operational variables, the communication capabilities. Link 3 relates organizational performance to the dependent operational variables, ROA and RRE. The theory will indirectly be tested by the collection of data that will be subjected to statistical methods. Link 4 tests the consistency of the data with the predicted relationships between the 2 constructs by performing a multiple regression on the variables.

However, there are also other factors which might affect the dependent variable besides the explanatory variables (link 5), for this reason there will be controlled for 5

control variables. The control variables will be included in the regression equation as independent variables. The control variables industry and geographic location are dummy variables. The variable industry represents the different types of organizations included in this study: financial institution, manufacturing organization, service organization, commercial organization, foundation, association and governmental organization. Since the participating organizations were located in different countries, a broad separation was made by dividing them into the categories: Africa, Australia, Canada, Europe and United States of America, to control for the influence of geographic location on organizational performance.

The research method applied in this study is a survey, which employs a standardized approach for the collection of information from organizations to make inferences for the entire population (Birnberg et al., 1990). This empirical research method is applied because it can assist in gathering evidence in exploratory studies and because of the potential of a big response group, which can increase the generalizability of this research.

      The data is gathered by sending questionnaires randomly to members of the International Association for Business Communicators (IABC). I used the survey-tool of the IABC for the support it can offer in the collection of enough data. The IABC consists out of a network of almost 16.000 business communicators in over 70 countries. This implies that all of the respondents are not only interested in communication, they also have functions that are highly related to communication. Additional knowledge on communication related subjects is an advantage, since some of the concepts on communication capability building are rather complex, and hard to understand for employees who are not interested in communications.

      This anonymous questionnaire includes questions on the presence of communication capabilities, organizational performance and some control variables. The presence of the communication capability building aspects within organizations will be measured by the use of a graphic continuous line segment from 0,0 to 100,0 (Russel & Bobko, 1992).

0   100

Respondents must indicate how much they agree with the statements by imagining a mark and translating that mark on the line into a percentage. When they think that their answer is in the middle, they should score approximately 50%, while when they feel that their answer falls mainly on the right hand side of the line, they could fill in 73%, 81% and so on.

3.3 Research model

To test the hypotheses formulated in 3.1, a multiple regression model will be applied.

Y_i {**ROA / RRE**} = α0 + ß1 **Aspect1A$_i$** + ß2 **Aspect1B$_i$** + ß3 **Aspect1C$_i$** + ß4 **Aspect2$_i$** + ß5 **Aspect3A$_i$** + ß6 **Aspect3B$_i$** + ß7 **Aspect4$_i$** + ß8 **Aspect5$_i$** + ß9 **Aspect6$_i$** + ß10 **Aspect7A$_i$** + ß11 **Aspect7B$_i$** + ß12 **Aspect8A$_i$** + ß13 **Aspect8BA$_i$** + ß14 **Aspect9$_i$** + ß15 **Aspect10$_i$** + ß16 **SIZE$_i$** + ß17 **LEV$_i$** + ß18 **AGE$_i$** + ß19 **FIN** + ß20 **MANU** + ß21 **SERV** + ß22 **COMM** + ß23 **FOUND** + ß24 **GOV** + ß25 **AFR** + ß26 **AUS** + ß27 **CAN** + ß28 **EUR** + ß29 **USA** + ε$_i$

Independent Variables:
Aspect x = Aspect x for organization i, measured by the score on a continuous line segment from 0,0 to 100,0.
Control Variables:
SIZE$_i$ = The size of organization i, measured by the natural logarithm of total assets.
LEV$_i$ = Debt leverage of organization i, measured as the ratio of long term debt to total assets.
AGE$_i$ = The age of organization i, measured by the natural logarithm of the number of years since the organization's interception.
Industry
FIN = Dummy Variable: Organization i is a financial institution = 1, otherwise 0.
MANN = Dummy Variable: Organization i is a manufacturing organization = 1, otherwise 0.
SERV = Dummy Variable: Organization i is a service organization = 1, otherwise 0.
COMM = Dummy Variable: Organization i is a commercial organization = 1, otherwise 0.
FOUND = Dummy Variable: Organization i is a foundation or association = 1, otherwise 0.
GOV = Dummy Variable: Organization i is a governmental organization = 1, otherwise 0.
Geographical Location
AFR = Dummy Variable: Organization i is located in Africa = 1, otherwise 0.
AUS = Dummy Variable: Organization i is located in Africa = 1, otherwise 0.
CAN = Dummy Variable: Organization i is located in Canada = 1, otherwise 0.
EUR = Dummy Variable: Organization i is located in Europe = 1, otherwise 0.
USA = Dummy Variable: Organization i is located in United State = 1, otherwise 0.
ε$_i$ = Error Term

4. Results

4.1 Average score on communication capability building aspects.

Before I could run the regression I first had to check whether I had to omit some of the variables out of the research model. The first test I applied to the data was the calculation of the average score on the communication capability building aspects. If there were aspects that scored a value of zero on average, they should be omitted since they clearly wouldn't reflect the communication behavior of organizations. Figure 6 summarizes the average scores
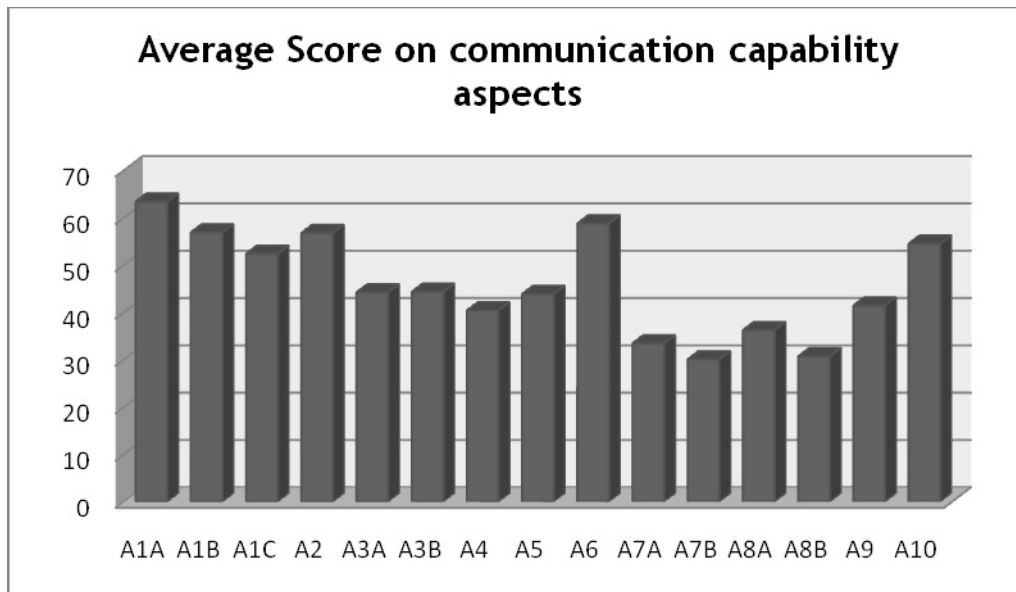
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Figure 6 – Average score on communication capability building aspects

The mean scores on the aspects are all above zero. The smallest score is the score on the aspect related to the social media strategy, with an average score of 30,08. These results indicate that there is no reason to omit one of the communication capability building aspects of the research model.

4.2 Difference in score between profit and nonprofit organizations

Since there were both profit and nonprofit organizations included in the sample group for this study, it is relevant to test whether there is a significant difference in the mean scores on the communication capabilities between the profit and nonprofit organizations.

Aspect	Content	Profit	Nonprofit
1A	Value and priority of communication;	65,91	57,84
1B	Leadership messages that promote best practice communication;	60, 68	48,45
1C	Leaders demonstrating best practice communication behaviors;	55,52	45,32
2	Learning Resources;	55.30	60,00
3A	Familiarity of new staff with available communicational learning resources;	42,43	48,16
3B	Encouraging staff to use the communicational learning resources	44,49	43,97
4	Single fit-for-purpose knowledge sharing tools	41,42	38,13
5	Fit-for-purpose feedback methods	47,10	36,68
6	Collaborative team-working tools and practices	58,59	59,16
7A	Social Media	34,78	30,51
7B	Social Media Strategy	32,22	25,32
8A	Staff recognizes their parallel communication role	36,78	35,06
8B	Presence of clear statements that define and expose the parallel communication concept	32,77	26,06
9	Reward and recognition of model communication behavior	42,28	39,61
10	Regular 'cascade-routine'	58,42	45,81

Table 1 – Average score on communication capabilities profit and non-profit organizations.

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As visible in the table, the average scores for profit and non-profit organizations seem to be more or less equal. Furthermore, it seems that profit organizations score a bit higher on the aspects, since profit organizations score higher on 12 out of 15 aspects. Remarkable are the aspects 1A, 1B, 1C and 10, there is a significant difference between the scores on these aspects. For that reason I applied an additional test by comparing the means on the two independent groups (profit and non-profit) statistically. Levene's test for equality of variance and an independent sample t-test revealed that there is a significant indication that profit and non-profit organizations score the same on most aspects of communication capability building. The results were significant, except for the aspects 1B and 1C. These results however can only give an indication, since the response group of 100 used in this test is rather small, and since the distribution of profit and non-profit organizations in the response group is not equal, respectively 69 and 31.

Even though it is still possible to conclude that at least there is an indication of equality between the scores of profits and nonprofits. I conclude that there is a significant indication that the mean score on aspects 1A and 2 till 10 is equal for profit and nonprofit organizations, and that the mean score on aspects 1B and 1C is not equal for these two groups.

4.3 Difference in scores on ROA and RRE

I also had to test whether the profit and non-profit organizations scored differently on the two performance indicators used within this study – ROA and RRE. The results of Levene's test for equality of variances and an independent sample t-test indicated that there is a difference in score on the organizational performance indicators. The control variable industry controlled for these differences by including two categories, governmental organizations and foundations / associations, who made up 97% of the total amount of nonprofit organizations included in the sample.

4.4 Multicollinearity

After an extensive correlation and multicollinearity analysis I had to conclude that the statistical phenomenon of multicollinearity was present within this model. Multicollinearity is a special case of correlation. A high correlation between the independent variables in a multiple regression makes the identification of the individual contribution of each variable in predicting the dependent variable difficult. In the case of multicollinearity the independent variables predict the same variance in the dependent variable. When multicollinearity increases, the standard errors for the independent variables become larger. As a consequence of this, the overall p-value for the model may be significant while the p-values for the predictor variables are not significant. The presence of multicollinearity does not imply that the model is useless, since the assumptions of ordinary least squares are not violated by multicollinearity.

I applied a correlation analysis, a tolerance and VIF value analysis and an analysis of the eigenvalues to detect the presence of multicollinearity. After these tests it was clear that the model had to be adjusted. Multicollinearity seemed to be present within the following couples of aspects: 1A-1B-1C, 3A-3B, 7A-7B, 8A-8B. Therefore I combined the aspects into the variables 1, 3, 7 and 8. Before the three sub aspects could be transformed into one

index variable, first it had to be determined whether the sub aspects measure the same aspect. Items can only form one scale when they measure more or less the same thing, the items should be highly correlated with each other (Bland & Altman, 1997). A coefficient for addressing the internal consistency between items is Cronbach's alpha. Cronbach's alpha is an index for reliability that determines the internal consistency of the items applied in a questionnaire for research purposes. The value of Cronbach's α indicates the degree in which the items measure the same concept. The coefficient of Chronbach's alpha was high for al the couples of aspects, so I could combine them into the following 4 index variables:

Variable 1 :   Recognition of and emphasis on the value and priority of organizational communication has a positive relationship with organizational performance.

Variable 3:   Commitment of all onboard staff to the available communicational learning resources has a positive relationship with organizational performance.

Variable 7:   The use of social media has a positive relationship with organizational performance.

Variable 8:   Staffs' recognition of their parallel communication role has a positive relationship with organizational performance.

The last adjustment that had to be made to this research model was the elimination of the control variable SIZE. When SIZE would have been included in the model, the constant in the regression equation would mainly be determined by this control variable. The results of a new multicollinearity analysis revealed that there was no indication for multicollinearity after the adjustments were made to the model.

4.5 Multiple Regression

4.5.1 Assumptions

A multiple linear regression can only be applied when the assumptions inherent to this regression are not harmed. This assumptions are: linearity, normality, homoscedasticity and reliability. The first assumption is that the relationship between communication capability building and organizational performance is linear. Although it is not possible to confirm this assumption in the real world, it is possible to produce a scatter plot to make sure that an evident curvature in the data is absent. One of the methods to detect non-linearity is examination of the residual plots (Pedhazur, 1997). In SPSS a plot is made of the standardized residuals as a function of the standardized predicted values. The plots for ROA and RRE suggest that it is admissible to assume a linear relationship between the independent variables of the model and organizational performance. The second assumption of multiple linear regression is the assumption of normal distributions of the variables included in the model (Moore et al., 2003). Variables that are non-normally distributed can cause distortions in relationships and significance tests. To check whether the variables are normally distributed, Q-Q plots were made for each variable included in the research model. Non of the Q-Q plots gave reasons to doubt the applicability of the linear regression model. The assumption of homoscedasticity refers to the variance of errors. The variance of errors should be the same for all levels of the independent variables. According to Tabachnick and Fidell (1996), small heteroscedasticity does not have a serious impact on significance tests. Remarkable heteroscedasticity however can

lead to serious distortions in the findings of the regression. To examine whether the assumption of homoscedasticity is valid in this context, a plot of the standardized residuals (*ZRESID) against the standardized predicted values (*ZPRED) is made. The residuals in the plots made to test homoscedasticity seem to be completely random, so the assumption of homoscedasticity was applicable to this research model. The last assumption is reliability. The model must be reliable, which means that the model must be consistent. The regression equation must give similar results for the same organizations over time. Cronbach's alpha determines the reliability of the independent variables included in this model. The tests indicated that the reliability assumption for multiple linear regression was also satisfied.

4.5.2 Hypotheses
To test whether there is a relationship between the communication capability building aspects and organizational performance, the following null hypothesis is tested:

H0 : There is no relationship between the independent variables and organizational performance.

The null hypothesis states that the fit of the observed values of the dependent variable to those predicted by the multiple regression is not better than could have been expected by chance.
 The null hypotheses above can be separated into two hypotheses, since there are two dependent variables measuring the concept of organizational performance, ROA and RRE.

H01 : There is no relationship between the independent variables and ROA.
H02 : There is no relationship between the independent variables and RRE.

Next to the null hypotheses concerning the entire regression equation, there are also null hypotheses for each independent variable. These null hypotheses state that adding the independent variable does not improve the fit of the regression equation to any further extent than would have been expected by chance.

H0 i : Variable i does not explain the variations in organizational performance beyond the variation explained by the other variables included in the model.
With i = independent variables included in the model.

4.5.3 Results of the regression
The results of the regression equation indicated that at best it is possible to say that there is a slight indication for a relationship between communication capability building and organizational performance, since the overall regression equation of the independent variables with ROA was significant. The individual contribution of the communication capabilities and the sign of the relationship with organizational performance can not be determined since the parameters reported for these independent variables all lacked significance. The insignificant results on the independent variables are most likely caused by multicollinearity problems, which imply that all the results should be interpreted with

vigilance. The regression on RRE indicated that there is no relationship between communication capabilities and organizational performance at all, since the overall significance of the regression equation and the independent variables relating to communication capability building were all highly insignificant. The different conclusions for the regression analysis with ROA and RRE point out that the results are also subject to the choice of the dependent variables measuring the concept of organizational performance. The overall conclusion is that there is an indication of a relationship between communication capability building and organizational performance, but that the results indicate that this relationship is very weak. Also the contribution of the individual aspects is undetermined, since they all were negative. This would imply that they do not contribute at all, but since the overall regression equation with ROA was significant, it is possible to conclude that the independent variables might contribute, but how and how strong these relationships are can not be revealed by this study.

5. Conclusions

The results of the multiple linear regression analysis are used to formulate an answer on the research question:

'Do the organizational communication capability building activities have a positive relation with organizational performance?'

The regression with ROA indicated that there is a slight significant relationship between the total concept of communication capability building and organizational performance, since the adjusted R-square amounted approximately 16%. This result however should be interpreted with caution since the contribution of the individual communication capability building aspects to this relationship cannot be determined since they are all highly insignificant. The results on the regression with RRE revealed no relationship at all. The answer on the research question of this study would be:
'No, there is no relationship between the communication capability building activities and organizational performance'.
Based on the regression with ROA there is some indication that there might be a relationship between overall organizational communication capability building and organizational performance, but the direction and the strength of the relationship with the individual communication capability building activities are undetermined.

Combining the results from the two regressions leads to the conclusion that the results should be interpreted with great caution, since the two performance measures gave different results. The overall model with ROA was significant, except for the individual contributions of the communication capabilities, while both the overall model with RRE as the individual contributions of the communication capabilities were insignificant. This relationship must be studied more in dept to draw any valuable conclusions.

The answer on the research question however might also be influenced by the limitations of this study. First the research does not include the relationship between communication

capabilities and organizational performance for a period of years. As a consequence, results may be biased because of extraordinary performances of organizations. Especially in these times, where the global economic crisis is affecting the results of all organizations.

Another important shortcoming is related to the multicollinearity problem. The presence of multicollinearity after the adjustments is assumed since the overall regression equation for the relationship between the communication capabilities and organizational performance was significant, while the individual contributions of the variables could not be determined since they lacked significance.

Moreover, the results may be biased as a consequence of the relative small sample group included in the study. Also the sample selection might have impacted the results.

The presence of both profit and nonprofit organizations in the response group might have altered the results of the study as well.

Specification errors with respect to the concept of communication capability building and the performance measures chosen to define the concept of organizational performance might have had an influence on the results.

The unclear results of the regression analysis and the various limitations however do not imply that this study is of no value. The contribution of this thesis to current literature is mainly attention directing. This thesis deals with a topic that currently did not received attention from academics. This study might perform as a starting point for future research to provide clear answers on the existence of a relationship between the communication capability building activities and organizational performance, as well as on the strength and direction of the relationships with the individual communication capabilities.

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Managing Performance of the Offshored Services

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Executive summary: this paper will provide a short summary of a bigger research work that was performed to: 1. to develop a management tool that would enable the management of offshore operations to increase the efficiency and effectiveness of the offshored services, 2. to test this tool empirically. The research was started as a result of real-life observations that pointed out high management dissatisfaction with offshore counterparty performance, especially where it concerned less structured activities. This paper, therefore, will address the current flaws in the observed performance management framework, and it will propose a new approach that will address observed inconsistencies in current approach.

For the full text of this master thesis refer to the following webpage: http://hdl.handle.net/2105/4969.

1. Introduction

The topic for this paper was formed as a result of real-life observations at a big financial organization that had offshoring practices in different areas of operations, from IT to Financial and Management Accounting. The first observations pointed out that the less structured and organized the offshored activities are, the less satisfied is the onshore party with offshore counterparty's performance. Furthermore, this dissatisfaction was not expressed in formal evaluations, which implied that the daily work was performed satisfactorily by offshore counterparty. The main problem seemed to be the discrepancy between what was measured and evaluated and what management expected from offshore counterparty.

The existing literature on the management of the offshore services at the time was also confirming the initial findings by citing the following statistics. The actual savings on labour costs for financial firms in 2008 could range from 20% to 70%, depending on the effectiveness of the management of the offshore services (knowledge@emory, 2008). Another citation from sandhill.com (2007) states "many sourcing deals that underperformed have been effectively diagnosed to have had weak and ineffective governance processes and structures". Unfortunately, the remedies that the articles provided were mostly based on "best practices" and not on a rigorous scientific research.

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Another problem was that very often different parts of the overall offshoring strategy would be addressed without explaining how a remedy for that particular part would fit in the overall offshoring strategy of the firm. For example, one frequently cited tool that would help to manage offshore services better was "more communication". However, more communication also means more costs and more effort and, therefore, it does not necessarily fit in the overall approach of a firm. Therefore, the all-inclusive guidance was required for the management of the offshored services to address challenges in this area.

The all-inclusive approach that will be analyzed in this paper is referred to as "performance management framework (or PMS)". The main research question that is to be answered at the end of this paper is "How performance management system for offshore operations should be structured in order to increase efficiency and effectiveness of offshore operations?" To answer this question the following steps will be performed next.

In part one a theoretical research will be done to explore the previous works in this area and to see how other works can contribute to the topic of this paper. This research will de done for different part of the performance management system and it will address the following questions: 1. Overall offshoring strategy, 2. What to offshore? 3. How to control offshore activities? 4. Offshoring approach in time perspective. All questions will be consistently approached from 3 different perspectives: transaction-based economics (TCT), resource-based view (RBV), and trust-based view. All three views try to explain how to minimize the threats of opportunistic behaviour, information asymmetries, and uncertainty while planning and executing on offshoring strategy.

The end-result of theoretical research will be a development of a management tool, performance management system for the offshored services. This system will integrate different parts of PMS that are described in part one. Next, PMS framework will be tested high-level using the financial firm where the initial real-life observations were done. The overall approach to this test as well as sample choice and research design will be elaborately discussed in part two of this paper. The goal of this qualitative test is to get the first impression on how real-life cases are reflected in the created framework, and what type of analysis can be performed based on this framework.

The results of the empirical research will be presented in part three, and part four will follow with a detailed analysis of the results. The results will be compared with the initial expectations that are documented in the developed PMS framework. Any deviations from this framework will be highlighted and elaborately discussed. Finally, in section five of the paper conclusions and recommendations will be made. Conclusions and recommendations will be addressed to the financial firm that is subject to the case study.

Next, a theoretical research on performance management system for the offshored services is presented.

2. Prior literature

The research in offshoring area in prior literature concentrates around three main perspectives: transaction cost theory (TCT), resource-based view (RBV), and trust-based view. The research in these areas will be used in this section to analyze how it impacts different components of performance management framework for offshore services: overall strategy, activities, governance structure and controls. Next, conclusions will be drawn on how this research can be used to create a cohesive performance management tool for offshore services. Finally, a performance management framework for offshore services will be developed at the end of this section based on prior research.

2.1 Offshoring strategy

Offshoring strategy sets the overall direction regarding offshoring practices and provides an overall guidance for a firm on how these practices should be managed, measured, and evaluated. Operational objectives, performance measures, and control mechanisms should all be traceable back to the overall strategy and business objectives. This section will describe what basic offshoring options are available to firms and what trade offs, in terms of risks and benefits, are considered when setting the overall offshoring strategy.

A choice for a certain mode of operation depends on management perceptions regarding the following offshoring benefits (Kedia & Mukherjee, 2008)
- *Disintegration advantages*, which are achieved by unbundling of activities from the value chain vis-à-vis integrated firms serving in the same industry.
  These advantages include reduced coordinating costs; better focus on core capabilities; increased flexibility, speed, and responsiveness due to modular structure
- *Location*. Assuming condition one is satisfied, it must be more advantageous for a firm to procure resources from outside the country to perform certain functions then executing the same in the country.
  The advantages include labour, time, and knowledge arbitrage; country level advantages in terms of, for example, economic deregulation and liberalization
- *Externalization.* Assuming condition two is satisfied, it must be more advantageous for a firm to externalize those functions to foreign providers or internalize those functions to be performed in-house in the foreign land by setting up centre.
  The advantages include co-specialization and organizational learning and reduced costs by tapping into specialized supplier capabilities

Offshoring risks relate to foreign country risks and to the flaws of imperfect markets that give rise to adverse selection and moral hazard within offshore transactions.
- *Adverse selection* refers to the situations where bad offshore agent is selected by accepting lower fees in the markets where perfect information about agents and agent pricing is not available to the principals
- *Moral hazard* refers to the situations where offshore agent has more information about actions and the results of those actions than the principal. This can lead to opportunistic behaviour from agent side when the interests of principal and agent

are not perfectly aligned and agents' actions cannot be perfectly monitored by the principal

Finally, the operational risks also increase when operating from offshore location. Operational risks arise when tasks are achieved with less efficiency and quality than onshore. This can be due to either transitional phase in offshoring strategy execution or the limitations of communication transmission system, presence of cultural gap, or geographical separation.

Kedia and Mukherjee (2008) use the following framework to show and describe how firms make a decision with regards to offshoring strategy and a mode of operations based on above described considerations.
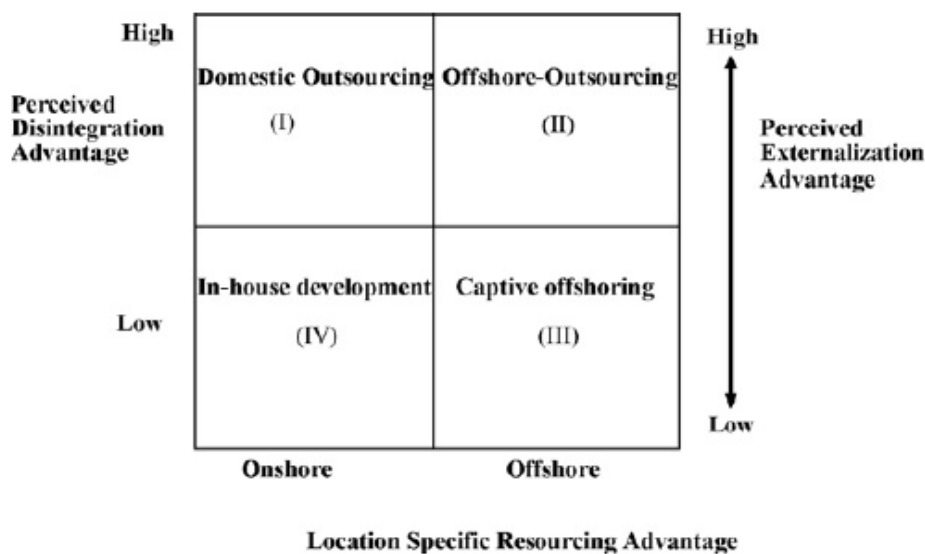
Fig. 2. A DLE explanation of different sourcing models.

Firms that strive for offshoring advantages in terms of co-specialization and organizational learning and that are less concerned with loss of control or operational inefficiencies will chose for either domestic (I) or offshore outsourcing (II). It will give these firms the possibility to focus on their core capabilities and to increase their competitiveness through increased service and/or product quality, and decreased time to market for their products or services. Firms that go for domestic option (I) in this case will consider the risks of having operations in foreign country higher that the advantages that foreign location has to offer.

Quadrant I and IV represent offshore bystanders that can either have domestic mindsets or lack of experience in managing from distance (Carmel & Agarwal, 2006). Some other reasons could be that these firms do not have a more demanding skills challenge at home, or they operate in an industry that is characterized by non-differentiated products (Boyer, 2007). It can provide firms with sustainable competitive advantage and remove the incentive to gain this advantage by tapping into global opportunities.

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Finally, quadrant III, which refers to the case study in this research, represents firms that are willing to take advantage in terms of labour, time, and knowledge arbitrage that offshore locations present. However, these firms are either restricted in their activities by rules and regulations, or they consider the risks in terms of loss of control or operational failures to be very high. Therefore, they try to internalize location advantages and to manage it within the existing hierarchy through captive offshoring. This mode of operations requires availability of strong management skills and tools to be able to manage internal operations from a long distance and to ensure a similar level of control.

Strategic decision gives a direction to further definition of activities and processes that can be considered for offshoring. The higher are the risks and uncertainty perceived by a firm with regards to offshoring, the more conservative it will be regarding what activities to offshore. Next section will discuss the main determinants behind the decision what functions and what activities to offshore while bearing in mind the strategic requirements for captive offshoring.

2.2 What to offshore?

The question what activities to offshore will be answered in this section using prior research in three different areas, transaction cost theory, resource-based view, and trust-based view and a captive offshoring as a mode of operations. The examples that will be used for illustrational purposes all come from financial industry because offshoring practices in this industry are already at a very advanced stage, these practices are very diverse in nature, and the case study in this article also concerns a big financial institution.

Transaction costs theory. Williamson (1975, 1986) defined transaction costs as those associated with an economic exchange that vary independently of the competitive market prices of the goods or services exchange. A simpler definition for it is "a cost incurred in making an economic exchange" (answers.com). In the context of this research transaction costs will concern the costs of monitoring and managing activities.

According to Nicholson et al. (2006) these costs differ per activity depending on the following characteristics:
- Uncertainty or the degree of specifiability of intended performance. The more uncertainty is involved in a certain transaction, the more will be the need to extensively monitor and manage this activity from a long distance
- Asset specificity or the degree of customization required to perform a certain task. Customization refers to a specific knowledge or skills that are required to perform a certain transaction. High degree of customization can give rise to opportunistic behaviour from offshore agent. Extensive monitoring will be required to prevent it
- Frequency of the transaction. This factor in combination with highly uncertain and highly customized transactions can increase the costs of transactions dramatically

Nicholson (2006) argues further that the financial activities higher in the organizational hierarchy (e.g. management accounting) are characterized by high uncertainty and high asset specificity. These activities are highly customized to business' internal and external environments, are prone to frequent adjustments, and produce highly sensitive data. They are, therefore, less suitable for offshoring because they will create a prohibitive level of transaction costs in terms of extensive management and monitoring of these activities.

Youngdahl and Ramaswamy (2008) support this view by introducing the "knowledge embeddedness" factor in process description. Processes with higher level of information embeddedness will contain a higher amount of tacit knowledge, which refers to "the elements that cannot be captured in repeatable routines that can be codified and transferred." As the level of knowledge embeddedness increases, operations progress from performing simple transactional services to providing more complex solutions. This also means that the complexity of managing the process of offshoring such delivery increases.

Kehal and Singh (2006), also argue that processes with a fairly high degree of codifiablity and, therefore, low uncertainty, are suited for offshoring the best. Another variable they introduce is the degree of interconnectedness of offshore processes with core processes. The preferable candidates for offshoring are processes with low to medium degree of interconnectedness with core processes. Offshore operations then will require less communication and coordination efforts. In addition, core processes will be less subject to stoppages in processing pipeline due to infrastructural or communicational failures.

Finally, the processes to be offshored should also be labour intensive (Stratman, 2008) or, in other words, they should require a fair amount of manual processing in order for offshoring case to make commercial sense.

To conclude, TCT and its proponents concentrate on minimizing the costs that are required to conduct offshore transaction. Therefore, the processes that should be brought offshore are the ones that not only minimize the costs of direct labour, but also require minimum effort in terms of monitoring and managing it. These activities are characterized by low knowledge embeddedness, low interconnectedness with core processes, high codifiability, high labour intensity, low uncertainty, low asset specificity, and high frequency of transaction. However, captive offshoring is not only done to capture cost and time arbitrage but also knowledge differential advantages. Next section will explore this topic further.

Resource-based view. While TCT concentrates mostly on negative market conditions and structures to eliminate those, RBV builds on the notion of a bounded level of trust in every market: "the expectation that the partners will not always be opportunistic even if they have the opportunity and the incentives for it" (Vivek, et al., 2009). This view concentrates more on a value creation through proper resource management and firm's ability to create unique and non-transferable core competencies. The competencies will then constitute firm's sustainable competitive advantage.

The proponents of RBV argue that firms can create sustainable competitive advantages through collective learning because collective learning in the organization eventually results in process optimization and technology integration. To build collective learning firms need to increase the knowledge intensity of offshore processes. That requires shift from transaction specific investments, which aim to minimize coordination and monitoring costs, to core specific investments, which increase onshore party involvement in process flow (Vivek, et al., 2009).

Offshoring processes with high knowledge embeddedness, medium/high uncertainty, high asset specificity, and high interconnectedness with core processes gives both parties a chance to collectively learn more about process flow and to add value to it through smooth migration, improvement initiatives, and redesign. Besides, it gives resources the opportunity to improve their coordinating and integrating skills, which makes resource pool unique and non-transferable. Talent-based advantage will also compensate for reduced labour arbitrage due to wage inflations, currency fluctuations, and offshore government initiatives.

Trust-based view. Vivek et al. (2009) refers to it as a view that "blurs the firm boundaries opening the door for evolutionary and ever changing organizational form." Joint value maximization takes precedence over single firm cost maximization and activities that are transferred offshore focus on continued association between onshore and offshore partners (Vivek et al., 2009). These activities can include sharing of strategic planning and knowledge at this stage. Transaction costs mediating mechanisms are partially or completely replaced by a notion of trust in offshore party gained through partner experience (Dekker).

To conclude this section, the processes that firms offshore will depend on: strategic focus in terms of costs, time, and knowledge arbitrage; onshore experience in managing offshore activities; offshore partner experience. The next step in performance management framework is to determine what controls to apply to monitor and manage offshore activities. This topic is analyzed in the next section.

2.3 How to control offshore activities?

TCT. Management accounting scholars have been using transaction cost theory to analyze current offshore governance and control practices and to explain it from the perspective of transaction costs control for different service exchange events. Spekle (2001), for example, argues that control suitability for a certain transaction is a function of the following three characteristics (Nicholson, 2006):
-    the ease of ex ante programmability (or predictability) of the outcomes
-    the degree of asset specificity
-    the extent of information impactedness

Based on these characteristics a choice can be made between five categories of controls: market controls, arm's length controls, machine controls, exploratory controls and boundary controls.

Machine control is a preferable option for activities with high degree of ex ante programmability of outcomes. It means that for these activities it will be fairly easy to associate required actions with desired outcomes and controls, therefore, can be defined in terms of desired outcomes or required actions. Result-driven controls will involve clearly pre-defined performance targets and performance-linked rewards system. Action-driven controls will involve standardization of behaviour, the setting of codified norms and rules, close monitoring, rewards for obedience, and punishment for disobedience.

Another proponent of TCE view, Stratman (2008), suggests enterprise resource planning as control mechanism for offshore activities where the main goal is cost reduction. ERP is an example of advanced machine control. It deploys common data structures that facilitate communication between corporate management and sub-units. It allows for easier monitoring and reduces coordination costs and transaction risk by limiting the potential for opportunism and eliminating information asymmetry.

Arm's length controls will be used for activities with moderate level of ex ante programmability (moderate uncertainty). They are articulated in terms of market-based performance benchmarks and ex-ante contractual provisions. Performance is assured by enforcing the adherence to contractual arrangements, and arbitration is stipulated in contracts to resolve conflicts.

Exploratory or boundary controls are applied to transactions with low levels of ex ante programmability and high level of uncertainty. Exploratory controls are defined as very informal arrangements with very little explicit guidance. The focus is mainly on peer pressure within the group that results from high interconnectedness of activities. Boundary controls intend to prevent cases of irremediable and "incorrigibly high levels of" information impactedness. They focus on prescriptive code of conduct, ethical behaviour and activities that are off limits for the prevention of a limited set of undesired outcomes and unwanted behaviour that can be anticipated ex ante. Boundary controls are stated in negative terms as minimum standards (Nicholson, 2001)

All above-described controls refer to transactions with moderate to high levels of asset specificity or transaction customization to customer needs. Spekle (2001) argues that transactions with low asset specificity, irrespective of their level of uncertainty, can be handled the best by market forces as market pressures are relatively high on the providers of these services (Nicholson, 2001).

RBV. RBV adopts a more dynamic view on a firm as opposed to a static TCT view. While TCE focuses on discrete transactions and decisions related to it at a certain point in time, relational view concentrates on continuity of association or social exchange between onshore and offshore parties in the future. This has its major implications on control objectives and mechanisms.

While TCE proponents focus on outcome controls and strive to ensure deliverability against the lowest costs possible, RBV proponents argue that firms should manage for development

of core specific assets in order to create competitive advantage. Core specific assets are expressed in terms of "the extent to which resources contribute to the competitive advantage of the firm" (Vivek, et al., 2008). These core competencies must be unique and non-transferable in order to contribute to firm's competitive advantage.

In order to develop core competencies management should switch its control focus from deliverability and time management to management for quality, knowledge development, and process improvement. Control focus shifts from outcome control to process monitoring and development of complimentary capabilities. Deliverability becomes a hygiene factor. Technology and training drive quality of the process (Vivek, et al., 2008). This shift reinforces the learning curve within offshore entity.

Next, control mechanisms such as machine controls and highly specified service level agreements will be replaced by a more extensive use of exploratory and boundary controls. These controls set a minimum process requirement and behavioural expectations but they also stimulate cooperation and knowledge sharing between onshore and offshore party.

Trust-based view. Trust based view goes even further than RBV and argues that as time passes managerial control from onshore site decreases in its importance and mutual strategic planning and cooperation emerge. Onshore party increases its relation-specific investments in mutual strategic planning and cooperation, managerial control, bilateral governance, and knowledge intensity of the processes. These investments in offshore partner development increase mutual dependence (Vivek, et al., 2008), which constitutes a very strong control mechanism.

Mao et al. (2008) tested offshore vendor perceptions on trust and control. His findings show that clients' control over vendor, in terms of cultural blending and goal setting, had a significant impact on cost control but had no impact on project quality. On the other hand, trust building in terms of effort invested by onshore party in information sharing, quality of communication, and inter-firm adaptation had a significant impact on project quality as measured by client satisfaction, quality of results, and standards set. However, it did not have any significant impact on cost control.

To conclude, above research suggests that control objectives, focus, and mechanisms evolve together with the evolvement of onshore-offshore relationship. TCE and its principles play important role at the onset of the relationship where agent principle problems have to be mitigated by stringent control measures. As relationship develops, TCE controls will be gradually replaced by core- and relation-specific investments and trust will start to play an increasingly important role as control mechanism. Next section will discuss the evolution in onshore-offshore relationship and performance management framework in more detail.

2.4 Offshoring approach in time perspective

Different authors argue that offshoring event is not static but very dynamic in its nature. Research by Kehal and Singh (2006) shows that as time passes the focus of offshoring activities gradually shifts from simple repetitive tasks to more uncertain and complicated tasks.

Another research by Yuongdahl and Ramaswamy (2008) illustrated that offshoring expertise gradually grows from simple tasks processing in process centre to unique capability centre with knowledge intensive processes and core capabilities. The strategic focus in process solution centre shifts from executing certain services to transforming these services through increased knowledge-based capabilities.

As offshore activities evolve so should also the mechanisms that control these activities. Vivek et al (2009) explain in their research that as firm's strategy changes from reducing transaction costs to developing new competencies and resources, the focus of control mechanisms is also adjusted to reflect this shift. The primary goal of this adjustment is to add value to existing processes through bilateral governance and increased strategic cooperation.

Forrester Research in IT industry (2003) showed that offshoring follows four stages of development, from bystanders to experimenters, to committeds, to full exploiters. Governance mechanisms shift from establishing the overall offshoring strategy to encouragement to increase the use of offshore services (e.g. cultural blending). Finally, as full exploiter, client concentrates on upgrading offshore processes and methodologies using offshore expertise (advancement stage) and shares the risk/rewards resulting from it.

To conclude, offshoring cannot be researched as a static event as this strategy evolves over time. Therefore, the dynamics of offshoring will be taken into account in the next section, where the performance management framework for offshore services will be developed.

2.5 Performance Management Framework for offshore services

This section brings together the items discussed above in a coherent performance management framework for offshore services. Similar to the views presented above, different opinions exist on how performance management framework should be created and used.

One view represents a static approach where key objectives are defined first. They are then translated into strategies and plans, the performance targets are set and the reward/punishment system defined and implemented. Information flows are defined to accommodate "learning organization", employee empowerment, and emergent strategy (Otley, 1999).

On the other hand, the proponents of RBV propose a more dynamic approach to PMS. Henri (2006) argues that strategy should not be taken as a given to derive the rest of PMS from

it. Instead, performance management system should be designed to influence strategy via the development of distinctive and valuable capabilities: market orientation, entrepreneurship, innovativeness, and organizational learning. He proposes to combine the diagnostic use of PMS, which focuses on mistakes and negative variances, with the interactive use, which is used to expand opportunity seeking and learning throughout the organization. This combination creates tension which will lead to the development of organizational capabilities.

The PMS framework that is presented below integrates TCT, RBV and trust-based views to define characteristics for strategy, objectives, activities, and controls at different stages of offshoring. The model assumes that at the beginning of offshore relationship the offshore centre is mainly used for cost cutting purposes. This centre gradually develops into important contributor to global knowledge, skills, and core capabilities base as relationship evolves. Frequent evaluations should be done by onshore partner to determine at what stage of development the offshore relation is and how to manage it properly.

The first column in the below presented framework represents the initial stage in offshoring that is covered by TCT and its principles. Offshoring here is mainly done for cost cutting purposes and the objectives are to minimize direct and indirect transaction costs. To achieve that, manual, repetitive processes with little interaction requirements and low knowledge embeddedness are brought offshore. These activities are governed by result- or action-driven controls that focus primarily on timely and accurate delivery of pre-defined products.

The second column represents a more advanced stage in offshoring relationship governed by RBV and its principles. The shift to this column can be driven by internal and external factors. Internally onshore party gains more experience in managing global resources. Externally competitive pressures increase and offshoring for cost cutting objective does not constitute a sustainable competitive advantage any longer. Strategic shift is, therefore, required to capitalize on offshore location advantages in terms of knowledge differential to improve product or service quality and time to market.

When above-mentioned factors are present, the following changes will occur in PMS. Onshore involvement in offshore operations increases. The knowledge embeddedness of offshore processes and its interconnectedness with core onshore processes increase, and the processes become more business specific. Controls that will be applied at this stage are ex-ante contractual provisions and performance benchmarks. Gradually more use will be made of exploratory and boundary controls to stimulate information exchange. Controls will also have to be complemented by interactive use of PMS and social measures, that keep focus on collective goals and objectives. Control focus shifts from results deliverability to quality of delivered results, knowledge development, and process improvement.

Last column in PMS framework is covered by trust-based view and its principles. Earlier shifts make sure that the level of expertise by offshore party increases; offshore party is

more attached to a company and pursues collective goals; onshore trust in offshore partner increases. The next step in the relationship is to advance core capabilities that contribute to company's competitive advantage. Core capabilities represent not only executing but also managing functions at this stage. Managing global network of differing skills set becomes one of the most important contributors to company's competitive advantage.

At this stage offshore processes are not only transferred from onshore location but they are also developed offshore. Processes that are transferred from onshore refer to strategic decision making and business partnering. Trust and social controls become the most important governance mechanisms, and offshore partner is made co-responsible for company results. Social controls enable social interaction, cooperation, social attachment, information exchange and they stimulate discussion, which is necessary for company dynamics.

Above discussion is summarized in below PMS framework. This framework will be evaluated empirically in the next section using a real case example.

| | Cost/Time arbitrage | | Knowledge arbitrage |
	Transaction costs theory	Resource-based view	Trust-based view
Assumptions	No previous experiences with offshoring	Offshore over-performance on key control metrics	Full trust in offshore party's capabilities
	Distrust of foreign operations & institutional framework	Positive personal experiences onshore about offshore party	Full trust in offshore party's work ethics
	High perceived macro- and micro risks	Competitive pressures to increase quality, time-to-market, flexibility	Integrated process execution & monitoring
	No managerial experience in global operations	Increased global management capabilities	Advanced global management capabilities
Strategy	Minimizing costs of non-core activities	Develop global operating base for non-core & core processes	Leverage global core capabilities to create competitive advantage
	Concentrating on & developing core activities onshore	Develop unique & non-transferable global core capabilities	Leverage global core capabilities to develop new opportunities
	Clearly defined and fixed	Frequent re-adjustments	Constantly evolving
Objectives	Reduce operating costs for non-core processes	Increase internal pressures for high performance	Reduce costs through better problem-solving skills
	Reduce management costs for non-core activities	Improve coordinating and integrating skills	Enhance cooperative and trusted environment
	Increase flexibility of non-core cost base	Streamline and optimize core processes	Leverage core processes to enhance competitive position
Activities	Processing jobs, highly predictable outcomes	Analytical work, hardly predictable outcomes	Strategic planning, unpredictable outcomes
	Transaction specific investments	High core asset specific investments	Relation specific investments
	Low interconnectedness with core onshore processes	High interconnectedness with core onshore processes	Integrated core processes
	Low knowledge embeddedness	High knowledge embeddedness	High strategic knowledge embeddedness
	High degree of codifiability	Low degree of codifiability	Uncodifiable activities
	Sequential or pooled order	Reciprocal execution order	Unstructured activities
	High frequency of operations	Regular frequency of operations	Periodical execution
Governance	Internal hierarchy	Sharing of managerial control	Bilateral governance
Control focus	Deliverability of process outcomes	Quality of processes and outcomes	Goal & planning achievability
	Standardization of processes & behaviour	Increasing knowledge-intensity of the processes	Increasing strategic knowledge-intensity of the processes
	Achievement of targets set, feedback function	Expanding opportunity-seeking & learning	Expanding organizational borders & possibilities
Control mechanisms	Mainly quantitative performance metrics	Quantitative & qualitative performance metrics	Increasing use of qualitative performance metrics
	Outcome-oriented	Process-oriented	Strategic target-oriented
	Result-driven machine controls	Exploratory and Boundary controls	Boundary controls
	Action-driven machine controls	Vertical integration	Social controls
	Punishment for underperformance	Non-monetary incentives	Trust & Cooperation
	ERP	Technological process improvements	Technology relates to seamless process integration

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3. Methodology

The following factors had to be taken into account when considering different methods for empirical study on this topic. First, performance management framework in a random company will not be a result of elaborate scientific study but a result of direct and indirect interaction between a certain firm and its particular environment. A basic understanding of firm's context and environment is, therefore, required to draw conclusions. Second, this study involves personal interactions across firms, or inter-firm relationships, over time. A detailed analysis of individual firm's interactions over time is required to account for this factor.

Taking into account the above-mentioned factors and the novelty of the topic the research methodology chosen was, first, to perform a detailed case study of a single organization to appreciate the context in which it operates and the reciprocal impact of context and organization. Second, to perform a semi-structural survey within the case study to test the inductive generalizations made (Otley, 1999). As this study is not longitudinal, firm's archival data and records helped to understand the context in which a firm operates today. Survey was used to fill in the blanks in the model left out by archival analysis.

Sample. Finance department of a big financial firm was chosen for empirical testing of the presented PMS framework. This approach helps to concentrate on diverse processes that can be ranked according to their complexity within Finance organization and can then be placed in one of three PMS pillars for further research. Finance activities in this research include procure-to-pay (AP), management accounting, financial accounting, cost accounting, balance sheet, and product control processes.

Archival data analysis contains a thorough analysis of firm's initial offshoring strategy, objectives, control framework and mechanisms. Next, firm's top management evaluations of its offshore practices and regular operational reviews using key performance indicators are used to draw conclusions on different perceptions in the organization. Finally, a semi-structured survey is used to complement archival analysis. To prevent bias in response 5 employees from different departments and different hierarchical levels were interviewed. Departments interviewed were cost, revenue, balance sheet and intercompany accounting. Each interview took 1-1,5 hours on average.

Questionnaire. Different components of presented PMS model were operationalized using previous researches described above. Each model component was broken down into characteristics that the previous researches used to construct that component and to place it into TCT, RBV or trust-based perspective. As this research is highly qualitative in its nature, multiple-choice questions were used to determine component absence, presence, or relative stage in its evolution/growth. In addition, the respondents were asked to indicate if any other option was applicable in their situation.

Based on archival analysis and the results of questionnaire the following picture emerged for the offshoring practices of this firm.

4. Results

	Cost/Time arbitrage	Knowledge arbitrage
	Transaction costs theory	**Resource-based view**
Assumptions	Simultaneous implementation of offshoring in multiple departments/no gradual approach	Onshore party is highly satisfied with offshore party's performance on current key performance indicators
	High perceived operational risks in terms of employee retention, key man exposure, loss of control over offshore activities, no process improvements offshore	Offshore parties are very consistent and consequent in their performance and task prioritization
	Limited managerial experience in global operations due to local "Netherlands" scope of operations	Competitive pressures exist onshore due to scarcity of qualified finance professionals
	Onshore reorganization and unstructured handover offshore activities	
	Onshore party is dissatisfied with overall offshore performance	
	Distrust in offshore party's capabilities to perform complex tasks	
Strategy	Cost reduction for finance activities, realization of targeted cost savings controlled by tight budgets	
	Concentrating on feasible opportunities for offshore operations based on already offshored operations	
	Strategic benefits in terms of scope enlargement of already offshored functions	
Objectives	Reduction of operating costs for administrative, back office tasks	Processes were described and codified by handover
	Reduction of management costs for administrative, back office tasks	
Activities	Management accounting (revenue management, product control), financial accounting (balance sheet), cost accounting, intercompany reconciliations	The actual outcomes of offshore processes depend on data/process quality and data/process knowledge
	Processing parts of multiple onshore activities are offshored/no end-to-end processes including responsibilities	Frequent and intensive communication between onshore and offshore parties is required to achieve acceptable process results
	Investments are done in handover of onshore transactions and training of offshore personnel to perform the highly defined tasks	Knowledge of business, processes, rules and regulations is required to be able to perform activities independently
	Knowledge of process steps is required to perform current offshore tasks	High key man exposure
	High degree of codifiability given current process description	High information impactedness as onshore party has a very limited knowledge of offshore operations
		Reciprocal execution order as onshore and offshore counterparties work in parallel
		Regular frequency of operations = monthly closing activities
Governance	Extended team model	Sharing of HR control
	Effective management control resides onshore Functional expertise is kept onshore	Effective operational control resides offshore
Control focus	Timely delivery of process outcomes	Quality of outcomes is also considered
	Enhancing predictability of outcomes	
	Achievement of targets set, feedback function	
Control mechanisms	Operational key performance indicators	G-SAT index
	Timeliness, turnaround time, documentation	Includes process, knowledge, quality, and proactive attitude orientation
	Punishment for underperformance = lower KPI scores/bonuses	

A detailed analysis of the above results follows in the next section.

5. Analysis

Archival analysis shows that offshoring practices in this organization started in 2004 with the clear goal to realize costs savings. To achieve that goal as many finance activities as possible had to be transferred from onshore to a captive offshoring centre in India. The only two other factors that had to be considered were the feasibility of the transfer, in terms of HR and regulatory restrictions, and a strategic fit within existing Finance organization.

The governance model chosen was that of an extended team per region per offshore function. Each onshore team was replicated at offshore location but control and expertise over deliverables were to be retained onshore. Cost control was achieved by setting clear targets and performing yearly budget evaluations. Operational control was achieved by defining and documenting key performance indicators in terms of timeliness, turnaround time, quality (accuracy), and documentation. Management control was achieved by introducing index that would determine management satisfaction scores using questions. These questions refer also to knowledge embededdness and process enhancement at offshore location.

Activities that were transferred offshore represent a mix from different functions, starting from accounts payable and intercompany reconciliations to cost, financial and management accounting. Furthermore, according to service level agreements, these activities represent steps in end-to-end reporting processes, with onshore party providing input and controlling output of the overall activity. Offshore activities belong to different levels in financial hierarchy and require different levels of expertise and interaction.

Thus, archival analysis shows a mixed picture for offshore activities. On one hand, there is a clear cost cutting strategy and objectives, supported by the "extended team" governance model and clear operational KPIs with the focus on timely deliverability. On the other hand, some of the activities transferred require a lot of interaction with onshore team, subject expertise, and frequent adjustments. In addition, the index introduced for management control purposes includes items that question knowledge embededdness and process enhancement at offshore location, factors that clearly belong to RBV prospective.

Furthermore, management index shows highly unsatisfactory scores, whereas KPIs exhibit very high scores for offshore performance. Onshore party indicated during interviews that offshore performance is very low where it concerns process change management, process improvement, and proactive attitude with regards to task prioritization and problem resolution. One of the reasons is that offshore party tries to avoid "overt" conflicts and interruptions in the processes because it can potentially harm their KPI scores. Another reason is that onshore party avoids transferring additional knowledge or ad hoc requests due to high perceived risks and finance process complexities.

During interviews it also became clear that offshore party possesses more knowledge about offshore processes, which results in high information impactedness and high key man exposure offshore. In fact, the effective control over offshore operations resides with

offshore party. Next, offshore processes are subject to frequent adjustments in internal and external environments and they require frequent interaction with onshore party to enable process execution but, also, to guarantee proper process outcome. This frequent interaction does not support current cost cutting objective of the company.

In terms of management controls, it effectively resides with onshore party and offshore party involvement in overall decision making is very limited. Furthermore, onshore party uses scorecards to control offshore operations. Time aspect, responsiveness, and error limitation are indicators of performance that deserve a lot of attention in these cards. These indicators are well and narrowly defined in service level agreements. The narrow definition and a clear focus on deliverability of operational controls cause a big gap between KPIs and scorecards on one hand and a much broader defined index on the other hand. KPIs do not cover the full potential of current offshore processes.

The results of this analysis are summarized in PMS framework, presented in section three. They show a certain degree of incoherence in current approach. Even though the company tried to position itself entirely in TCT perspective, there are certain important elements that fall into RBV column based on performed analysis. This will be discussed in the next section, where conclusions and recommendations will be made.

6. Conclusions and recommendations

This research looked at offshoring practices from three different perspectives, transactions costs economics, resource-based view, and trust-based view. Based on prior research and taking into account the dynamics of inter-firm relationships, a performance measurement framework was created for offshore services. This framework included the following components: assumptions, strategy and objectives, activities, governance and controls, and it assumed that all components develop over time due to changes in internal and/or external environment. However, to achieve high performance in offshore services the PMS should retain a certain degree of coherence through all changes.

Using this framework the empirical study was performed within finance organization of a big financial firm. The initial results clearly showed that even though the offshore services scored high on daily operations, the management of the firm was not satisfied with the overall performance of offshore partner. Based on the analysis of archival records and semi-structured interviews with firm's employees the PMS framework was filled with data for this company. The conclusion was that this company's approach to its offshore operations shows a certain degree of incoherence that causes management dissatisfaction.

While the overall company strategy is to minimize costs by offshoring as many processes as possible, in reality most of the financial processes offshore do not support this objective due to high degree of uncertainty, information impactedness, knowledge embededdness, and high interaction requirements. These process characteristics are also not reflected in narrowly defined operational key performance indicators for offshore services. Thus, while offshoring strategy is focused on cost cutting and operational controls support it, the

processes exhibit more potential and cause high agency costs and management dissatisfaction.

To increase management satisfaction with offshore services, the overall approach should be re-evaluated and it should be determined if:
- cost cutting strategy is still relevant given internal and external developments
- offshore processes are fully exploited in terms of their contributed value to overall firm's performance

If based on above evaluation the company decides to move away from cost-arbitrage, current strategy, objectives, governance and operational controls should be moved more towards RBV driven approach. It will involve re-evaluating current offshore employees' capabilities and compensation packages; increased involvement of onshore party in offshore processes; increased transfer of managerial control to offshore location; introduction of qualitative, process-oriented performance metrics and cultural trainings.

When company decides to further pursue the cost-cutting strategy, current offshore processes should be re-evaluated and structured to minimize interaction requirements and information impactedness. In addition, different, more structured and standardized manual activities could be considered for offshoring for scale purposes. This will bring back the coherence in overall approach by placing it in TCT-driven column. As a result, management expectations regarding offshore services will decrease and satisfaction will increase.

Given these recommendations there are certain opportunities for future research. A more quantitative research can be performed to empirically test the relationship between PMS constructs (individual and combined), the degree of coherence between constructs, and the actual firm satisfaction with offshore performance. Larger and more diverse samples can be used by translating the semi-structured questionnaire into structured questionnaire using the insights gained in this research. Future empirical research can help to better quantify and generalize the results over multiple industries, companies, and functions.

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Hospital Management in a Partly Competitive Environment

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'The greatest danger in times of turbulence is not the turbulence, it's to act with yesterday's logic'.
-Peter Drucker

Abstract
This study investigates the relevant planning & control components for hospitals' management while the Dutch Healthcare sector is in the transition from not-for profit to (regulated) market competition. For this purpose a conceptual framework focussing on management based on integral results is developed. Subsequently, this model is tested through interviews and meetings with hospitals and other experts in the field. The results indicated that the model principally holds in the selected settings. However, innovative and appropriate components or critical success factors could not be found, suggesting that this thesis, relating to current practice, might still be one bridge too far.

For the full text of this master thesis refer to the following webpage:
http://hdl.handle.net/2105/5672.

1. Introduction

1.1 Background
The Dutch healthcare sector has been under reform for several years. The sector is faced with some drastic political and economical reviewing charged by the Dutch government. The purpose of the significant system reform is to gradually implementing market competition concerning healthcare institutions. It is expected that market competition will decrease the costs associated with the healthcare sector concerning the society as a whole.

These reforms are corresponding with fundamental changes regarding financing, budgeting and reimbursement within the Dutch healthcare sector. However, the most significant change the sector has to deal with is the transition process from a supply to a demand driven market system by the governmental introduction of managed competition by means

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of a performance-based finance system (Oostenbrink & Rutten, 2006:5). From an international perspective, performance-based finance systems have already demonstrated their value (Cardinaels & Smith, 2005). Concerning the cure sector (hospitals and medical specialists) the tool to realize demand-driven and performance-based products and services are Diagnosis Treatment Combinations (hereafter: DBCs).

DBC-products can be defined as: the whole set of activities and interventions of the hospital and medical specialist resulting from the first consultation and diagnosis of the medical specialists in the hospital (DBC-maintenance institute, 2009). The new DBC system will replace the current budgeting system, whereby every health care supplier was ensured concerning at least a part of its profits.

Although, the new system does not have the objective to alter former social positions of the different institutions involved (Zuurbier & Steinbusch, 2005:3), traditionally non-profit oriented hospitals are confronted with a profit motive in order to survive and continuing their business. The development of an increasing free-market structure concerning the cure sector has lead towards a strong increase in organizations' risk profiles (PwC, 2008).

1.2 Research objective and problem statement

The aforementioned risks associated with the new system will affect the overall objective of Dutch hospitals, which could be described as guaranteeing the continuity of healthcare. Hospitals are already confronted with increased pressure on their financial means and it is even possible that they will fall into bankruptcy. Hence, in order to achieve better financial performance and ultimately accomplishing their social mission, hospitals with a negative result from operations or a negative equity capital may need another management model concerning controlling their operational and financial performance. The research objective of this thesis is to identify the planning & control components concerning successfully managing results. Therefore the main question to be answered is:

Which planning & control components are relevant concerning managing results of Dutch hospitals within the DBC-structure?

Since financial continuity of an entity is the core value, managing financial risks remains crucial (Knechel, 2006). In addition, Paterson & Wendel (1996) state that business and financial risks should be closely monitored, if budgeting and reimbursement systems within the healthcare sector are altered. Nevertheless, the term hospital results cover more subjects (e.g. care quality) that will also be part of consideration.

1.3 Outline

This article proceeds as follows. Chapter 2 describes relevant institutional settings and prior literature, resulting in a conceptual framework. Chapter 3 elaborates on the research design and methodologies applied. The results are presented in chapter 4. Based on the presented empirical results, analysis is performed in chapter 5. Finally, chapter 6 stipulates the conclusions of this paper and note some suggestions for future research.

2. Hospital financing and prior research

2.1 Hospital financing

In the Dutch situation, hospitals are principally financed by the health insurers. Introduced in 1988, the Functional Budgeting (FB) system was supply-oriented and regulated. Due to inequalities of historical budgeting, the system's main goal was to realize a justified allocation mechanism concerning the available means (Lapré et al., 2001. Within the FB-system, the hospital's budget is determined through four components (figure 1).

Component	Cost-category	Budget parameters	Determination parameter's scale
Availability	Fixed	# adherence population	Determined through policy guidelines and admission orders
Capacity	Semi-fixed	# medical specialists # beds	
Infrastructure	Location dependent	depreciation interest capital costs	
Production	Variable	# consulting hours # hospitalizations # bed days # outpatient visits # special functions	Production agreements between hospitals and insurance companies

Figure 1: Composition FB-Budget (Source: Schaepkens, 2004:6; Lapré et al., 2001:55)

Generally, the FB-system was principally aimed to control expenditures and incentives to increase production or quality of care were almost absent (Oostenbrink & Rutten, 2005:4). Since the demand of care is growing, the system has lead towards increasing waiting lists (Asselman, 2008). In the system, the hospitals production function is valued at the actual production level through subsequent calculation. This development slightly introduced performance-based financing, but only focussing on the variable part of the FB-budget (VWS, 2005). Because only a particular part of the delivered services was involved in the hospital's budget, the causal relationship between the reimbursement and the delivered services by the hospital belonging to particular clinical pathway was mainly absent. The lack of understanding of cost prices belonging to delivered services hindered management control regarding revenues and results. Hence, the need for a new performance-based finance system was born. And as of 2005, the DBC system was implemented in the Dutch cure sector.

The DBC-system can be considered as the tool concerning gradually implementing market competition. The chief aim of competition forces is to establish an aligned financing structure for hospitals and medical specialists based on the delivered services and the

associated costs. These delivered services are recorded and subsequently billed to the health insurers by means of DBCs. The system is aimed to generate a 'fee-for-service' model (Zuurbier & Steinbusch, 2005:3). However, due to the system's distinction in DBCs with fixed prices (A-segment) and freely negotiable prices (B-segment), currently the system is between a case-payment model situation and the fee-for-service model situation. The A-segment contains DBCs belonging to heterogeneous care products (e.g. top clinical care) that are faced with too much market inefficiencies and hence market competition will not fit. Since only DBCs are billed by the hospital, the distinction does not make sense with respect to the recording and the billing processes. The distinction is relevant recognizing hospitals' revenues.

DBCs belonging to the A-segment have fixed prices set by the Dutch Healthcare market authority (hereafter: NZa). Those prices are based on the parameters belonging to the former FB-system. Within the B-segment production level, price and quality of delivered services are the result from a negotiating process between the hospitals and the health insurers. Within this segment, hospitals' total revenues (34% in 2009) are the number of recorded and billed DBCs (Q) multiplied by the agreed price (P). That way market competition is introduced to the cure market and hence hospitals are principally faced with financial risks regarding their production within the B-segment. From an international perspective, it appears that financial risks will also cause social risks (Beaver et al., 1998).

In order to conclude feasible contracts with health insurers, hospitals should understand the revenues and cost prices associated with their product mix (total amount of all types of DBCs). Within this scope, cost accounting could serve as a tool to facilitate the negotiation process between hospital and its stakeholders with different interests involved (Zuurbier & Steinbusch, 2005:2).

Since the DBC-system facilitates cost-price accounting, it is expected that the system cause incentives to decrease hospitals' costs. Prior condition concerning allocating costs from cost-headings to cost-units is the existence of a causal relationship between them (NZa, 2006). However, in hospitals, this relationship is frequently far from clear and hence hospitals have difficulties in employing cost-accounting (Asselman, 2008). This development leads to unrefined cost categorizations and the supposed cost-homogeneity and causal relationship between the various cost centres is mainly absent. Once the distinction between fixed and variable costs is understandable, cost-price fluctuations, due to under- or overproduction, are explained in terms of marginal costs. Subsequently, these insights can be employed concerning investment and make-or-buy decisions.

The cost-accounting directive of the NZa together with the increasing competitive environment hospitals are acting in requires the use of other cost-drivers like 'activity' in the ABC-method and other modern cost-accounting techniques. From an international perspective it has been proved that the ABC-approach provides relatively better material concerning price setting strategies and hence quality issues and demand-driven management within hospitals (Ross, 2004). However, the lack of experience with advanced cost-accounting techniques within hospitals had led to a relatively easy to maintain and understandable production centre approach in many cases.

Adjacent to this, cost-accounting concerning A-segment DBC products is principally based on the FB-system, while these DBCs are already recorded and billed in terms of DBCs. As a result double accounting processes are employed.

Since the introduction of the DBC-system involves a new method of hospital financing, it might have several consequences concerning hospitals' financial accounts. Especially on the short term, several risks o can be identified (Asselman, 2008, Cardinaels & Smith, 2005).

1. **Turnover risk**

Due to gradually abolishing the FB-system, differences between hospitals' defrayment and reimbursement will no longer exist. Since hospitals have to negotiate with the health insurers about their production, they are faced with an increased risk regarding their total revenues.

2. **Financial margin risk**

Since cross-subsidisation possibilities are reduced due to increasing output financing of some hospitals' key-tasks (e.g. teaching status) and the increasing supervision of the market authority, through negotiation possibilities, the financial margins of hospitals will increase. Opposite, financial margins are shrinking.

3. **Liquidity risk**

Since during the transition phase DBCs can only be billed after they are closed (frequently after one year since the patient's first consult in the hospital) this is an inherent risk of the system. Besides, failures due to untimely, incorrect and incomplete recording of DBCs are also relevant.

4. **Credit risk**

The DBC-system involves the abolishment of health insurers' obligation to conclude contracts with hospitals and hence prospective payments will no longer exist. Consequently, health insurers may not reimburse treatment costs exciding a (pre-determined) level and the patient may not afford those costs.

5. **Information-asymmetry risk**

Since the system is supposed to provide a detailed registration of information, over 30.000 different DBC-products are identified. Concerning this amount of products, it is difficult to establish (cost) forecasting and the account 'works in progresses' will increase. Hence, the information asymmetry between the hospital's management and external parties will increase, resulting in higher risk assessments by those parties.

In order to deal with all those risks hospitals have to alter and adapt their management structures. This will be elaborated in the next paragraph.

2.2 Management structures

Keuning & Eppink (1996:9) define managing as: those actions that set people within an organisation into work and subsequently control their behaviour to fulfil the organisations objectives.

Simplified, managing is the act of getting people together to accomplish desired pre-determined goals. Within this scope, management comprises a process, which consists of key-elements often classified as: (1) planning, (2) organizing, (3) staffing, (4) leading (5) controlling and (6) motivating (Keuning & Eppink, 1996:15). Based on those core values of

managing, Keuning & Eppink (1996:16) distinguish three principal management functions: (1) strategic management, (2) establishing an organisational structure and (3) controlling the entity's business processes (operational management).

Since market competition is gradually implemented within the cure sector and consequently financing systems are altered, hospitals are faced with increased risk profiles (chapter 1). Hence, managing risks by hospitals' management can be considered as 'risk management'.

From a business enterprise perspective, Knechel (2006:29) defines risk as a threat that reduces the likelihood that the organisation one or more of its objectives will achieve. Within this scope, management is aimed at identifying and quantifying these risks. Adjacent to this risk management involves the implementation of control measures. Control activities refer to any actions taken by a company or individual to reduce the likelihood or significance of risk (Knechel, 2006:32).The whole set of these control activities is known as internal control. The effectiveness of an internal control measure is determined by the ability of a control measure to provide a reliable and timely warning of potential problems and to the potential bias inherent in the execution of a control measure (Knechel, 2006:32). Kocken (1997:226) identify two primary objectives of corporate risk management. On the one hand, future revenues have to be maximized, while at the other hand liquidity risks should be minimized.

Due to limited attention to risk management within the healthcare sector, a connection with other professions has to be made. From international accounting and other business literature, several useful concepts and frameworks are provided.

In order to ensure that risks are addressed by higher management and the board of directors, organisations are adopting ERM as a formal process that affects all levels of an organisation (Knechel, 2006:29). A common-used framework concerning ERM is issued by COSO (2004), which includes the following definition of ERM:

A process, enacted by an entity's board of directors, management, and other personnel, applied in a strategy setting and across the enterprise, designed to identify potential events that may affect the entity, to manage risks to be within its risk appetite, and to provide reasonable assurance regarding the achievement of entity objectives (COSO, 2004:7).

The three-dimensional COSO ERM cube builds on the former one, but also emphasizes the importance of identifying and managing risks across the enterprise. ERM is an iterative, continuous process that involves identifying, assessing, and managing key risks that threaten an organisation's strategic, operational, compliance and reporting objectives at all levels of an organisation (Knechel, 2006:30). Summarized, the cube identifies four organisational objectives, four organisational levels and eight components. Based on this framework, 128 (4 x 4 x 8) strategies of risk management are possible.
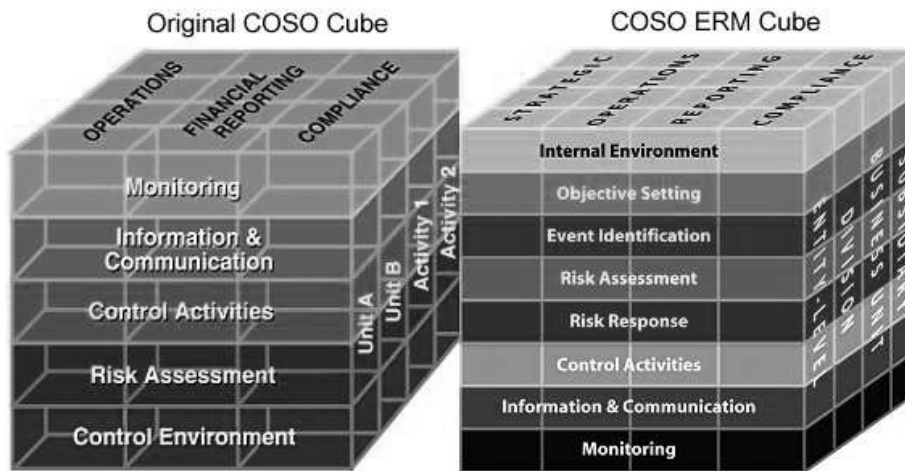
Figure 2: COSO cubes (source: COSO, 2004).

Although all the signalled components are relevant, since it lays the foundation concerning the other elements, the internal environment is critical. With respect to this internal environment, also hospitals' management has to issue a so-called 'in control statement'. A disadvantage of the framework is that it only provides reasonable assurance regarding the 'in control status' of a particular entity. Besides, control is inherently limited by the quality and integrity of people working within the organisation. Lastly, the model is extensively and hence requires much effort regarding implementation by a given hospital. Despite inherent limitations, the basic assumptions of this model regarding control and risk management are commonly used in accounting literature.

2.3   Managing hospitals
In the literature, frequently a distinction is made between internal and external management & control. External management comprises possibilities to control the environment outside the entity. Since hospitals are forced to negotiate with health insurers about their production prices, the enhancing B-segment emphasize external control (Asselman, 2008:23).

Since the cure sector is faced with the implementation of market competition and broad range of laws and regulations, concerning hospitals, market forces and macro-economic developments are important controlling the external environment. In order to determine the relevant aspects Knechel (2006) use different models from 'strategic management' literature. A useful model determining market forces is the 'Five Forces Model' of Porter (Porter, 1980; Simons, 1995). Macro-economic developments are analyzed by the PEST-factors developed by Johnson et al. (2006:65-68). The five forces (rectangles) and the macro-economic developments (rings) are together presented in figure 3.
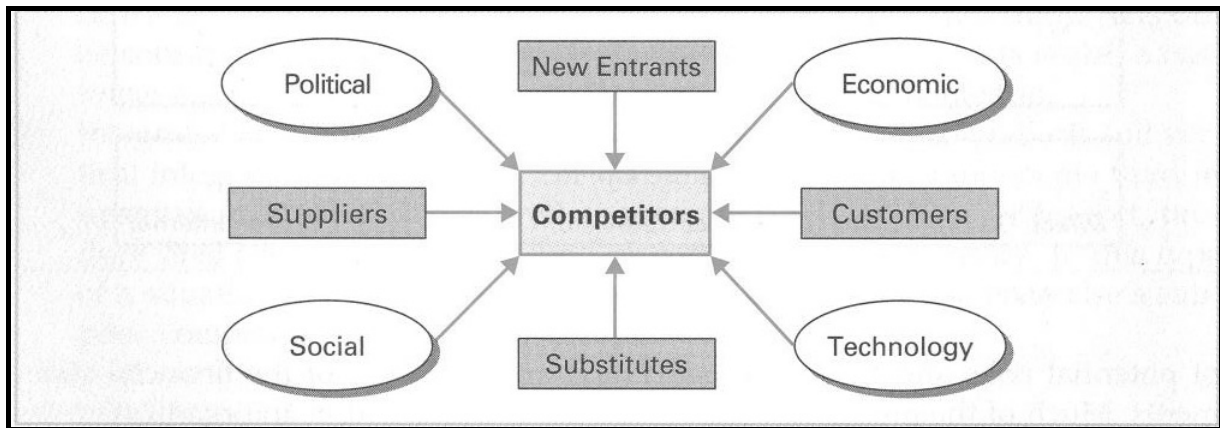
Figure 3: external risk factors (source: Knechel, 2006:162)

The Five Forces-model enables a hospital as 'competitor' to determine the scale and nature of its competitors and hence its strategic objectives. In general, the hospital's strategy has to be determined by the hospital's management in consultation with their medical specialists (Peeters & Krabbe, 2004:42). Therefore, alignment concerning the strategy between those groups is crucial and makes the situation as a whole relatively complex. Strategic objective setting and risk-assessments are also considered as key-elements within the COSO ERM-framework.

Most external factors, risks and choices have a predictable link to activities within the organisation determining its success (Knechel, 2006:175). Those activities can be classified into three central themes: (1) financing, (2) performance and (3) quality of care. Hence, an integral hospital management approach functions as a road map concerning the distributing responsibilities and tasks to all medical specialists and other departments, identifying critical performance indicators (PIs) and addressing tasks and accountability to all different levels within the hospital.

The implementation of the DBC-system and associated integral prices requires an integral approach with respect to costs and revenues. Managing the performance of the product mix or hospital departments becomes relatively more important. A tool concerning managing the performance of particular hospital departments can be establishing result centres. Within the hospital environment, a result centre is not a shop within the shop, but it is accountable and is only a part of the hospital's total performance. That way the results centres are aligned with the hospital's strategy and objectives striving to a better level of cooperation and performance of the entire hospital.

Since the content of the term 'result' covers profit, production volume, quality, culture, innovation, education and customer satisfaction, a result centre is not only accountable concerning profits. Nevertheless, distributing costs and responsibilities remains difficult due to complex clinical pathways involving activities of several result centres. Within the hospital medical specialises and supportive specialises can be classified as result centres, whereas overhead and other staff departments can be classified as cost centres. Result centres should identify their patient groups by means of DBC-products and subsequently associate them with adequate cost-drivers within the hospital. Cost centres can charge their performances to result centres by means of easily parameters in terms of m² or FTEs.

The hospital's organisation structure in terms of result and costs centres affects the span of control and hence the hospital's management process. This process differs per performed activity, due to the different nature and scale of care activities.

Based on the previous paragraphs a conceptual model concerning managing hospital results has been developed (figure 4).
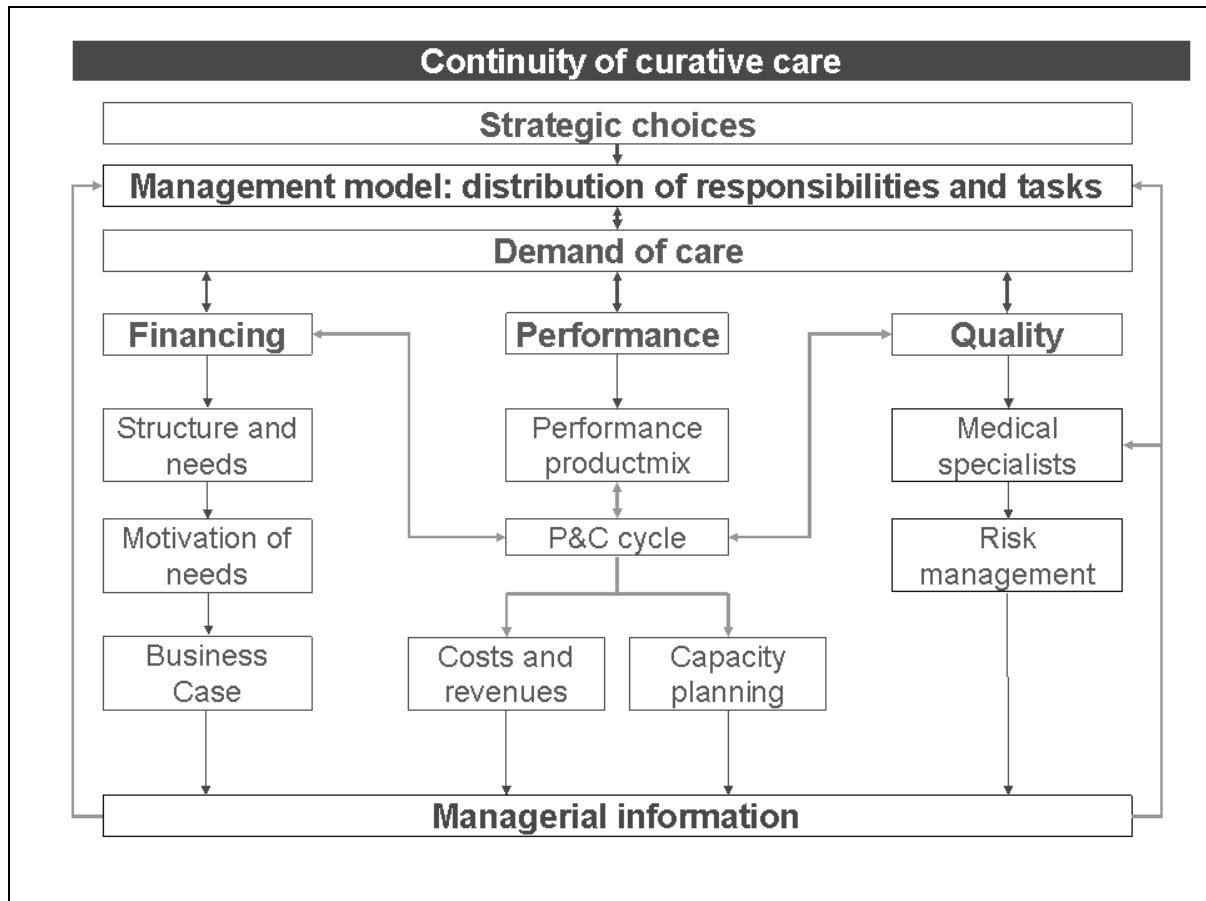

Figure 4: Conceptual hospital management model

In order to ensure that a hospital can manage its performance, an appropriate planning & control cycle should be implemented to control its business processes. In scientific literature, various definitions and approaches are presented about 'planning & control', which apply to organizations both within and outside the healthcare sector. Generally, the planning & control cycle comprises all decisions, structures and procedures aimed at effectively and efficiently realizing the pre-determined goals of an entity (Jans, 2001). Anthony and Young (1988:4) distinguish three different types of planning & control activities: (1) strategic planning, (2) management control and (3) task or operational control. Each activity involves both planning and control, but the emphasis varies with thy type of activity and entity. In hospitals, controlling pharmacy inventory is much different from controlling patient care on the wards.
Idealized the internal control system is part of this management control process or cycle, which consists of four principal steps (1988:17):

(1) Programming,

(2) Budget formulation,

(3) Operating and measurement and

(4) Reporting and evaluation.

The two first steps could be considered as planning activities, while the two latter could be considered as typical control activities. These four principal steps together give shape to controlling the entity's business processes as an ongoing cycle. This planning & control cycle consists of a regulatory component (measurements implemented to mitigate threats regarding goal-congruence), a retrospective component (accountability and evaluating goal-congruence) and a prospective component (planning and decision making aimed at realizing settled objectives).

Concerning hospitals or other healthcare institutions, the cycle contains relatively more synchronization moments than concerning a private company. Synchronization moments are distinguished in longer term and shorter-term moments that are mutually influencing each other. The strategic plan developed by the hospital's board of directors and approved by the supervisory board incorporates the longer term, while the yearly budgeting process involves the shorter term.
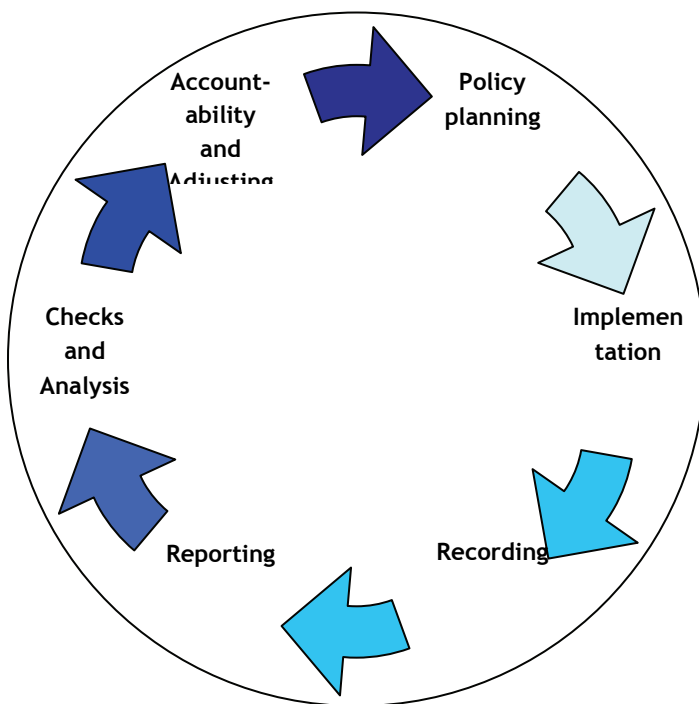
Figure 5: Planning & Control cycle in hospitals

3.   Research design

3.1   Structure

Since the research's objective is to identify and to define the appropriate planning & control aspects concerning managing results in Dutch hospitals, this research will apply to the methodology of a design-oriented and exploratory research.

According to Van Aken (1994), two different cycles (figure 6) are relevant within the scope of design-oriented research: the regulative cycle and the reflective cycle. The regulative cycle is designed to control concerning a unique or special problem (Van Aken, 1994:19). The reflective cycle is a tool to develop clinical knowledge, which contains knowledge about both problems and the used methods concerning solutions, all examined in a given context (Van Aken, 1994:21). In order to test and to generalize designed knowledge, multiple case studies are used within the reflective cycle.

This study focuses on the unique and specific problem of the gradually implementation of performance based financing and competition forces within the Dutch cure market. Since these developments will create financial risks to hospitals, by hospitals management it is necessary to anticipate effectively to these developments. In order to develop knowledge about the relevant planning & control aspects, it is justified to use the regulative and the reflective cycle concerning this research.
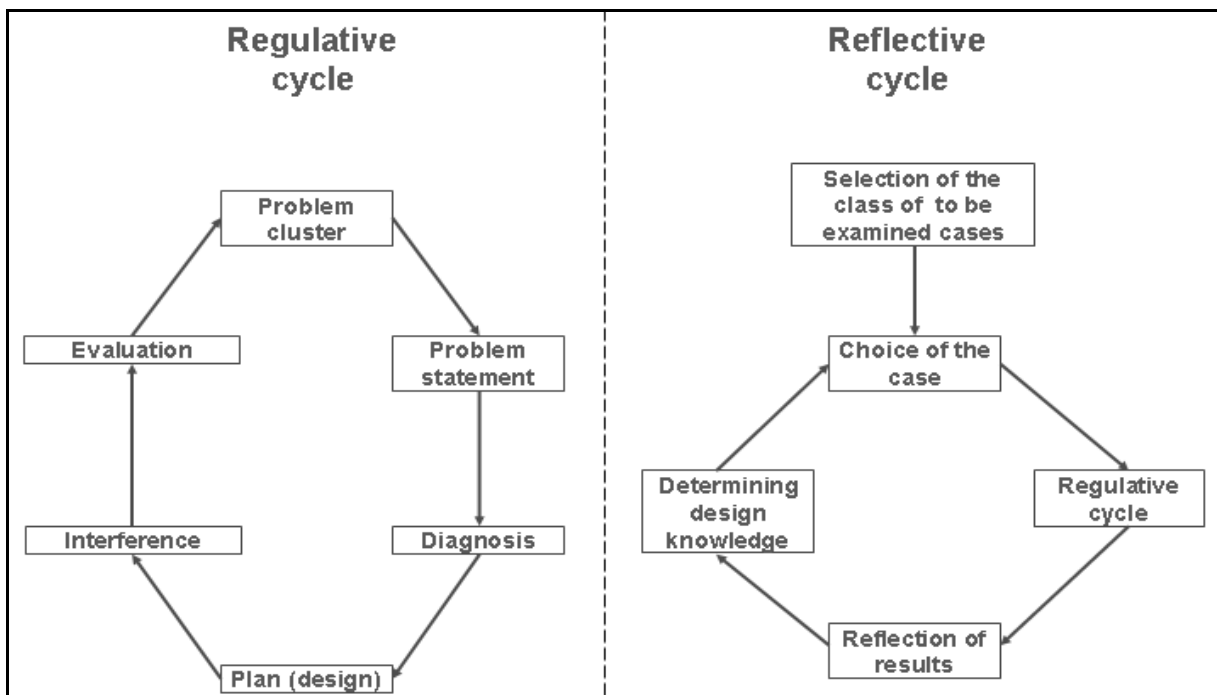
Figure 6: The regulative and reflective cycle (source: Van Aken, 1994)

3.2 Methods

Literature study
In order to get sufficient insight into the background and context of the formulated problem, a literature study has been explored. Besides, the literature will serve as a base concerning the conceptual model framework presented in chapter 2.

Case studies
In order to get a more comprehensive understanding of the subject, qualitative research is applied in the empirical part of this study. Qualitative research will enable the investigator to examine an actual subject in depth.

Which research method or strategy should be used, is determined by the following conditions: (1) the type of research question posed, (2) the extent of control an investigator has over actual behavioural events and (3) the degree of focus on contemporary as opposed to historical events (Yin, 2003:5). Within the scope of design-oriented research, a case study is an important research method. Yin (2003:13) defines a case study as: 'a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident, which relies on multiple sources of evidence'.

Since the implementation of performance-based financing and market competition in the Dutch cure sector concerns a contemporary phenomenon, concerning this study, case study research will be conducted. The before signalled developments will alter the (financial) environment Dutch hospitals are acting in. However, the degree to which these developments influence the environment and financial performance of Dutch hospitals is not clear. Currently the boundaries between the phenomenon and the context are not evident. By using interviews with the members of the hospital's board, planning & control managers and other experts by market authorities, data and information on the phenomenon will be gathered in a real-life context.

A primary distinction in conducting case studies is the choice between single case study design and multiple case study designs. Since analytical benefits and conclusions using two of more cases may be substantial and more powerful, in general, multiple case designs are preferred over single case design (Yin, 2003:53). In order to have possibilities to validate the findings, this study will employ multiple case study design (Van Aken, 1994:23). As figure 7 indicates, the case study is essential within the reflective cycle to generalize the acquired knowledge and results.

Bowling (2002:403) signals the possibility to employ the triangulation principle while conducting case studies. The triangulation principle implies that bias or systematic errors of acquired information are reduced because of (1) the applied research method, (2) the chosen research approach and (3) subjective observation by the researcher. Combination of several research methods and multiple case study design enables the researcher to analyse the unique research setting as a coherent and consistent group and to clarify the context of the identified problem.

Consensus development panel

Before developing an appropriate model it will has a useful effect to judge planning & control aspects arising from theory or identified previously. Testing and judging the preliminary model will provide better insights into the targets, needs and assumptions the final model has to comply with.

In order to test and to judge the preliminary model, the method of 'consensus development panel' (Bowling, 2002:407) is explored in this study. The method involves organising a meeting with a panel of experts in the field of curative healthcare, brought together to discuss the specific research objective or developing a consensus. The meeting of the panel was attended by three advisors or consultants and the researcher.

3.3 Sample

In the Dutch situation, three different types of hospitals are primarily distinguished: academic hospitals, general hospitals and categorical hospitals. Consequently, general hospitals are classified once more into 'top clinical hospitals' and 'basic hospitals'. Generally, all these different hospital types provide to a certain degree three core tasks: care in terms of medical treatments and nursing, research and education.

Each hospital type should react on the before signalled phenomena and hence all types are identified as case objects. Furthermore, each selected hospital is representative concerning the target population and hence no selection bias will occur. The chosen composition of case objects enables the researcher to use comparisons and formulate conclusions and expectations. In figure 7, a set of depersonalised key-data and prefixes corresponding to the selected hospitals are presented.

	Top-clinical hospital 1	Academic hospital 1	Categorical hospital 1	Top-clinical hospital 2	Categorical hospital 2	General hospital 1	General hospital 2	Academic hospital 2	General hospital 3
FTEs	2522	9011	1565	4059	360	1148	1320	6068	1122
Number of clinical admissions	27.228	38.555	6.587	44.334	1.036	17.427	16.911	25.254	12.376
Day treatments	23.169	36.784	4.701	44.464	13.338	14.555	14.294	29.063	1.312
Revenues (x 1000)	223.797	967.088	105.000	365.180	29.636	92.473	132.285	711.576	117.417
Percentage of profit related to total revenues	3,6%	2,2%	1,4%	2,8%	4,0%	-1,1%	-3.1%	1,0%	1,6%
Percentage B-segment revenues related to revenues	15,8%	3,2%	4,1%	14,2%	30%	21,3%	15,8%	3,1%	15,1%
Location	Zuid-Holland	Zuid-Holland	Noord-Holland	Overrijssel	Zuid-Holland	Zuid-Holland	Zuid-Holland	Noord-Holland	Noord-Holland

Figure 7: Research sample

3.4 Reliability and validity

The reliability of this research refers to the reproducibility and the consistency of the employed methods (Bowling, 2002:147). The reproducibility and the consistency of the qualitative research methods is principally guaranteed by the triangulation principle applied to the data resources and through the judgement of the research findings by external assessors (Seegers, 2002). The reliability of this research is enhanced, by means of discussing the preliminary findings with the advisors of PwC and the hospitals involved. Validity is an assessment of whether an instrument or method measures what it aims to measure (Bowling, 2002:147). By means of exploring different methods concerning data sourcing the degree to which this research is internal valid has increased. Besides, acting in conformity with the triangulation principle reduces the possibility of informational systematic errors. External validity refers to the ability to generalize the research findings to a wider population of interest (Bowling, 2002:150). Although it can be questionable whether material generated through case studies can be generalized (Bowling, 2002), they are often undertaken with a view to an understanding of wider situations. Since the central problem statement of this research will apply to the whole cure sector, this research also intends to obtain an general understanding. The quality of the study is determined by whether or not the presented model is applicable to a specific setting as well as to the entire sector. The last matter is embedded in this study through using the regulative and reflective cycle (figure 6).

4. Results

The basic shape of the preliminary model (figure 5) held in the selected settings. Proposed adjustments were primarily meant concerning refining the model or making the model more applicable to a particular setting. However, the results do not imply that hospitals already have the ability to manage results in an effective way.

Since the DBC-product structure and market competition are gradually implemented, all interviewed hospitals admitted the increasing necessity of managing results to guarantee continuity of care. The feasible method to perform managing based on results is under development in all hospital settings. Nevertheless, the degree to which a particular hospital demonstrated the ability to adapt to the changing circumstances varied within the research sample. Hospitals with a relatively bigger B-segment production or a negative result from operations showed relatively more awareness of the increased financial risks and hence the necessity to manage their results. Opposite, one of the categorical hospitals and the academic hospitals showed little appreciation of the concept managing results primarily due to their other financial or historical funds.

Managing results required several adjustments to the hospitals' management model to distribute adequately responsibilities and tasks in the organisation. It appeared that establishing results centres is a common-used approach in most hospitals. Nevertheless, several hospitals had trouble with implementing this particular management structure. Within this scope, the statement that an appropriate management model concerning a particular setting always involves a sophisticated model was frequently heard as an excuse concerning the absence of a well-functioning model.

In addition, with respect to managing results, strategic choices and the demand of care affect hospitals' management model. However, in many cases it appeared that no obvious and tangible strategic objectives were formulated and once they have been formulated, measuring accomplishment was frequently omitted. Another signalled problem with respect to hospitals' strategy was the existence of outdated strategic plans. Concerning the demand of care, the majority of the respondents did not agree with the narrowed one-dimensional bar as popped up in the model. Although the respondents pretended to know the factors making up demand, the ability to perform demand-driven management appeared limited.

Several hospitals within the sample indicated that adjacent to the identified pillars finance, performance and quality, primarily the pillar 'people' was missing in the model. Since people or the organizational culture is an important critical success factor the hospitals' processes need, this component was thought to be relevant.
Furthermore, the respondents were asked about the hierarchy or sequence of the identified pillars finance, performance and quality. With respect to the categorical hospitals, quality and more or less performance were the leading components. Concerning the academic hospitals, it appeared that meeting the costs (finance) is in the lead due to the different tasks and separate financial funds those hospitals were faced with. One of the top clinical hospitals explicitly indicated that the pillar 'finance' is in the lead. The selected general hospitals agree relatively more with the classification of the pillars than the other hospital types, primarily due to the absence of a sophisticated managerial model.
It appeared that almost all hospitals were managing finance in a broad sense, because they were more or less focussing on meeting the costs given a particular production and service level. In addition, hospitals with relatively less performance-based production demonstrated less awareness of managing (financial) results.
With respect to performance, only in one setting operational excellence was found as a significant objective. Although most hospitals pretended to have insights into the performance of their product mix, those insights were not considered as a sound basis concerning managing the entity. Further, the majority of the hospitals had trouble with managing their occupation degree in an appropriate way. Moreover, several respondents did not agree with the presented central role of the planning & control cycle under the headings of performance in the model. Since the planning & control cycle should primarily guarantee the functioning of the management model, it is recommendable to present the cycle as surrounding the whole model.
Concerning care quality, several critical comments were made by the respondents. First, medical specialists were not considered as an important aspect concerning quality only. If they are not under paid employment of the hospital, the model does not express the exceptional status medical specialists have in relation to the hospitals' management model. Further, the same critics were addressed to 'risk management' as another aspect under the headings of quality. Risk management was also thought to be relevant concerning the other pillars of the model. Since hospitals have to afford all their investment activities by themselves, risk management apply to being 'in control' as a broader perspective than care quality.

With respect to managerial information, several respondents emphasized the importance of a well functioning basis register system in the hospital. Several hospitals appeared to have troubles with generating appropriate management information due to deficiencies in their information systems. Nevertheless, incorporating the hospitals' basic register system as a separate component in the model was thought to be irrelevant.

5. Analysis

The basic assumptions and the preliminary conceptual model proven in those hospital settings confronted with relatively more market competition or with a relatively bigger sense of urgency to manage results, is the most prevalent conclusion that can be derived from the interviews. Hospitals faced with relatively more market competition are those hospitals involved with a significant part B-segment production in comparison to their total production. A relatively bigger sense of urgency regarding managing results was found in those hospitals confronted with a negative operation result or otherwise having financial difficulties not necessarily due to market competition as such. Other possibilities are the altered method of financing capital expenditures, poor financial management from the past or the need for financing upcoming big investment projects.

In general, the conducted interviews pointed out that production volume, costs, and investments are separately managed and hence nothing is actually changed to the former situation in which performance-based financing was mainly absent. A possible explanation could be that hospitals have to acclimatize during the transition from not-for profit to market competition. For the sake of simplicity and safety regarding being in control, they may explore the management methods they got used to.

Nevertheless, performance-based financing and more in particular market competition require an integral managerial approach to manage results (figure 8).
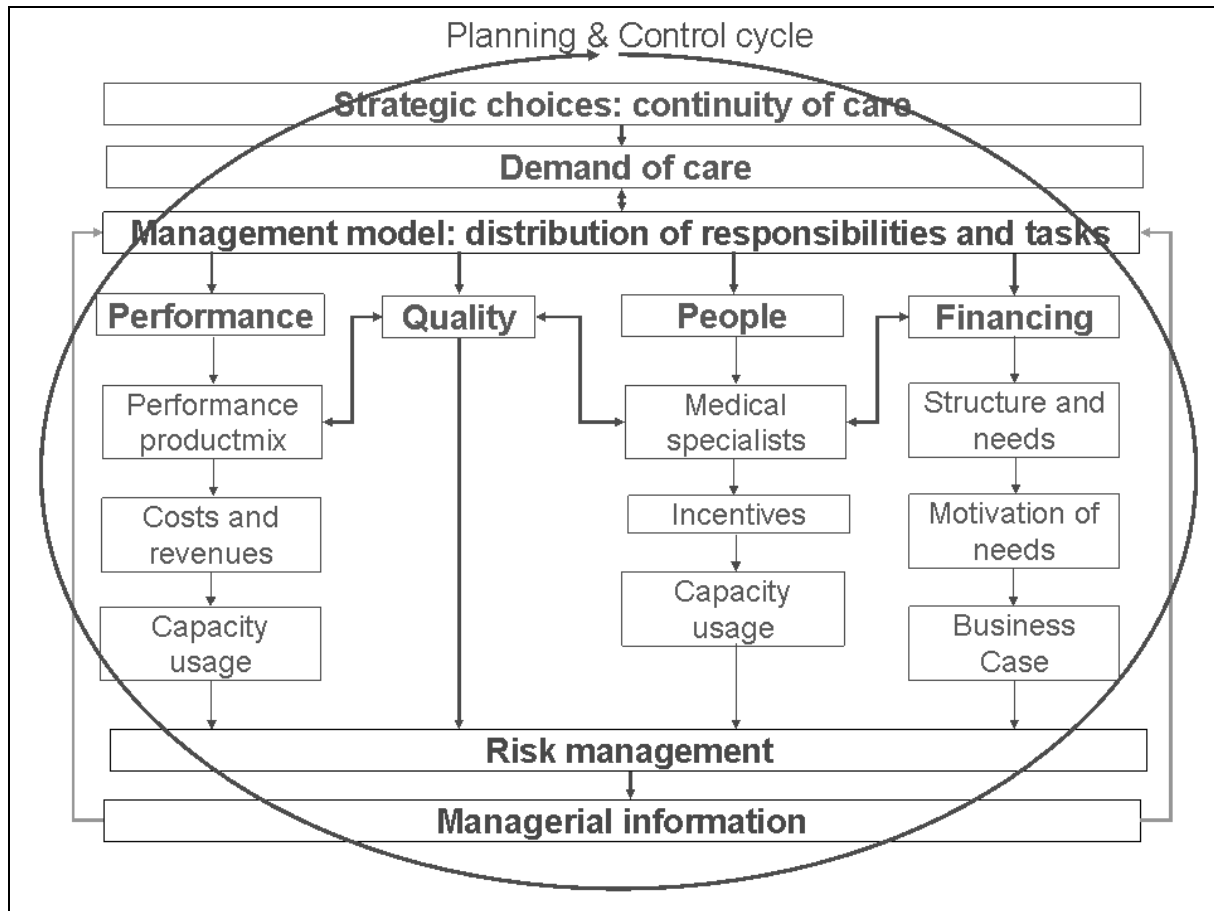
Figure 8: Adjusted conceptual model

In line with the presented model concerning integrally managing results, hospitals should at least address the following aspects in their management model and planning & control cycle.

Strategic choices are explicitly derived from the hospitals overall strategic plan. Since the accomplishment of the strategy should be secured on lower organisational levels, alignment exists between the hospital's management and the medical board. Concerning this reason, to identify the appropriate performance-indicators a bottom-up approach can be applied. The interview results did not provide joint or new performance-indicators relevant concerning the research's subject. Since most hospitals had difficulties regarding this topic due to a lack of experience within hospitals, nevertheless, the interviews pointed out that translating the strategy into tangible objectives by performance-indicators remains critical.

The necessity of alignment between the hospitals' management and their employees or self-employed medical specialists is partly demonstrated by adding the additional pillar 'people'. Next to it, the results of this research pointed out that the organisation's ability to successfully perform change management is expected to be fully dependent of the hospital's people irrespective their function. The alteration from management primarily focussing on being cost covering to actively managing results

requires cooperation of people within the organisation. Complicating factors in hospitals are the lack of medical specialists and identifying the appropriate incentives, not necessarily financially oriented. Incentives can be incorporated in management contracts involving a broad scope like research possibilities, education and visitation trips.

A useful method to reach alignment between management and the medical specialists on the condition that profits are shared, is implementing organisational structures like profit or result centres. Other useful approaches could be involving medical specialists in the hospital's board of directors or implementing a cooperative approach. Such management structures secure that responsibilities and tasks are distributed to lower or operational levels into the hospital organisation. Through profit centres medical departments or medical specialists as operational managers are integral responsible concerning the profitability of their products, quality of performed services and financing their needed investments. Exploring those management approaches will mitigate the threat the pillars are managed in a separate way.

Due to the ongoing changing circumstances concerning hospital financing and the environment they are acting in, applying risk management will be a useful concept. The results pointed out that hospitals have already settled down the concept concerning their performance and finance, but regarding care quality it is under exposure. The red vertical line connecting quality to risk management emphasizes the importance to implement risk management also in relation to quality of care as a part of the overall concept. Since political and social pressure coming from several incidents in the past, hospitals should properly secure quality of performed activities to mitigate reputation damage and ultimately financial risks.

As another prevalent conclusion from the interviews can be derived that the investigated hospitals have still not or just slightly implemented the before formulated aspects. The following factors will increase the adoption of the presented conceptual model in different hospital settings:

1. Eliminate the current partitioning walls in hospital financing by the government, creating a market competition in terms of a relatively bigger B-segment.

2. Create a level playing field between hospitals by the public and by the market authorities.

3. Less regulated market competition by decreased legislative pressure of the government and let critical developments (e.g. the possibility that hospitals will fall into bankruptcy) be handled by the discipline of the market.

4. Facilitate possibilities to distribute profits even outside the healthcare sector. This development would attract private investors who want to see return on investments to a certain degree.

6. Summary and discussion

6.1 Summary
As of 2005, Dutch hospitals are confronted with the DBC-product structure as the tool concerning gradually implementing competition market in the cure sector. Market forces are expected to decrease hospitals' costs and to increase efficiency and care quality within

the healthcare sector. The DBC-system involves a performance-based finance system that replace the previous finance and reimbursement system in which each hospital was primarily ensured of its revenues (Zuurbier & Steinbusch, 2005).

DBCs in free-market based model are considered as negotiate products between hospitals and health insurers all having their own interests. As a result, hospitals are faced with increased risk profiles (PwC, 2008) and hence a profit motive to secure continuity of services. Gradually implemented market competition through a system involving integral tariffs negotiated by the hospitals themselves, may threaten hospital's continuity as a care supplier. In addition, given the poor financial position of many hospitals current practice shows the urgency to alter the hospital's managerial approach from supply-oriented to demand-driven through actively managing results. Actively managing results requires adjustments in the hospitals' management model and planning & control cycle.

This research could not find those components already proven relevant for managing results. Although support regarding the content of the conceptual model was found, the empirical findings indicated that the urgency to integrally managing results was generally limited in the investigated settings. Only some hospitals performing relatively more B-segment production or having a poor and risky financial position showed urgency to develop a managerial approach focussing on results. Slightly implemented aspects thought to be relevant are the organizational structure in terms of establishing profit or result centres. In addition, distributing responsibilities in terms of financial and medical decisions to lower organisational levels creating a bottom-up approach, directly converting the hospital's strategy by means of identifying performance-indicators and performing analysis of departments, clinical pathways and composition of care profiles through lean management. Another relevant component is establishing a franchise network to sell and share knowledge and production methods.

Since costs, production and investments are managed in a separate way, opposite, hospitals in which managing results is beyond question yet control principally concerned about sub-areas. Those findings are primarily caused by the fact that competition market in the health care sector is still limited primarily caused by the system's distinction in A-listed and B-listed DBCs. Further, market forces raise the dilemma of the solidarity-principle (not everything should explicitly be paid) versus a commercial attitude of hospitals. Other dilemmas hospitals are faced with are care quality, transparency and people. Above all, the final purpose and conditions concerning introducing market competition in the cure sector by the government are far from clear and change over time.

As a result, hospitals have difficulties with the transition from not-for profit to profit and may play a waiting game. Hence, as the most prevalent conclusion could be drawn that appropriate planning and control components to manage results are under exposure or slightly under construction. Current practice actually indicates that this study may yet be one bridge too far.

6.2   Limitations and suggestions for future research

This research is not different from any other scientific research and hence the work presented in this thesis is faced with limitations and restrictions. One of the boundaries of design-oriented and exploratory research approach is that it will only go as far as exploring

the research's subject. A specific solution to the formulated research question is not available. Outcomes of this research principally serve as recommendations and suggestions for future research. Without extensive field research in terms of a relatively bigger sample, it will be tough to identify the planning and control aspects concerning managing results from other characteristics and developments the Dutch cure sector is confronted with on a continuous base. Examples of other characteristics may be political and social opinions.

With respect to case studies as one of the chosen research methods, also some shortcomings could be noticed. First, since obtained data principally refer to a specific case and only 9 out of more than 80 hospital cases were selected, it will be hard to generalize the findings to a wider population of interest. Second, obtaining data through interviews is not free from the researcher's subjective assessments. However, adequate selection of hospital types, and exploring multiple-case design as well as the triangulation-principle applied, and reviews of the research findings by external assessors and experts will enhance the ability to generalize the research findings.

The outcomes of the conducted research will provide some recommendations for future research. Further research could take the form of a longitudinal study to examine the functioning of the conceptual model while market competition is increasing in the future. Furthermore, it could be examined whether the extension of the B-segment will actually cause the urgency to manage results. In addition, one can investigate what are the minimum requirements of managerial information concerning management based on results. Once has been determined which managerial information is required for managing results, hospitals may be facilitated to perform management based on integral results.

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The Impact of Service Oriented Architecture (SOA) on IT Auditing

F.S. (Farida) Chotkan[1]

Executive Summary

This study investigates the impact that SOA has on IT Auditing. Service-oriented architecture emerged as new technology in literature since 1996 and it has been a hype in the Netherlands between 2006 and 2007. The development of new technologies is faster than the developments in IT auditing profession. IT auditors have stated in interviews that they are aware of the impact that SOA has on their profession and that SOA will need another audit approach, because the environment is different than the traditional IT environments on which audit programs are based on. Auditing SOA is a complex process, but by approaching it from the business processes and stages in the Software Development Life Cycle process, the auditor can gain more insights to audit this complex environment.

For the full text of this master thesis refer to the following webpage: http://hdl.handle.net/2105/5102.

1. Introduction

1.1 Research background, problem and questions

The first publications of service-oriented architecture came out in 1996 by Gartner. Since then a lot of companies decided to adopt this new architecture. It has been a phenomenon for already thirteen years and we still see that documentation on the supply side of this technology is more than on the demand side. There is not much literature about successful implementation of SOA and neither of the impact that SOA has on management and internal controls.

In 2008, SOA could be found in the "slope of enlightenment" in the Gartner hype. This means that SOA is now mature and a lot of knowledge and experience about SOA is available in the IT branch. In different Dutch researches the expectations of organizations, the success factors and the pitfalls of SOA implementations were published in 2007. In the Netherlands SOA was a hype between 2006 and 2007.

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There are many publications and researches done on SOA, but most of them are focused on technical aspects. Because there is a lack of literature about SOA and IT auditing, the opportunity has been taken to put the focus of this research on the impact that SOA has on IT auditing.

There are a lot of definitions for SOA, some from a technical perspective and some from a business perspective. The definition that will be used in this thesis is the one according to Marks and Bell [2006]:

> *"SOA is a conceptual business architecture where business functionality, or application logic, is made available to SOA users, or consumers, as shared, reusable services on an IT network. Services in a SOA are modules of business or application functionality with exposed interfaces, and are invoked by messages."*

Furthermore, the SDLC Software Development Life Cycle) process has been chosen to point out the importance of an IT auditor during software development activities. The SDLC process is a process that is underestimated by organizations. They forget that this is the process they need to follow to build their systems and it is also a process that can be used to control efficiency. According to the Information Systems Audit and Control Association (ISACA) [2003] the systems development life cycle can be defined as:

> *"the process involving multiple stages (from establishing the feasibility to carrying out post implementation reviews), used to convert a management need into an application system, which is custom-developed or purchased or is a combination of both."*

This process is being underestimated by organizations. IT audit also focuses on the SDLC process. This process became important to organizations and auditors since both groups realize that auditing a system after implementation is inefficient and this inefficiency could be decreased by auditing the SDLC process, which means auditing systems during the development process.

The scientific relevance of this research is related to the fact that research in the field of SOA focused on IT auditing and compliance has not been conducted. This research aims to identify the changes the IT auditing world will need, to be able to audit service-based IT environments. It also aims to make the IT auditing world aware of their position and their importance for organizations.

The business relevance of this research is more related to companies that have or will have a SOA environment and also to accounting firms who are delivering IT audit and compliance services to other organizations. This research aims to make the accounting firms aware of the changes SOA brings for organizations, so they can adjust their audit approach without forgetting the objective of an audit: collecting and evaluating evidence to determine whether a system safeguards assets, maintains data integrity, achieves organizational goals effectively, and consumes efficiently. It also aims to remind organizations that the SDLC process is an important process that should not be underestimated.

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To be able to reach the above mentioned aims the following research question is addressed in this study:

Would SOA have an impact on IT auditing and if so how are related IT auditing aspects affected?

Sub-questions that support the main research question, also addressed in this study are:
- How does SOA differ from a traditional IT environment?
- Is the SDLC process an important process for organizations and IT audit?
- How are technology, people and processes related to IT auditing and SOA?
- What effects does new technology have on the future of IT auditing?

1.2 Outline

This article consists of six sections, as illustrated in figure 1-1.
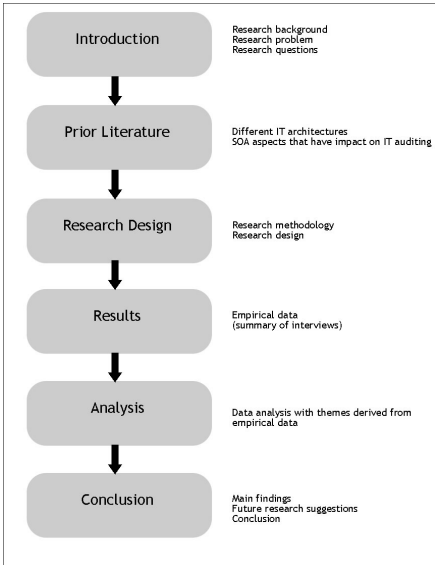
Figure 1-1: Outline article

The first section gives a brief explanation of the research background, objective and the questions. The second section contains the prior literature, it explains the different IT architectures, the SOA aspects that have impact on IT auditing, the SDLC process within SOA and the IT auditing profession. The third section explains the research methodology used for this study and the research design, which explains how the different parts of this study are related to each other. Section four provides the results of the research and section five the analysis of the results. The last section, section six, contains the main findings and the conclusion on the research.

2. Prior Literature

2.1 Different IT architectures

To be able to get an overview of the different IT architectures that have been existed and still exist, it was necessary to go back in time. More than forty years ago organizations establish their own IT departments using different kind of systems with their standard application functionalities and they had their own data centre. In the 70s and 80s modules in business systems became popular. These modules were supplied by software supplier or were developed in house as custom-made applications [Vessiliadis et al., 2006]. In the 90s and the following years organizations began to use third parties for the delivery of application functionalities and IT outsourcing became a hype. The reasons for outsourcing are shown in figure 2-1 [ITGI, 2005]:
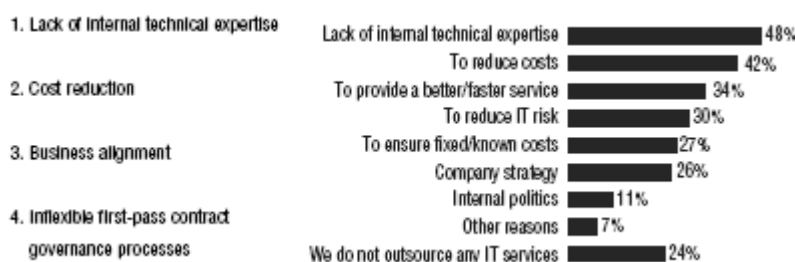
Figure 2-1: Reasons for outsourcing [ITGI, 2005]

Different outsourcing techniques are [Butler, 2008]:
- ASP (application service provision): third parties (application service providers) offer, host and manage applications remotely at a central location (data centre) on a one-to-one basis to customers;
- Saas (Software as a service): service providers develop, offer and deploy software applications that can be accessed by multiple service consumers over the internet.

The first publications of SOA were in 1996 by Gartner. In a SOA there is a collection of numerous services from different sources (internal or external or a combination of both). These services are integrated and can interact and communicate with each other. Aspects that will influence the auditor's activities in the different IT architectures are the place where applications and data are hosted, associated risks and who is responsible for the controls. These aspects are different in each of the IT architecture previously mentioned. The differences in the IT architectures are illustrated in below figure 2-2 [Butler, 2008].
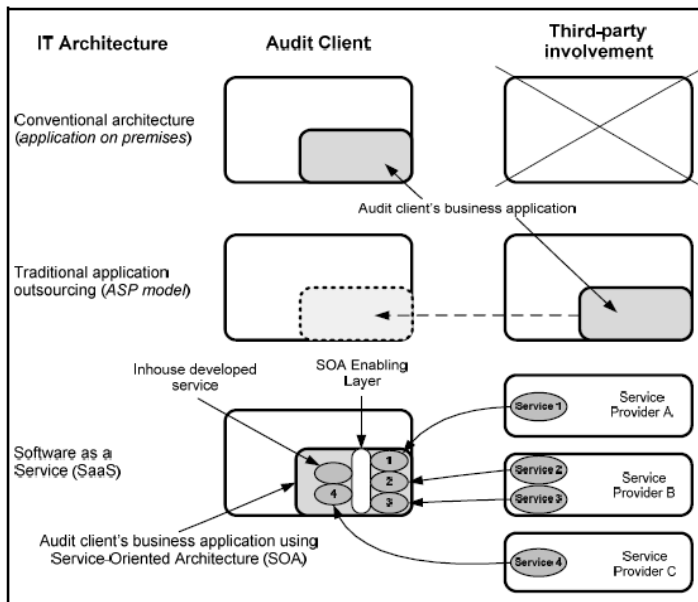
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Figure 2-2: Differences in IT architectures [Butler, 2008]

In different literature ([Artus, 2006], [Marks & Bell, 2006], [Thomas, 2007]) it is explained that SOA is chosen because of its flexibility within the business processes, but still the figure above shows SOA as a complex environment.

The differences between SOA and the other IT architectures are [Butler, 2008]:

- SOA is process-oriented and heterogeneous and traditional architectures are functionality – and application driven;
- Life cycles in SOA are shorter than in traditional architectures. A lot of changes are made in a SOA environment and this supports flexibility;
- SOA is based on messaging and traditional architectures on objects.

Looking at the first difference of SOA between the traditional IT environments, the auditor will have to change his strategy in a SOA environment [Butler, 2008]. Because SOA is process-oriented, the auditor will have to focus on testing the business process from the beginning till its end. He/she will also have to audit each business process that can include different services, individually. This means that the auditor must gain an understanding of the environment and must have an overview of all services in the SOA environment.

Looking at the second difference mentioned above, it can be said that although a SOA environment creates flexibility for businesses, it creates complexity for auditors. A SOA environment is a complex audit environment, because it continuously changes.

The third difference brings along technical challenges for the IT auditor as a SOA environment is message-oriented. Knowledge of security aspects within messaging will be required.

Furthermore, Haines [2007] stated that SOA brings along changes in developer skills, roles, tools, processes, and organizational culture.

2.2   SOA aspects that have impact on IT auditing

As already described in section 2.1 there are several differences between SOA and traditional IT environments. In previous section 2.1 the impact on IT auditing is approached from the three differences mentioned. The challenges for the IT auditor will be discussed further in this section [Butler, 2008]:

1. Because SOA is a complex environment, the auditor will need technical skills. As already mentioned, difference number three, messaging, will require technical knowledge to be able to audit the security aspects within SOA. The auditor must understand the environment;
2. Flexibility is one of the key adoption factors of SOA. Where SOA creates flexibility for businesses, it creates complexity for IT auditors. SOA changes a lot, because of internal factors (scalable and manageable systems) and external factors (competitive issues and global markets). A continuously changing audit environment will affect the nature, timing and extent of the audit approach;
3. Risk assessments will still be an important activity of the IT auditor. The risks related to SOA are: security, insufficient segregation of duties, data confidentiality, integrity, and business continuity;
4. Service level agreements define services in a SOA environment. They describe the relation between the service consumers and service providers. An IT auditor is required to understand the SLAs, as they describe the services involved, and the obligations and responsibilities of the parties involved;
5. The SOA enabling layer is a very important part of the environment. This is also a challenge for the auditor, because this layer integrates the components in the SOA, controls the messaging, and access control and security elements can be defined here;
6. Besides the aspects already mentioned above, there's another aspect that is also very important and it may have impact on the activities of the auditor. A successful SOA environment also depends on the technical skills of employees and the ability to plan, coordinate and effectively manage the environment.

2.3   SDLC in SOA

The SDLC process is mostly forgotten by organizations. This process is being audited in organizations, where they have to comply with rules, regulations and legislations. This chapter aims to discuss the differences there are between the SDLC process of a SOA environment and the SDLC process of a traditional IT environment.

ISACA [2003] provides an IS guideline for reviewing/auditing the system development life cycle. In this guideline all aspects that need to be reviewed are summarized. According to literature [ISACA, 2007], this process is being audited, by reviewing documentation of each phase. Whether this is an effective and efficient way of auditing this process is not evident. The differences in SDLC activities will be outlined in table 2-1 from the traditional SDLC point of view, by looking at the ways in which the traditional life cycle activities change in an SOA environment [Lewis et al., 2008].

Traditional SDLC phases	SOA SDLC
Requirements	In an SOA environment, this requires a business process management (BPM) focus and it includes a large number of stakeholders. One of the characteristics of SOA is that it aligns the business with IT. During this phase it is important to look at the inventory of business processes and services.
Architecture and Design	Activities during this phase in an SOA environment involve: • setting up responsibilities of service consumers, service providers and the service broker. This decision must lead to loose coupling; • making decisions which technology and standards to use. Standards for a SOA based environment are still emerging; • implementing quality of service attributes; • determining the degree of service reusability to get the most benefit out of the architecture.
Testing	Testing in a SOA based system must be done from the service provider's as well as from the service consumer's perspective. From a service consumer's perspective it is very important to test on the exception handling as services could become unavailable and disappear without notifications. From a service provider's perspective the service will need to be tested on direct user's level and on the level of users of the service interfaces. Test cases must cover all business processes that use one service. Because there are SLA's between the service provider and the service consumer all tests need to consider the agreements in the SLA's.
Implementation	In an SOA environment implementation activities include checking on loose coupling and the common infrastructure components such as security, service repository management, and data transformation. As in any other distributed system development, there is no guarantee that the system will work in production (run time). This is also a problem in a SOA based system due to technology and standards that support the execution of the system.
Maintenance	Maintenance activities in an SOA environment are very complex and this can increased when external service consumers and providers also have access. Service providers have to consider a set of unknown users if tracking the service consumers in the SOA infrastructure is not possible. There are direct users of the old systems and users of the service interfaces. Besides user management the configuration management also becomes complex, because it is very difficult to decide what to put under configuration management; there are a lot components, e.g., service interfaces, configuration files, test instances etc.

Table 2-1: SDLC differences [Lewis et al., 2008]

According to Lewis et al. [2007] SOA has a major impact on SDLC because of the following characteristics: business agility, reuse of legacy systems, adaptability of applications, and interoperability of systems. He also stated that there are misconceptions about SOA that

make organizations believe that developing SOA is not different from developing traditional IT environments.

Gu and Lago [2007] has proposed a service life cycle management, see figure 2-3, that consists of three stages to build their SDLC model. The three stages are:
- design time: this is the life cycle of a service before it is being used;
- run time: this is the life cycle where services are put into production;
- change time: this is the life cycle when services need adjustments.

Each stakeholder will be responsible for the activities within these three stages.
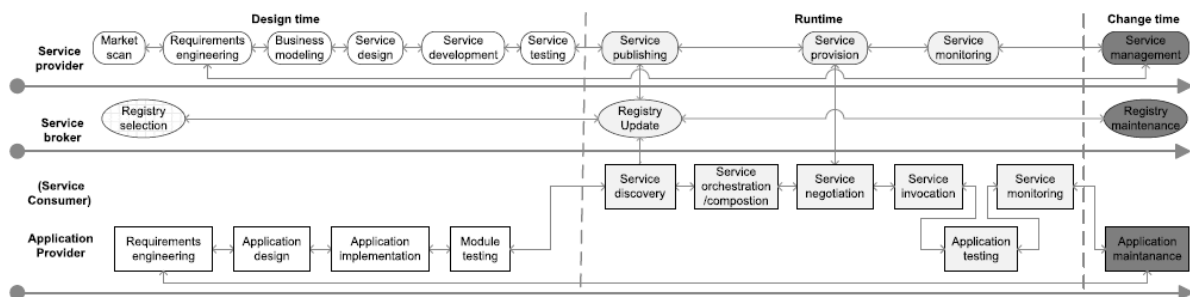
Figure 2-3: Life cycle activities associated with services in SOA [Gu & Lago, 2007]

2.4 IT auditing

Drivers of IT auditing
It auditing now, is not what it was years before. Years ago auditors were accountants who gave second opinions on the integrity (quality, completeness, accuracy) of a company's finances. The objective of an audit was delivering assurance to stakeholders and authorities [Hinson, 2007].
Because IT plays a significant role these days in organizations and transactions are done through IT systems, the business risks on the level of information security threats and vulnerabilities have increased. This is one of the reasons why an IT audit became part of a financial audit and why organizations began to invest little by little in IT audits.

According to ISACA [2008] and IT audit can be defined as:
> "any audit that encompasses review and evaluation (wholly or partly) of automated information processing systems, related no-automated processes and the interfaces between them."

As mentioned before, the technical advances in IT is one of the reasons why the demand of IT audits increase. Another reason that can be seen as a driver for IT audit is the interest in governance, risk and compliance. After economic scandals like the WorldCom and Enron scandals governments began to set compliance regulations to which companies have to comply with. Frameworks like COSO and COBIT became popular because organizations interest in IT controls became bigger than before. The third reason is related to changes in the way organizations began to use IT. There was suddenly an IT explosion and IT became a

department on its own in organizations. Companies became aware that they can use IT for their business and strategic changes and business-IT alignment started to increase.

Audit standards
IT auditors use techniques, methods and tools to perform their activities. In different literature [Hinson, 2007, ISACA, 2008] the techniques, methods and tools are described. Besides these there are also audit standards to which the auditor needs to comply with when performing an audit. Audit standards guide the auditor during his audit activities. The International Auditing and Assurance Standards Board (IAASB) has setup the International Standards on Auditing (ISA). These standards provide the auditors the necessary guidance to address those issues of greatest concern to the public as well as the markets [IAASB, 2007]. Over the years, countries are using and are adopting or incorporating these ISA's into theirs national auditing standards.

SWOT analysis on IT audit
Hinson [2007] has performed a SWOT analysis on the IT auditing profession. This analysis describes the positives and negatives of IT auditing and gives an overview of IT auditing in time. The past, present and future of IT auditing can be derived out of this analysis. The following figure 2-4 shows the SWOT analysis.

Strengths	Weaknesses
IT/information risk, control/security, and governance focused specialism. Provides independent, objective assessment. Provides assurance to stakeholders. Applies structured methods systematically and rigorously. Increasingly viewed as a true profession.	Audit is viewed historically as an accounting review function, a rather cynical and negative one at that—the business benefits of auditing are seldom promoted or understood except perhaps at executive board level. IT auditors who focus too deeply on the technology may miss the wider organizational context and human issues, hence neglecting important business risks.
Opportunities	**Threats**
Collaboration with non-IT auditors and other business people. Strong IT audit tools, techniques, and methods (more later). Proactive auditing (e.g., tracking software development projects from cradle to grave). Innovative change catalyst. Global cross-fertilization of best IT and business practices.	Over-commitment—IT is everywhere. Unreasonable expectations due to complexities both within the technology and in the way it is used and abused. Being put into the "compliance" box (e.g., the function is to assess compliance with SOX, not to stimulate/promote added value). Dissolution of IT audit as a discrete specialism because virtually all auditors need IT audit skills.

Figure 2-4: SWOT analysis IT auditing [Hinson, 2007]

Besides the SWOT analysis, Hinson [2007] also explained future directions for the IT auditing professions. According to him the following needs attention of IT auditing:
- New technologies will be a challenge for IT auditors as the risk landscape changes and this will make that IT audit specialism will emerge;
- Added value of IT auditors must be more than only identifying risks in IT systems. Therefore they should have business and technology skills;
- IT auditors must not only focus on the technology, but also on processes and people. They need people to give them a better understanding of the environments and therefore they will also need people skills as well;
- There must be more cooperation between different auditors.

3. Research Design

3.1 Research methodology

The research is a qualitative research. According to Myers and Avison [2002], it is a research method

> *"developed in the social sciences to enable researchers to study social and cultural phenomena".*

Qualitative research can help the researcher to understand people and the social and cultural contexts within which they live according to the authors. Qualitative research consists of different qualitative research methods and qualitative data sources. Examples of qualitative research methods are action research, case study research and ethnography. This research is based on the case study method. According to Benbasat et al. [1987],

> *"a case approach is an appropriate way to research an area in which few previous studies have been carried out".*

A multiple-case design is used, as different IT auditors will be interviewed. Furthermore, this case study research is an interpretive study since the opinions and experience of IT auditors are interpreted with help of the interviews and questionnaire.

3.2 Research design

The first step during this research was gaining more information about service-oriented architecture and IT auditing. This is done by reviewing literature. The second step was setting up interview questions. The third step was conducting the interviews and collecting the empirical data. The interviews are recorded and there is a transcript of each interview. Empirical data is analyzed by comparing the reflections and opinions of the interviewees using critical thinking. The last part of this research will be the conclusion. The opinions of the auditors will be compared with the literature review and a conclusion will be drawn.
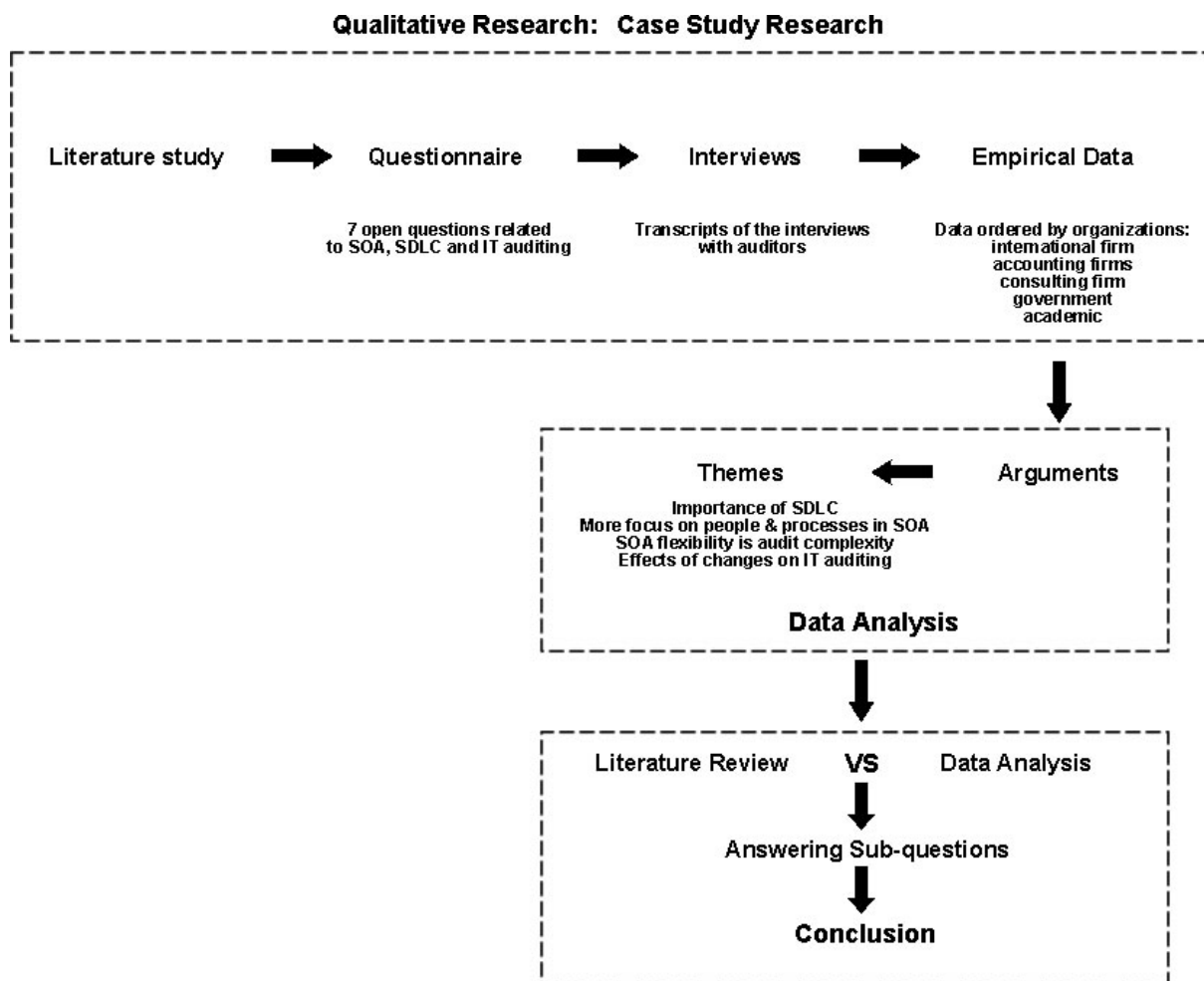
This process is illustrated in figure 3-1.

Figure 3-1: Qualitative research

4. Results

As explained in the research design, interviews were conducted. Ten auditors were interviewed and they are from different organizations. The interviews are ordered by these different organizations:

- two auditors of an international manufacturing firm (This firm has to comply with SOX regulations and is on it is listed on the US stock exchange);
- two auditors of a Dutch consulting firm (This firm delivers only IT audit and compliance services to other organizations and is specialized in SOX compliance. It is a SME);
- two auditors within the Dutch government (The Dutch government has its own IT audit organization);
- three auditors of different accounting firms (These firms deliver IT and Financial audit and compliance services to organizations);
- one auditor of a Dutch university (This auditor is a professor at the Dutch University and coordinates the IT Audit Post-Initial programs).

The auditors gave their opinions on 6 different topics related to SOA, SDLC and IT auditing:

- auditing SDLC
- service-oriented architecture
- audit standards
- people
- processes
- future

In the complete study[2] a detailed description of each interview can be found. Important statements and arguments are selected from the interviews and are used within the analysis of the collected data.

5. Analysis

The different point of views of the interviewees are described and evaluated in this section. The purpose of this is to find correlation and relevance to different themes. Arguments that will support this process are illustrated in figure 5-1.
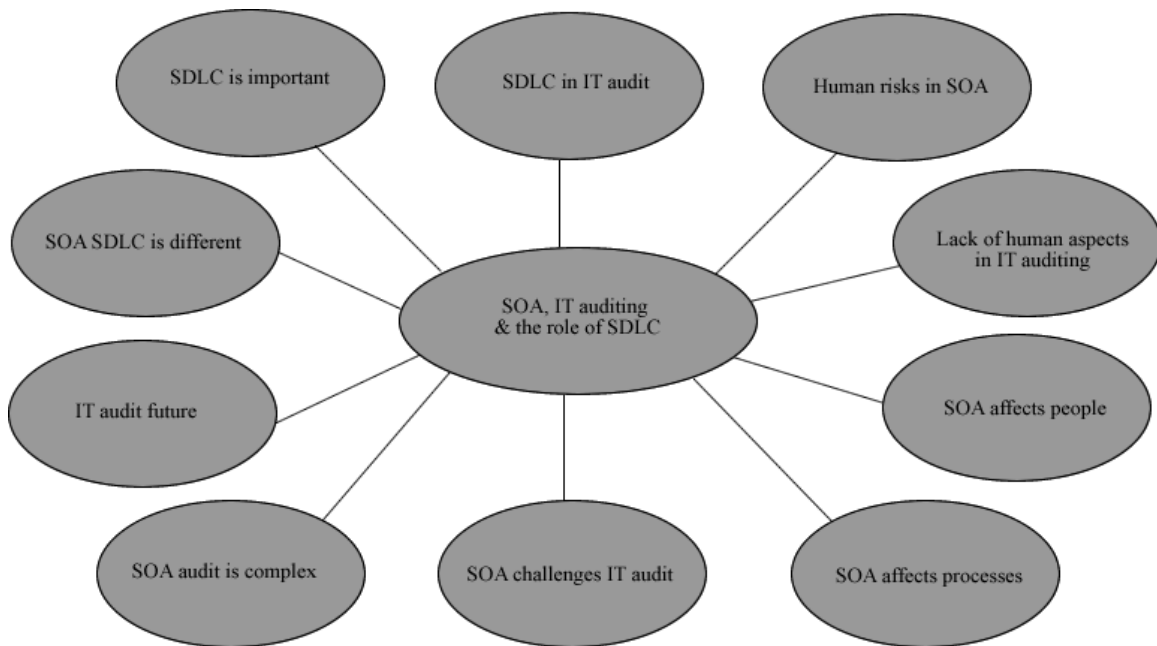

Figure 5-1: Arguments supporting the data analysis themes

[2] The complete study can be found here: http://thesis.eur.nl/thesis/index/783769483

Importance of the SDLC process

The SDLC process is a very important process that could help organizations during their development and implementation activities. Many organizations are not aware of this and they underestimate this process. This process is a standard and organizations are using it differently. Organizations are not aware of the fact that this process can guide them through the implementation process of internal controls. Therefore it can be considered as a very important process. When implementing governance controls, application controls, data controls and management controls during the SDLC process, management of the IT environment will be much more efficient. During this process a lot of other management processes are being used for example project management. These processes guide the devolvement team and after implementation the organization can be ensured of a system that

works well. All the interviewees have stated that the SDLC process is very important and that internal controls can be implemented during this process.

As mentioned before, the SDLC process is a standard and organizations use it differently and they even create their own SDLC process. This depends on the organization and the IT environment. Service-oriented architecture is a new technology where the development of services based on business processes is one of the activities. The SDLC processes in such architecture would be different than one in a traditional IT architecture where developing applications was the core. The first difference is the end product; in a traditional IT environment the end product is an application and now in a SOA it is a service. Besides this difference, there will be more differences in the activities of each phase of the SDLC process. These differences are caused by differences in the environment and tools to be used. The interviewees have stated several differences that will occur during the performance of the activities, e.g., differences during the testing phase and requirement phase. The following table 8.1 shows some differences in activities of each phase of the SDLC approach, based on opinions of some interviewees:

SDLC Phase	
Requirements	The focus in a SOA is business process; this means that business analysis will be very important in order to identify all business processes including legacy applications.
Architecture & design	Because the architecture of a SOA is different, the technical design will be different. Design blueprints are necessary to be able to have an overview of all aspects and to be able to implement internal controls.
Testing	Testing in a SOA environment is a complex process. All stakeholders need to be involved in the testing process and human testing is complex because of the possibility of unknown users in a SOA environment. Involvement of the SLAs during the tests will be necessary.
Implementation	The interviewees did not mention any examples of differences in the implementation phase in a SOA environment. Most of them were sure that not many will change during the implementation, except that the technology is different.
Maintenance	Because life cycles are short in a SOA, disposal will take place fast. Maintenance will be a complex process, as this is different from each stakeholder's point of view. User management is a very complex process, because in a SOA there are internal and external users and there is a possibility that unknown user-access exists.

Table 5-1: Changes in SDLC activities

The SDLC process can also be reviewed during an IT audit. Many organizations make the mistake to consult an IT auditor after the implementation of a system, but the best time to consult such an auditor is during the development and implementation activities. The auditor can guide the organization through the implementation process of internal controls and can also advice on audit requirements. In this way gaps during the development can be found on time and they can act on them directly. It is more efficient to audit during the SDLC process than at the end of an implementation. This saves time and costs in system development. Most of the interviewees have stated that it is important to audit during this process, because it can be used as a verification tool. The interviewees have also given their opinion on how they would review the SDLC process.

5.2 More focus on people and processes in a SOA environment

A service-oriented architecture is a new technology that is not any longer a hype. Still organizations underestimate the implementation of such architecture. People, processes and technology are three aspects that have effects on each other when one changes. In this case we can see that SOA is a new technology and it affects people and processes.

Figure 5-2 illustrates a better understanding of how technology, people and processes are related, when new technology is being implemented:
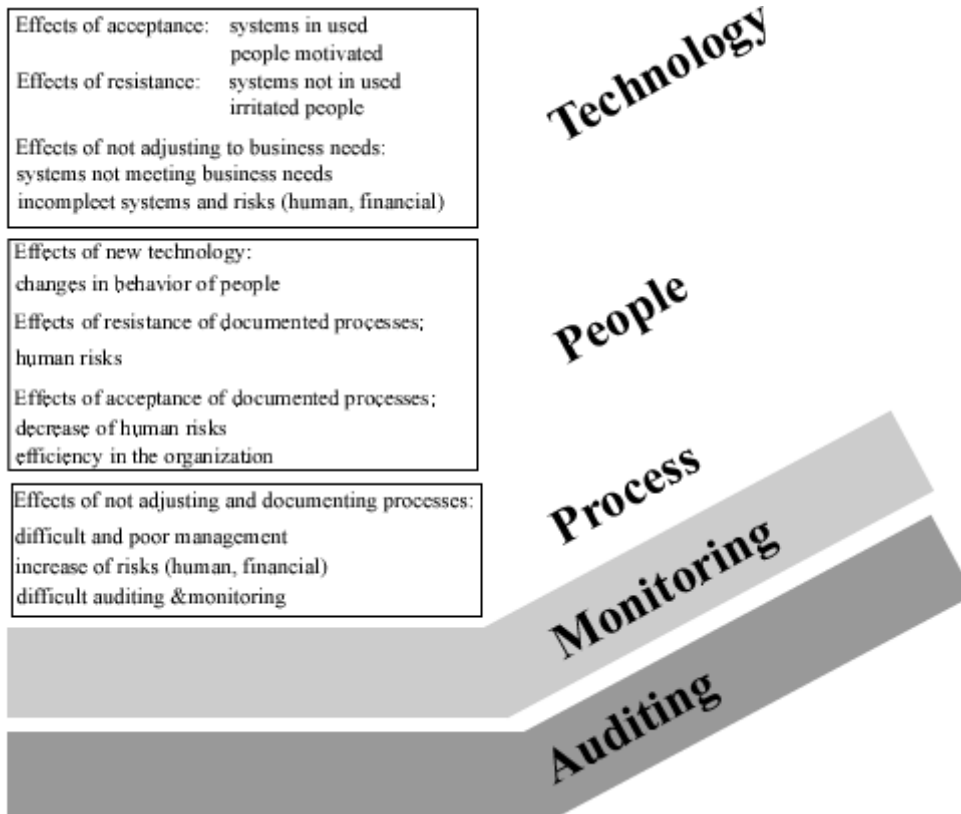

Figure 5-2: Technology, people, processes affect IT auditing

5.3 SOA flexibility is audit complexity

A service-oriented architecture creates flexibility for organizations. SOA reduces the technical complexity so systems can freely communicate with each other. This creates flexibility for the organization; they can now act fast on market changes. What organizations are not aware of and sometimes also auditors, is that this flexibility creates a complex environment for auditors. In a SOA environment the life cycles of services are short, because they are being changed constantly. This is why a SOA environment can be considered as a dynamic environment. In the audit world there is no standard that is based on auditing a dynamic audit environment. A dynamic audit environment has effects on the timing, scope and results of the audit. It makes it difficult for the auditor to set his scope and results, while changes occur constantly. This will be a time consuming process and it is

one of the challenges of an IT auditor in a SOA environment. Two interviewees mentioned this characteristic of a SOA environment.

Other challenges for an IT auditor in a SOA environment are described in table 5-2.

Challenges	
Not enough literature and experience in auditing SOA	Because there is not enough literature and experience in auditing a SOA it is difficult to say how a SOA should be audited. An auditor in a SOA environment will have to do this on his own.
SOA is not a monolithic environment	For years auditor are used to audit a monolithic IT environment, i.e., one systems in one company. New systems are based on the internet technique and the standards have not been adjusted. Some interviewees pointed out that there is a need for audit standards based on architectures and classification of systems.
Technical aspects in SOA	Technology is changing and so are the techniques that are used. The auditor will need skills and knowledge to be able to understand the complexity of technical aspects in a SOA.
Risks	SOA is a different architecture and it will have other risks. There are more parties involved in the environment, which means that risk analysis will have to be done from all parties' perspectives. The reduction of technical complexity, i.e., no technical boundaries, creates other risks in a SOA and the auditor must be able to identify those.
Determining an audit scope	Because a SOA environment has a lot stakeholders involved, thus a lot of services, legacy applications and other components, determining an audit scope will be difficult.
Not enough audit capacity	Auditing every service in a SOA will be a time consuming process and it might be considered impossible to audit each service. This is why the auditor needs to approach the environment differently than a traditional environment in order not to lack in audit capacity.
SOA is process-oriented	Audit is still focusing on output. This will have to change, as SOA consists of services based on business processes. This means that the auditor will have to follow a process; how it runs and if there are no interruptions during transactions.

Service Level Agreements	SOA has SLAs, which describe the relation between services and stakeholders, roles and responsibilities of stakeholders, obligations and other information. The auditor must be able to understand and review the SLAs.

Table 5-2: SOA challenges

5.4 Effects of changes on IT auditing

That SOA challenges the IT auditor is described previously. Technology is developing fast and there is still a monolithic audit program. IT auditing will need to change in order to be able to audit new IT technologies. Most of the interviewees stated that the future of IT auditing will be different. Changes will occur in the IT audit profession, in organizations and in the education for auditors. The following table 5-3 presents the changes, which will have effect on the future of IT auditing:

Changes in IT auditing education	Because technology is getting smarter and more complex it will be necessary for the IT auditor to have technical knowledge on the new techniques that will be used.
Changes in IT auditing	The effect of adjustments in IT audit education might be more specialties in IT auditing. Because new environments will be more complex it might be that an audit will be multi-disciplined, i.e., more auditors in one audit with their own specialty. As more research will be done on, e.g., SOA and IT auditing there will be more literature and experience and this will create possibilities for auditors and profession organizations to think about standards or frameworks for auditing new technology. The focus on human aspects will increase, because IT environments are becoming complex and the auditor will also have to depend on the people of an organization during an audit. Rules, regulations and legislation are emerging because the current economic situation and also because of new technology. They will drive IT auditing. Through compliance auditing might be mandatory in some organizations.

| | The fact that organizations will invest more in IT auditing will make that the added value of the IT auditor will increase. The IT auditor will also have to prove his abilities in new IT environments.
Because organizations will be aware of the added value of IT auditing, the auditor will also focus more on efficiency and effectiveness of systems and environments. This might lead to more validation, i.e., auditors will also look if the right system is implemented and not only if the system is implemented well. Security will still be an important quality aspect as well as confidentiality, integrity and availability, which will need auditor's focus. |
|---|---|
| Changes in organizations | Because of rules, regulations and legislations some companies will invest more in auditing and it will become more important. This will lead to more continuous auditing and monitoring.
Another driver to continuous auditing and monitor is the drive of organizations to be in control. The world is changing and organizations can not afford any scandals so they will prove that they have everything in control. |

Table 5-3: Future directions of IT auditing

6. Conclusions

6.1 Main findings

How does SOA differ from a traditional IT environment?
SOA differs from a traditional IT environment. Not only is the architecture different, but also the management, processes and the roles and responsibilities of people involved are different. The activities within the SDLC processes are different and the life cycles of services are shorter, because they are being changed constantly, this results in different way of managing changes. At last but not least SOA also differs from a traditional IT environment in the way how it will be audited.
These differences are also mentioned in the literature that is used. By doing a literature study, Butler [2008] describes the differences between SOA and traditional architectures and he also mentioned three characteristics of a SOA (process-oriented, short life cycles and message oriented). Haines [2007] also explained that SOA will bring changes in developer skills, roles, tools, processes and organization culture. The changes in SDLC activities are highlighted by Lewis et al. [2008].

Is the SDLC process an important process for organizations and IT audit?

The system (software) development life cycle process is an important process through the development of systems. This process is important because it guides the organization through a project. During the SDLC process internal controls, such as internal governance controls, application controls, data controls, and management controls can be implemented. This process is being underestimated by organizations. Lewis et al. [2007] state that organizations have misconceptions about the development activities of SDLC process and that organizations believe that developing SOA is not different that traditional IT architecture development. With the differences in activities [Lewis et al., 2008] they explain that organizations must not underestimate the SDLC process in a SOA environment, because changes are needed in SDLC activities for an efficient and effective environment.

How are technology, people and processes related to IT auditing and SOA?
Technology, people and processes are related to each other. Service-oriented architecture can be seen as a new technology here and changes in technology affect the people and processes aspects, i.e., SOA brings changes in people and process aspects within the organization.
As Haines [2007] explains SOA will have impact on the development skills, roles, tools, processes and organization culture. Development skills, roles, tools, and the organization culture are aspects where people are involved. This literature agrees on the fact that technology, processes and people are related to each other and that SOA as a new technology affects the two other aspects.
As Butler [2008] and Hinson [2007] also mentioned, SOA will have effects on IT auditing. IT auditing is a process in which technology, people and processes of the auditee are involved.

What effects does new technology have on the future of IT auditing?
Butler [2008] has suggested some future directions for IT auditing. He also presented a SWOT analysis of IT auditing where some of the opportunities can be seen as future directions. That there are effects of changes in technologies on IT auditing is described in section 5.4 and this only confirms the findings in previous literature.

6.2 Future research suggestions

Future research suggestions related to this research could be:
- Conducting a research on compliance frameworks for a SOA environment;
- Conducting a research on how to perform an IT audit on a service consumer side or the service provider's side, i.e., a SOA audit guide;
- Conducting a research on continuous auditing and monitoring in a SOA environment.

Limitations:
- this research only discusses the reflections of auditors on the impacts of SOA on IT auditing. The interviewees were only questioned on the subjects that give a better understanding of SOA, the effects of it on IT auditing and the attention for change in the IT audit world;
- this research does not include detailed technical explanations of a SOA, the SDLC process and of the IT auditing process.

6.3 Conclusions

By comparing the data analysis with the prior literature, it can be concluded that one of the aspects through which SOA has impacts on IT auditing is the SDLC process. The differences in the SDLC activities will have an impact on the IT auditor's activities. The complex audit environment in a SOA can be approached from different point of views. It will be difficult for the auditor to set an audit scope, to divide his audit capacity and to perform a risk analysis in a dynamic environment. This is the biggest challenge in a SOA environment for an IT auditor. The best solution for this is to have a guideline in place to audit dynamic IT environments. In such a guideline steps need to be defined how an auditor can set his scope and from which point of view the auditor can approach his audit. There must also be audit standards that decrease the audit risk of a not limited audit scope. The audit standard for a dynamic environment must explain the auditor's roles and responsibilities within a dynamic environment like SOA.

Another related aspect discussed in this study is the future of IT auditing. Auditors are aware of changes that are needed to get IT auditing aligned with future directions presented in this research. Auditors will have to spend more time together to discuss these aspects and to come with solutions for the professional organization NOREA in the Netherlands. These future directions must not be neglected and auditors and audit & control organizations must not wait for the influence from outside. This will make IT auditing more mature and the image of auditors will change, because their added value will be known.

It can be concluded that SOA has indeed impact on IT auditing. IT auditing has gained its position in the audit world, but technology is faster than the developments within the IT audit profession. The main findings are based on the importance of the SDLC process and the complex audit environment within SOA for an IT auditor. Up till now the differences and similarities have been described and concluded. This study meets its relevance for IT auditors, by presenting an audit approach for IT auditors. The next approach is not a guideline; it is a recommendation that can be used for setting up a guideline. The approach is illustrated in figure 6-1.
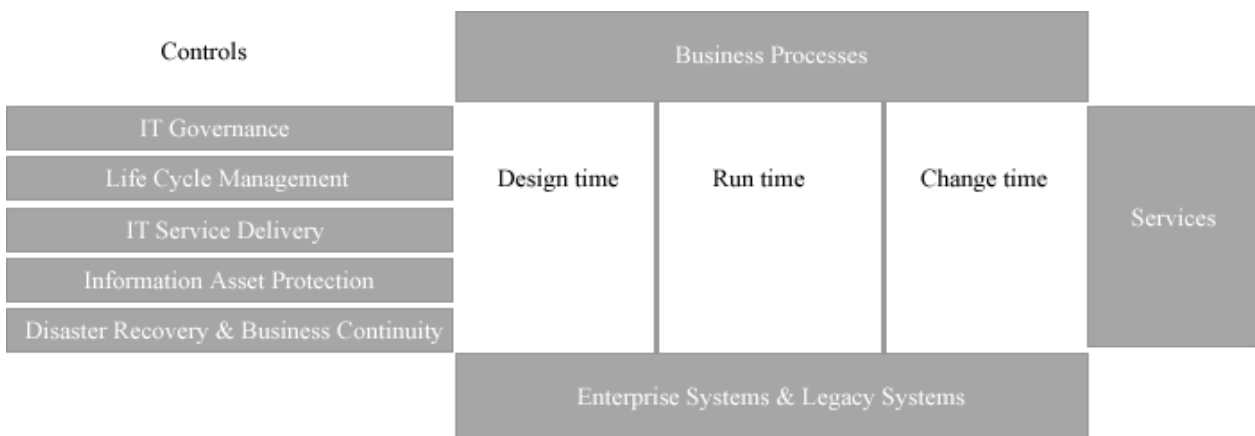

Figure 6-1: Horizontal-Vertical audit approach

A SOA environment consists of business processes, services and legacy applications. Before performing an audit the auditor must first set his scope by looking from whose perspective he will audit the SOA environment; from the service consumer's perspective or from the service producer's perspective. A risk assessment from both points of view must be performed. When preparing an audit the following is very important for an auditor to review:

- the completeness and reliability of the information that arrives in the business process, i.e., information from the service producer;
- the completeness and reliability of the information that is in the legacy system layer;
- the availability and integrity of the services.

By focusing on the business process, the auditor can get an overview which information floats through the process and from that point he can audit the related services on availability and integrity. To be sure whether the right services are being used the auditor can consult the service level agreements and he/she can audit the services in the design time, where the requirements are set. The design time is one of the three stages in a life cycle activities management. The auditor can decide whether he audits the services in design time, run time or change time. In design time the auditor will be able to review the requirements, design and testing phase of the SDLC process, in the run time he will be able to audit how the implementation works and on the availability of the service, and in the change time he will be able to audit on the service management processes.

The auditor must review the services from the business process point of view as well as from the legacy systems layer, when using the above picture as a reference. By auditing the different stages with the life cycle activities, the auditor can set a scope and he can divide his audit capacity or he should consider the possibility of auditing each stage individually. The audit steps involve:

- approaching the audit from a business process point of view, i.e., the scope will consists of the business processes to be audited;
- approaching the services from the three stages: design-, run-, and change time;
- performing a risk assessment on the business processes and services involved.

By using these approaches the auditor will be able to report his findings according to business processes in design time, run time and change time. The auditor can identify risks per business process.

The auditor will be able to review controls within different areas (IT Governance, Life Cycle management, IT service Delivery, Information Asset Protection and Disaster Recovery & Business Continuity) also in the three stages. This represents a horizontal and vertical audit approach.

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