

Do Financial Statement Adjustments Matter in Credit Analysis? Evidence from the Global Telecommunications Industry

Accounting
Master's thesis
Mari Savolainen
2009

Department of Accounting and Finance
HELSINGIN KAUPPAKORKEAKOULU
HELSINKI SCHOOL OF ECONOMICS



DO FINANCIAL STATEMENT ADJUSTMENTS MATTER IN CREDIT ANALYSIS?
Evidence from the Global Telecommunications Industry

- Research Objectives** This thesis investigates whether financial statement adjustments made during the rating process matter in credit analysis. Firstly, the thesis investigates whether reporting standards and company-specific factors are associated with financial statement adjustments. Secondly, the thesis examines whether financial statement adjustments are associated with actual credit ratings.
- Data** The data used in the analyses is provided by one of the largest credit rating agencies, referred to as Credit Rating Agency X. The main data consists of the time period 2004-2007, including 196 companies reporting under US GAAP, IFRS and local GAAPs. Moreover, the IFRS companies included in the main data are analyzed more thoroughly in terms of the adjustment type, using the second set of data from year 2007. The data only includes companies active in the telecommunications industry.
- Empirical Analysis** The first part of the empirical analyses aims at explaining financial statement adjustments using a linear regression method. The second part, on the other hand, includes credit rating models estimated also with a linear regression method. The adjustment variables are added one at a time in the rating models in order to investigate the association between financial statement adjustments and ratings. In an additional test, the explanatory powers resulting from reported and adjusted data are compared.
- Results** First, the evidence suggests that capital intensity, operative risk and leverage are important in explaining financial statement adjustments. Additionally, public companies face fewer adjustments relative to private companies. The ultimate underlying reason for financial statement adjustments seems to be company-specific decisions concerning financing and capital structure as well as contractual matters. Second, the evidence demonstrates that, without any adjustments, credit ratings are higher for companies reporting under IFRS relative to companies reporting under US GAAP. However, adjustments increase ratings for US companies. On the other hand, local GAAP adjustments decrease rating relative to US GAAP. The results indicate that financial statement adjustments do matter in credit analysis.
- Key Words** Financial statement adjustments, quality of financial statement information, credit rating, reporting standard

ONKO TILINPÄÄTÖSOIKAISUILLA MERKITYSTÄ LUOTTOANALYYSISSÄ? Tutkimustuloksia telekommunikaatioalalta

- Tutkimuksen tavoitteet** Tutkielman tavoitteena on selvittää, onko tilinpäätösoikaisuilla merkitystä luottoanalyyseissä. Ensimmäiseksi tutkielma tarkastelee, ovatko tilinpäätösstandardit ja yrityskohtaiset tekijät yhteydessä tilinpäätösoikaisujen määrän kanssa. Toiseksi tutkielma käsittelee sitä, ovatko tilinpäätösoikaisu yhteydessä todellisiin luottoluokituksiin.
- Lähdeaineisto** Kansainvälinen lähdeaineisto on saatu eräältä luottoluokitusyritykseltä, johon viitataan tutkimuksessa nimellä Luottoluokitusyritys X. Pääaineisto koostuu vuosilta 2004–2007 yhteensä 196 telekommunikaatioalalta yrityksestä, jotka raportoivat tilinpäätöksensä US GAAP, IFRS ja kansallisten tilinpäätösstandardien mukaan. Lisäksi pääaineistoon kuuluvien IFRS-yritysten oikaisu-tyyppisiä analysoidaan tarkemmin käyttäen aineistoa vuodelta 2007.
- Aineiston käsittely** Empirian ensimmäisessä osassa tilinpäätösoikaisujen määrää selitetään lineaarisen regressiomenetelmän avulla. Empirian toisessa osassa puolestaan käytetään lineaarisella regressiomenetelmällä estimoituja luottoluokitusmalleja. Luottoluokitusmalliin lisätään tällöin yksi tilinpäätösoikaisujen määrää kuvaava muuttuja kerrallaan, tarkoituksena tutkia oikaisujen ja luottoluokitusten välistä suhdetta. Lisäksi luottoluokitusmalli estimoidaan raportoidulla ja oikaistulla aineistolla, ja aineistojen selitysteiden eron merkitsevyyttä testataan.
- Tulokset** Empirian ensimmäinen osa osoittaa, että pääomaintensiteetti, operatiivinen riski, velkaisuusaste ja julkisen kaupankäynnin kohteena oleminen ovat tärkeitä tekijöitä tilinpäätösoikaisujen määrän selittämisessä. Oikaisujen taustalla oleva syy liittyy täten yrityskohtaisiin päätöksiin rahoituksesta, pääomarakenteesta ja sopimusteknisistä ratkaisuista. Empirian toisen osan tulokset osoittavat, että ennen oikaisujen tekemistä IFRS-yritysten luottoluokitukset ovat US GAAP -yrityksiä korkeammalla. Oikaisu kuitenkin nostavat US GAAP -yritysten luottoluokituksia. Paikallisten standardien mukaan raportoivien yritysten luottoluokitukset puolestaan laskevat oikaisujen seurauksena suhteessa US GAAP -yrityksiin. Tutkielman tulokset osoittavat, että tilinpäätösoikaisuilla on merkitystä luottoanalyyseissä.
- Avainsanat** Tilinpäätösoikaisu, tilinpäätösinformaation laatu, luottoluokitus, tilinpäätösstandardit

CONTENT

1	INTRODUCTION.....	6
1.1	Background of the Subject	6
1.2	Research Question.....	7
1.3	Research Design	8
1.4	Main Findings	9
1.5	Structure of the Research	10
2	QUALITY OF FINANCIAL STATEMENT INFORMATION IN AN INTERNATIONAL CONTEXT.....	11
2.1	Defining the Concept of Quality	11
2.2	Determinants of Quality	13
2.3	Economic Consequences of Quality	19
2.4	IFRS Quality Relative to Other Reporting Standards	21
2.4.1	<i>IFRS Relative to Domestic GAAPs.....</i>	<i>21</i>
2.4.2	<i>IFRS Relative to US GAAP.....</i>	<i>23</i>
2.4.3	<i>International Convergence Process</i>	<i>26</i>
3	CREDIT RATINGS – FROM THE COMPLEX PROCESS TO A SIMPLE MODEL	31
3.1	Measure of Credit Risk	31
3.2	Underlying Factors Affecting Credit Ratings	33
3.3	Analytical Financial Statement Adjustments as an Integral Part of the Rating Process	36
3.3.1	<i>Underfunded and Unfunded Defined Benefit Pensions.....</i>	<i>37</i>
3.3.2	<i>Operating Leases.....</i>	<i>39</i>
3.3.3	<i>Consistent Measurement of Funds from Operations (FFO)</i>	<i>39</i>
3.3.4	<i>Unusual and Non-recurring Items.....</i>	<i>40</i>
3.4	The Role of Financial Statement Information Quality in the Rating Process.....	40
3.5	Modelling Credit Ratings	43
3.5.1	<i>The Rating Models of Kaplan and Urwitz (1979)</i>	<i>43</i>
3.5.2	<i>The Importance of Market-based Information</i>	<i>46</i>
4	HYPOTHESIS.....	48
5	DATA AND DESCRIPTIVE STATISTICS.....	50
5.1	Data	50
5.1.1	<i>Main Data 2004–2007.....</i>	<i>50</i>
5.1.2	<i>Data 2007 with Specific Adjustments</i>	<i>51</i>
5.2	Descriptive Statistics	52
5.2.1	<i>Difference between Reported and Adjusted Data.....</i>	<i>52</i>
5.2.2	<i>The Most Common Standard Adjustment Types.....</i>	<i>58</i>
5.2.3	<i>Explaining the Amount of Financial Statement Adjustments</i>	<i>59</i>
5.2.4	<i>Credit Rating Models</i>	<i>63</i>

6	TESTS AND RESULTS.....	70
6.1	Association between Reporting Standards, Company-specific Factors and Financial Statement Adjustments	70
6.2	Association between Financial Statement Adjustments and Credit Ratings.....	75
6.2.1	<i>Adjustment Variables Included in the Credit Rating Model.....</i>	75
6.2.2	<i>Additional Test: Comparing Explanatory Powers Resulting from Reported and Adjusted Data</i>	83
6.3	Sensitivity Tests	85
6.3.1	<i>Removed Variables from the Models Explaining the Amount of Adjustments.....</i>	85
6.3.2	<i>Rating Model Estimated with Scale 1-8</i>	87
6.3.3	<i>Sign of Adjustments Included in the Rating Model</i>	88
6.3.4	<i>Rating Model Estimated Separately for Different Reporting Standard</i>	89
7	CONCLUSIONS.....	90
	REFERENCES	94
	APPENDICES	101

FIGURES

Figure 1: Structure of the Research.....	8
Figure 2: Determinants of Quality.....	14

TABLES

TABLE 1: Number of Positive and Negative Adjustments Relative to Reporting Standard.....	55
TABLE 2: Descriptive Statistics Relating to Regression Models Explaining the Amount of Adjustments.....	64
TABLE 3: Correlations Relating to the Continuous Firm-specific Variables Explaining the Amount of Adjustments	65
TABLE 4: Descriptive Statistics Relating to Variables Included in the Rating Models.....	68
TABLE 5: Correlations Relating to Variables Included in the Rating Models Calculated with Reported Data.....	69
TABLE 6: Correlations Relating to Variables Included in the Rating Models Calculated with Adjusted Data.....	70
TABLE 7: Association between Reporting Standards, Company-specific Factors and Financial Statement Adjustments.....	72
TABLE 8: Association between Financial Statement Adjustments and Credit Ratings.....	77
TABLE 9: Statistical Significance between Explanatory Powers.....	84

APPENDICES

APPENDIX 1: Distribution of Countries Relative to Reporting Standard.....101

APPENDIX 2: Descriptive Statistics of the Amount of Adjustments Relating to Balance Sheet Items
.....102

APPENDIX 3: Descriptive Statistics of the Amount of Adjustments Relating to Income Statement
and Cash Flow Statement Items.....104

APPENDIX 4: The Amount of Standard and Non-standard Adjustments of IFRS Firms Relating to
Balance Sheet Items.....107

APPENDIX 5: The Amount of Standard and Non-standard Adjustments of IFRS Firms Relating to
Income Statement Items.....108

APPENDIX 6: The Amount of Standard and Non-standard Adjustments of IFRS Firms Relating to
Cash Flow Statement Items.....109

APPENDIX 7: Association between Reporting Standards, Company-specific Factors and Financial
Statement Adjustments (the Relative Number of Adjusted Financial Statement Items).....110

APPENDIX 8: Association between Financial Statement Adjustments and Credit Ratings (Rating
Models without GAAPs).....111

APPENDIX 9: Association between Financial Statement Adjustments and Credit Ratings (3
Adjustment Variables Included).....113

APPENDIX 10: Association between Financial Statement Adjustments and Credit Ratings (the
Relative Number of Adjustments Included).....114

APPENDIX 11: Benchmark Credit Rating Model Estimated with Adjusted Data.....115

APPENDIX 12: Association between Reporting Standards, Company-specific Factors and Financial
Statement Adjustments (Removed Variables Included).....116

APPENDIX 13: Association between Financial Statement Adjustments and Credit Ratings (Rating
Model Estimated with Scale 1-8).....118

APPENDIX 14: Statistical Significance between Explanatory Powers.....120

APPENDIX 15: Association between Financial Statement Adjustments and Credit Ratings (Sign of
Adjustments Included).....121

APPENDIX 16: Association between Financial Statement Adjustments and Credit Ratings
(Separately for Different Reporting Standards).....123

1 INTRODUCTION

1.1 Background of the Subject

The introduction of the International Financial Reporting Standards (IFRS) for listed companies globally around the world can be seen as one of the most significant regulatory changes in the history of accounting. Since 2001, over 100 countries have either required or permitted the use of IFRS (IASB, 2009a). The business community, accounting professional bodies, accounting standard-setting institutions and capital market regulators in many countries have made tremendous efforts to enhance the quality of financial statement information during the last decades as a result of the rapid growth in international business and of the globalization of capital markets. The goal of the International Accounting Standards Board (IASB) is to develop high quality, understandable and enforceable accounting standards that are globally acceptable. Nowadays IFRS play an active role in the globalization of capital markets and globally promote the comparability and transparency of financial reporting. (Chen et al., 2009.)

The objective of financial statements is often defined as providing useful information for decision making. Decreasing information asymmetries and thus increasing the usefulness of information can help investors and other users of information to make better decisions. Increasing the quality of financial statement information has indeed desirable economic consequences, such as higher liquidity and lower cost of capital (Diamond & Verrecchia, 1991) as well as increased foreign ownership (Covrig et al., 2007). In the context of credit ratings, on the other hand, lower quality of financial statement information increases default risk (Duffie & Lando, 2001) and is associated with lower ratings (Jorion et al., 2007).

During the last decades, the importance of credit ratings has been constantly growing. The market capitalization of Moody's, one of the largest credit rating agencies, is currently around US\$ 5 billion (2009a). The ratings and analysis of Moody's track debt covering more than 100 sovereign nations (2009b). Standard & Poor's, on the other hand, rates approximately US\$ 32 trillion of debt, issued in more than 100 countries (2009).

Credit ratings are highly important for several economic actors and market participants, including bond issuers, buy- and sell-side investors, contracting parties and regulatory authorities. Debt issuers use credit ratings to improve the marketability and the pricing of

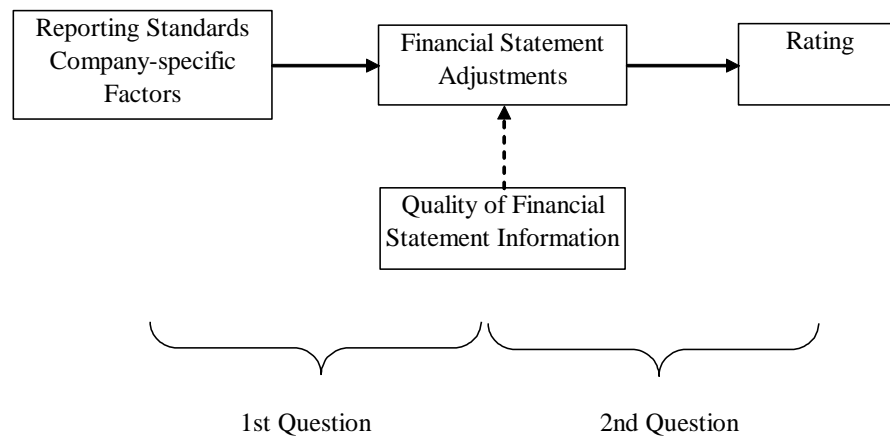
their debt. Buy-side investors may use them to assess credit risk and to comply with investment guidelines or regulations, whereas sell-side investors may use ratings to determine the amount of collateral to hold against derivatives credit exposure. In addition, ratings can be used in private contracts in collateral clauses, and they are widely used by regulators, for instance in Basel 2. (Jorion et al., 2007.)

Financial statement information constitutes a significant source of information in the credit rating process. Furthermore, evaluating the quality of financial statement information is a critical part of the process. Both Standard & Poor's and Moody's make analytical adjustments in order to capture more faithfully underlying economics and to level the differences among companies. From the view point of a credit rating agency, the quality of financial statement information can be seen in the amount of financial statement adjustments that the rating agency makes during a rating process. Financial statement adjustments are expected to matter in credit analysis, and thus have an impact on credit rating, since considerable time and effort is spent on making them. On the one hand, adjustments can be seen as a measure of financial statement information quality, having a negative association with ratings. The rationale is that the more there is need for adjustments, the lower is the quality of the reported financial statement information. On the other hand, adjustments can be seen as a means to improve the comparability of information between different companies, resulting in an increased usefulness of information. According to this view, the amount of financial statement adjustments made during a rating process is positively associated with credit ratings.

1.2 Research Question

This thesis investigates whether financial statement adjustments made during the rating process matter in credit analysis. Answering the research question requires analyzing two related questions, illustrated in Figure 1. Firstly, the thesis concentrates on examining the determinants underlying the amount of adjustments (1st question). Thus, the first part of empirical analyses offers descriptive evidence of reporting standards and company-specific factors and of their association with the amount of adjustments. Secondly, the thesis addresses the question of whether the amount of financial statement adjustments is associated with actual credit ratings (2nd question).

Figure 1: Structure of the Research



The contribution of this thesis is firstly to provide evidence of the difference between reported and adjusted data. Secondly, the thesis shows which determinants affect the amount of financial statement adjustments. Thirdly, the thesis illustrates whether the amount of financial statement adjustments is associated with credit ratings.

1.3 Research Design

The empirical analysis of the thesis consists of two separate questions. In the first part, the focus is on how the amount of adjustments can be explained. This question is addressed by constructing 5 different variables describing the amount of adjustments. The variables are used one at a time as dependent variables in a linear regression. With US GAAP being considered as benchmark standards, the variables explaining adjustments include reporting standards IFRS and local GAAPs as well as variables describing various company-specific and country-related factors. The second part, on the other hand, examines the second question presented in the previous section by including the variables describing the amount of adjustments one at a time in a credit rating model. The focus is then on the adjustment variables and interaction terms between GAAPs and adjustments as well as on GAAP dummies. The research method used also in the second part is linear regression.

The data used in the analyses is provided by one of the largest credit rating agencies. The agency will be referred to as *Credit Rating Agency X*. The empirical analyses use two sets of

data. The main data consists of the time period 2004-2007, including 196 companies reporting under US GAAP, IFRS and local GAAPs. Moreover, the IFRS firms included in the main data are analyzed more thoroughly in terms of the adjustment type, using the second set of data from year 2007. The data includes companies active in the telecommunications industry. Other industries are not investigated due to data availability.

The telecommunications industry has been highly stable for over a century and is characterized by its history of government-sanctioned and government-owned monopolies. Recently, however, as a result of deregulation, privatization, the development of wireless technologies and the global adoption of Internet, intense competition and fragmentation have rapidly reshaped the industry. Technological developments have created competition and increased the introduction of new products and services. The industry involves diversified communication providers who can offer the same service by different means. (Moody's, 2007.)

Today, as a result of advances in network technology, the telecommunications industry is less about traditional telephone calls, although they still are the industry's biggest revenue generator, and increasingly more about text and images. Of the different customer segments, residential markets are the most challenging in terms of revenues and profitability. The success depends largely on brand name strength and efficient billing systems. Big corporate customers, on the other hand, being less price-sensitive than residential customers, spend large amounts of money on telecommunication infrastructure and also pay for premium services to support their operations. In addition, telecommunication operators also provide services on wholesale markets to other companies active in the same industry. (Investopedia, 2009.) Telecommunication companies are characterized by high capital intensity as the network infrastructure requires significant investments for the maintenance and introduction of new services, indicating high fixed costs. Additionally, the asset life cycle is rather short as technological trends change fast. (Moody's, 2007.)

1.4 Main Findings

First, the evidence suggests that capital intensity, operative risk and leverage are important in explaining financial statement adjustments. All of the mentioned characteristics have a positive association with the amount of adjustments. Additionally, the results indicate that

public companies face fewer adjustments relative to private companies and that the main companies of a corporate group also face fewer adjustments relative to the other companies. The ultimate underlying reason for adjustments seems to be company-specific decisions concerning financing and capital structure as well as contractual matters.

Second, the evidence demonstrates that, without any financial statement adjustments, credit ratings are higher for companies reporting under IFRS relative to companies reporting under US GAAP. However, adjustments increase ratings for US firms and thus bring IFRS and US companies closer to each other. Financial statements become more comparable between companies, which in turn decreases the information risk and increases the usefulness of information. As far as local GAAP companies are concerned, adjustments have a negative association with ratings. As local GAAPs are reporting standards of lower quality relative to US GAAP, adjustments do not decrease the information risk enough. Thus, the effect of adjustments is smaller for local GAAP companies. This thesis finds that financial statement adjustments do matter in credit analysis.

1.5 Structure of the Research

This thesis is organized in the following way. Chapter 2 handles the quality of financial statement information. Firstly, the concept of quality is introduced and the factors affecting quality are pointed out. The latter part of the chapter concentrates more specifically on the quality of IFRS with respect to local GAAPs and US GAAP. Chapter 3 deals with credit ratings. It first introduces the key determinants taken into account during the rating process as well as the main financial statement adjustments made by credit rating agencies. The chapter then goes on to discuss how the quality of financial statement information affects credit ratings. Finally, Chapter 3 illustrates how credit ratings can be modelled. Chapter 4 presents the research hypothesis. Chapter 5 describes the sample data used in the thesis and illustrates the descriptive statistics and variables used during the analyses. Chapter 6 describes the empirical tests performed and reports the results. Chapter 7 concludes the research.

2 QUALITY OF FINANCIAL STATEMENT INFORMATION IN AN INTERNATIONAL CONTEXT

The first part of Chapter 2 handles the quality of financial statement information in general, whereas the latter part concentrates more specifically on the quality of IFRS relative to other reporting standards. The first part of the chapter begins with defining the concept of quality. Quality is defined through its desirable characteristics. The section then goes on to illustrate the factors that affect quality as well as the economic consequences resulting from higher quality. The latter part, on the other hand, considers the quality of IFRS first with respect to local GAAPs and then relative to US GAAP. The very last section of the chapter discusses the international convergence process between the IASB and the FASB.

2.1 Defining the Concept of Quality

The IASB Framework (2001) defines the goal of financial statements as to provide information about the financial position, performance and changes in the financial position of an entity that is useful to a wide range of users in making economic decisions. The Financial Accounting Standards Board (FASB), on the other hand, includes the objectives of financial reporting in its Statement of Concepts. According to the Statement of Financial Accounting Concepts (SFAC) No. 1, financial reporting should provide information that is useful to present and potential investors and creditors and other users in making rational investment, credit, and similar decisions (FASB, 2008a). Hence, *usefulness* is the primary objective for financial statement information according to both the IASB and the FASB.

According to the IASB Framework (2001), the four principal qualitative characteristics that make information useful to its users include understandability, relevance, reliability and comparability. The Framework acknowledges that in practice a trade-off between the characteristics is often needed. Troberg also adds (2007, 32) materiality to the essential characteristics.

SFAC 2 (FASB, 2008b) defines the desirable characteristics of information under US GAAP. Relevance and reliability are the two primary qualities in order to make accounting information useful. Moreover, comparability and consistency promote usefulness. According to SFAC 2:

“Relevant accounting information is capable of making a difference in a decision by helping users to form predictions about the outcomes of past, present, and future events or to conform or correct prior expectations. Information can make a difference to decisions by improving decision makers’ capacities to predict or by providing feedback on earlier expectations.

To be reliable, information must have representational faithfulness and it must be verifiable and neutral.

Information about a particular enterprise gains greatly in usefulness if it can be compared with similar information about other enterprises and with similar information about the same enterprise for some other period or some other point in time.”

According to Scott (2009, 65), transparent, precise or high quality financial statements are informative since they convey lots of information to investors. Moreover, the extent of informativeness of financial statements depends on their relevance and reliability. Relevant information informs about the firm’s future prospects whereas reliable information faithfully represents without bias what it is intended to represent, following the definitions of SFAC 2. (Scott 2009, 24.)

Ball (2006), on the other hand, defines financial reporting quality rather broadly as satisfying the demand for financial reporting. High quality financial statements provide useful information to a variety of users. This objective requires 1) accurate depiction of economic reality, 2) low capacity for managerial manipulation, 3) timeliness, in the sense that all economic value added gets recorded eventually and 4) asymmetric timeliness, referring to timelier incorporation of bad news relative to good news in the financial statements. Ball goes on further to list different functions of IFRS. He states that IFRS are intended to:

1. reflect economic substance more than legal form;
2. reflect economic gains and losses in a more timely manner;
3. make earnings more informative;
4. provide more useful balance sheets; and to
5. curtail the historical Continental European discretion afforded managers to manipulate provisions, created hidden reserves, smooth earnings and hide economic losses from public view.

From a value relevance point of view, Barth, Landsman and Lang (2008) defines higher quality earnings as better reflecting a firm's underlying economics. First, higher quality accounting results from applying accounting standards that require the recognition of amounts that are intended to faithfully represent a firm's underlying economics. Second, higher quality accounting is less subject to opportunistic managerial discretion. Third, higher quality accounting has less non-opportunistic error in estimating accruals.

As the concept of quality is very abstract, prior academic literature has used different metrics considered as proxies for the quality of financial statement information. Concepts used (for instance Barth et al. 2008; Barth et al. 2006) include timely loss recognition, value relevance and earnings management. Higher frequency of large negative net income is evidence of more timely loss recognition. Higher explanatory powers of income and equity book value for prices, and stock return for earnings are evidence of more value relevance. Regarding earnings management, higher accounting quality is reflected by higher variance of the change in net income, higher ratio of the variances of the change in net income and change in cash flows, less negative correlation between accruals and cash flows, and lower frequency of small positive net income. Jorion, Shi and Zhang (2007), on the other hand, measures quality and the value relevance of accounting ratios in a credit risk analysis with the McFadden pseudo-R-squared from the ordered probit regression of credit ratings.

2.2 Determinants of Quality

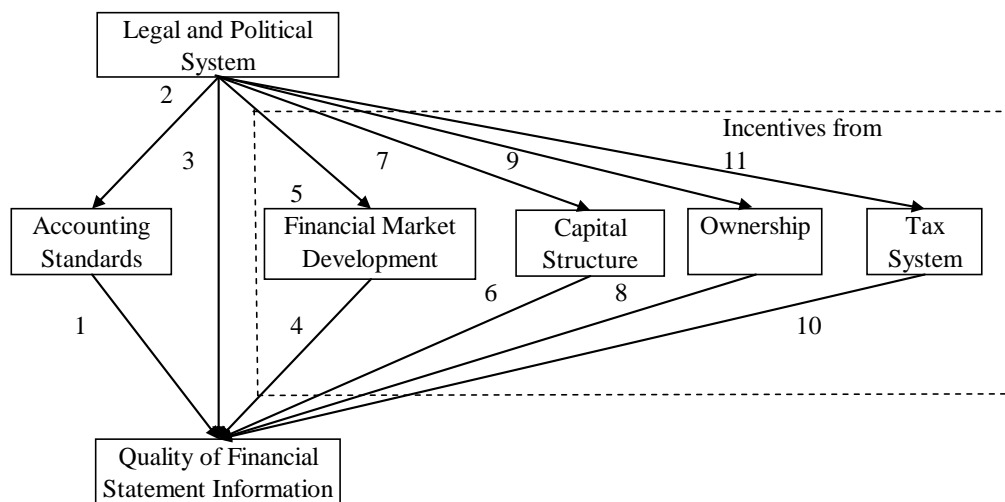
The previous section aimed at defining the concept of quality. This part concentrates on factors that affect the quality of financial statement information. The section will demonstrate that quality is a complex outcome of many determinants. The focus of the referred literature is on the determinants of quality relating to IFRS adoption.

According to Barth et al. (2008), the three factors of IFRS quality are the existence of the IASB, management's discretion to report accounting amounts that reflect economic reality, and the firm's regulatory, enforcement and attestation environment. Soderstrom and Sun (2007), on the other hand, enumerates several determinants of financial statement information quality after IFRS adoption and divides them as:

1. The quality of accounting standards chosen;
2. Legal and political systems;
3. Development of financial markets;
4. Capital structure;
5. Ownership structure; and
6. Tax system.

All of these determinants have a direct effect on the quality of financial statement information. In addition, legal and political systems have an indirect impact on quality through the incentives for financial reporting. Reporting incentives arise from both the supply and demand for information. Financial reporting can be seen as an equilibrium outcome determined by the costs of disclosure, including the cost of preparation as well as the costs of leaking proprietary information, and the benefits of meeting contracting parties' demand for information. (Soderstrom & Sun, 2007.) Figure 2 illustrates the relations between the quality of financial statement information and its determinants.

Figure 2: Determinants of Quality



(adapted, Soderstrom & Sun, 2007)

Arrow 1. Quality is determined firstly by the quality of the financial reporting standards chosen. Soderstrom and Sun (2007) states that financial reporting under IFRS would be expected to increase in value relevance and reliability if the IASB continues to improve the quality of IFRS. The goal of the IASB is to develop an internationally acceptable set of high quality financial reporting standards. To achieve this objective, the IASB has issued principle-

based standards, as well as taken steps to remove allowable accounting alternatives and to require accounting measurements that better reflect a firm's economic position and performance. (Barth et al., 2008.)

Accounting amounts that better reflect a firm's underlying economics can increase the quality of financial statement information because doing so provides investors with information helping them to make investment decisions. Quality could also increase because of changes in the financial reporting system simultaneous with firms' adoption of IFRS, for instance through more rigorous enforcement. (Barth et al., 2008.) Furthermore, investors will find it less costly to identify earnings management when using a universal accounting method. They can compare different accounting assumptions between firms and countries to evaluate the quality of financial reporting. This will put pressure on management for truthful reporting. (Soderstrom & Sun, 2007.)

However, opponents argue that, because of differences between countries, a single set of standards may not be suitable for all settings and may not uniformly improve value relevance and reliability. By limiting managerial discretion relating to accounting alternatives, IFRS could eliminate the firm's ability to report accounting measurements that are more reflective of its economic position and performance. In addition, the features of the financial reporting system other than the standards themselves could affect the quality by eliminating any improvement arising from the adoption of IFRS. For example, lax enforcement can result in a limited compliance with the standards, therefore restricting their effectiveness. Thus, it is not clear whether the application of IFRS would result in higher quality of financial statement information. (Barth et al., 2008.) A single set of accounting standards may not improve accounting uniformly for each firm and country because there are other factors that affect quality as well. The remainder of this section discusses those other determinants of quality in more detail.

Arrow 2. Legal and political systems have a major impact on the quality of financial statement information in several ways, both directly and indirectly. Accounting standard setting is undoubtedly a political process in which different users of information try to exert significant influence on standard setters. The International Accounting Standards Committee (IASC) was replaced by the IASB in 2001 in order to reduce the political influence on standard setting. In the US, on the other hand, the FASB replaced the Accounting Principles Board (APB) of the

American Institute of Certified Public Accountants (AICPA) in 1972 because of its lack of independence. Nevertheless, global politics continue to put enormous pressure on the IASB. This was seen, for instance, with the fair value accounting standard, IAS 39. (Soderstrom & Sun, 2007.)

Regarding the indirect effect of legal systems through accounting standard setting, in the common law countries the right to set standards stems from the information demands of investors, and accounting standards are mostly set by private organisations, such as the FASB. On the other hand, code law was developed to allow governments to control the setting and interpretation of laws. Accounting standards of code law countries are thus primarily influenced by governmental priorities. (Soderstrom & Sun, 2007.)

Arrow 3. La Porta, Lopez-De-Silanes, Shleifer and Vishny (1998) suggests that common law countries have better accounting systems and better protection of investors than code law countries, and therefore higher quality of financial statement information. Additionally, legal enforcement is higher in common law countries relative to code law countries. The enforcement role of legal systems will be highly important when considering the quality of financial statement information following the adoption of IFRS. The IASB issues IFRS but does not have enforcement power. Instead, enforcement power stays in the security exchanges and courts where firms are listed. (Shipper, 2005.) Furthermore, as IFRS are principles-based, auditors and accountants need to follow general principles rather than detailed standards and apply the principles to specific situations (Ball, 2006). In countries with strong shareholder protection Soderstrom and Sun (2007) expects interpretation to lean more towards a fair presentation of information to shareholders whereas in countries with strong creditor protection they expect interpretation to rather satisfy the contracting demands of banks.

Arrow 4. The demand for accounting information depends on the nature of financial markets. Financial markets and the demand for information from market participants provide incentives for firm managers to improve the quality of their financial reports. Market participants demand information so as to reduce information asymmetry. Francis, Khurana and Pereina (2005) suggests that firms seeking for external financing disclose voluntarily more information than the minimum requirements and that an expanded disclosure policy leads to a lower cost of both equity and debt capital. Financial reporting is thus an important means to send signals to the market. Burstahler, Hail and Leuz (2007), on the other hand,

finds that public firms engage less in earnings management relative to private companies in countries with large and highly developed equity markets. This may be either because stock markets provide incentives for firms to make earnings more informative in order to reduce the cost of capital or because stock markets screen out firms with less informative earnings.

Arrow 5. The characteristics of the legal and political systems influence the quality of financial statement information indirectly through the development of financial markets. Firms in countries with strong investor protection and lower levels of government expropriation will find it easier to get financing since investors are guaranteed to get a return on their investments, and also the number of investors who are willing to provide financing will increase. La Porta et al. (1998) finds that the size of capital markets is determined by the character of legal rules and the quality of law enforcement. Stulz and Williamson (2003), on the other hand, suggests that a country's major religion affects the size of its stock market. Thus, cultural considerations cannot be ignored when examining why investor protection differs across countries. The relation between culture and investor rights is particularly strong for creditor rights. Furthermore, Catholic countries have weaker creditor rights relative to other countries.

Arrow 6. As far as capital structure is concerned, shareholders and creditors use different methods to reduce information asymmetry. Sun (2005) demonstrates that banks demand less financial reporting than shareholders because of their private access to firm managers whereas outside shareholders are more dependent on financial reporting to reduce information asymmetry. In addition, the usefulness of financial reporting in improving capital investment decisions decreases with the amount of debt financing.

Arrow 7. Soderstrom and Sun (2007) states that countries with high dominance of bank financing and political risks experience lower quality of financial statement information. If creditors are highly protected, firms are more easily able to get bank financing at a lower cost. Furthermore, a high possibility of government expropriation and corruption is associated with a less frequent use of financial reporting as a method to reduce information asymmetry. Capital structures are thus affected by legal and political systems.

Arrow 8. The ownership structure of a firm has a direct effect on the quality of financial statement information by several ways. Firstly, earnings of private firms are less informative

than those of public firms (Burgstahler et al., 2007). Since stakeholders in private firms have easy access to firms' financial reporting information, there is a lower demand for high quality financial reporting. Controlling shareholders active in management reduce thus the demand for financial reporting. Secondly, the separation of control and cash flow rights leads to an agency problem between controlling and minority shareholders. Controlling shareholders may have incentives to exploit the wealth of minority shareholders and to report accounting information for self-interested purposes, causing the reported earnings to lose credibility to outside investors. (Fan & Wong, 2002.) Thirdly, as controlling shareholders have long-term interests in firms and they invest with a long-term perspective, they may have incentives to smooth earnings. Finally, foreign investors suffer from the lack of institutional knowledge and may therefore demand more information than domestic investors. (Soderstrom & Sun, 2007.)

Arrow 9. La Porta et al. (1998) finds a lower concentration of ownership in countries with stronger investor protection. One of the costs of heavily concentrated companies is that their core investors are not diversified. Secondly, these firms find it difficult to raise equity finance from minority investors. Hence, small and diversified shareholders are unlikely to be important in countries unable to protect their rights. Good accounting standards and shareholder protection are associated with a lower concentration of ownership. Political systems affect ownership structures in the sense that politicians may prefer closely-held firms since this would make secret lobbying and bribes less likely to leak out from firms.

Arrow 10. Countries with a close linkage between accounting and tax laws are likely to witness lower quality accounting standards since earnings are less likely to reflect the underlying business. Furthermore, a high tax rate creates an incentive to reduce taxable income. (Guenther & Young, 2000.)

Arrow 11. Legal and political systems influence the quality of financial statement information also indirectly through tax systems. Guenther and Young (2000) demonstrates that common law countries have a lower book-tax conformity. Moreover, tax setting as well as the appointment of a tax collection authority is a political process. The effectiveness of the tax collection process is directly influenced by a country's level of corruption.

2.3 Economic Consequences of Quality

Increasing the quality of financial statement information has the objective of reducing information asymmetry and thereby improving informativeness and decision-usefulness for all users, as discussed earlier. This section points out economic consequences of higher quality financial statement information. These are capital-market effects measured in the markets after an improvement in the information environment. Recent literature in this field (for instance Leuz & Verrecchia, 2000; Diamond & Verrecchia, 1991; Ashbaugh & Pincus, 2001) has focused on the change from a local GAAP to IFRS. The underlying premise is thus that the change represents a change to a GAAP of higher quality financial reporting. However, as a result of the interdependence between accounting standards, the country's institutional setting and firms' incentives discussed in the previous section, the economic consequences of changing accounting systems may vary from country to country (Soderstrom & Sun, 2007). Furthermore, academic literature has often examined separately the effects of voluntary and mandatory adoption of IFRS. Since the late 1990s, an increasing amount of firms have adopted IFRS voluntarily. The history of mandatory adoption, on the other hand, is rather short and is related to the mandatory IFRS adoption within EU, starting from the year 2005. (Chen, Tang, Jiang & Lin, 2009.)

With respect to *voluntary* IFRS adoption, Leuz and Verrecchia (2000) investigates its effect on the cost of capital by using bid-ask spreads¹ and trading volume as proxies for the cost of capital. The research suggests that non-transparent information environments decrease the demand for stocks, increase bid-ask spreads and lower share turnover ratios. To attract potential investors, firms with low financial reporting quality have to issue stocks at a discount and hence at a higher cost of capital. On the other hand, large firms will disclose more information since they benefit the most. The decreased cost of capital attracts increased demand from large investors as a result of the greater liquidity. (Diamond & Verrecchia, 1991.) Firms voluntarily adopting IFRS or US GAAP have lower bid-ask spreads and higher stock turnover ratios, the difference between IFRS and US GAAP not being statistically significant. Furthermore, Ashbaugh and Pincus (2001) points out that IFRS adoption reduces analysts' cost of information acquisition and improves forecast accuracy. After IFRS adoption, forecast errors decrease and the number of news reports increases. Covrig, DeFond and Hung (2007), on the other hand, finds that foreign mutual fund ownership is significantly

¹ the difference between buying price and selling price of a share

higher for adopters of IFRS, indicating that voluntary adoption consequently attracts foreign capital. Voluntary adoption reduces home bias² among foreign investors, thereby improving capital allocation efficiency.

When examining the stock market's perception on *mandatory* IFRS adoption, the reaction is significantly positive to the events that increased the likelihood of the adoption of IFRS and negative to the events that decreased the likelihood of the adoption. Additionally, the reaction is stronger for firms that are not cross-listed in the US, i.e. for firms with lower pre-adoption information quality and higher pre-adoption information asymmetry. Thus, equity investors expect information quality benefits from IFRS adoption. However, the benefits are expected to be smaller for companies cross-listing in the US, as US GAAP are closer to IFRS than most European domestic GAAPs. Furthermore, the reaction is less positive for firms domiciled in code law countries, suggesting that investors are concerned about the enforcement of IFRS. (Armstrong, Barth, Jagolinzer & Riedl, 2008.) Pae, Thornton and Welker (2006) finds that Tobin's Q³ increases more for EU firms that 1) are not listed in the US, 2) are family-controlled and 3) have a low analyst following, indicating that the announcement of IFRS adoption in the EU leads to expectations of reduced future agency costs. Minority shareholders of the firms with significant information asymmetries are among the major beneficiaries of the financial reporting reform.

Daske, Hail, Leuz and Verdi (2008) examines capital-market effects in terms of market liquidity, cost of capital and equity valuation. The findings suggest that market liquidity increases around the time of IFRS introduction. The evidence also shows a decline in the cost of capital and an increase in equity valuation but these effects occur one year prior to the mandatory adoption date, suggesting that the market anticipates the economic consequences. Capital-market effects are stronger for those firms that voluntarily change to IFRS. Furthermore, when searching for factors driving the capital-market reactions, the research finds that capital-market effects appear only in countries where the institutional environment provides incentives to be transparent and in countries of a strong legal enforcement regime. Also, countries having greater differences between the local GAAP and IFRS as well as countries without a prior convergence strategy towards IFRS experience stronger effects

² investors reluctant to make cross-border investments

³ a measure for firm value, defined as the market value of common equity plus the book value of assets minus the book value of common equity minus deferred taxes divided by the book value of total assets

around the mandatory adoption, which is consistent with the findings of Armstrong et al. (2008) and Pae et al. (2006) discussed above.

2.4 IFRS Quality Relative to Other Reporting Standards

The last part of Chapter 2 concentrates on the quality of IFRS. Firstly, IFRS quality is discussed relative to domestic GAAPs. Secondly, differences in relation to US GAAP are presented. The very last section of the chapter introduces the international convergence process between the FASB and the IASB.

2.4.1 IFRS Relative to Domestic GAAPs

Barth et al. (2008) examines whether the application of IFRS is associated with higher quality of financial statement information. The research finds that firms applying IFRS provide financial statement information of higher quality than firms applying non-US domestic standards. Namely, IFRS firms have less earnings management, more timely loss recognition and more value relevance of accounting amounts in the post-adoption period than firms applying non-US domestic standards.

Moreover, Barth et al. (2008) finds that firms applying IFRS have a higher quality of financial statement information in the post-adoption period than in the pre-adoption period, and the increase in quality is greater than for firms not applying IFRS. Applying IFRS is thus associated with greater improvement in quality. Furthermore, differences in accounting metrics in the pre-adoption period do not explain the differences in the post-adoption period. However, as the application of IFRS consists of the combined features of the financial reporting system, including standards, their interpretation, enforcement, and litigation, the research states that one cannot be sure that the findings are attributable to the change in the financial reporting system rather than to changes in firms' incentives and the economic environment.

A report of Moody's (2008) considers whether the change from local GAAPs to IFRS in the European Union has resulted in financial statements that are easier to compare and more useful from a credit analysis perspective. The report states that the adoption of IFRS has

undoubtedly generated benefits. Despite this, financial statements are not necessarily easier to compare due to the less helpful features of IFRS.

Namely, Moody's (2008) points out that profits restated under IFRS are generally higher relative to those reported under a local GAAP. The increase in net income results from the discontinuance of goodwill amortization. The improvement in EBITDA, on the other hand, is due to several reasons. Firstly, EBITDA is improved because pension deficits are accounted as a reduction in equity, thus avoiding the need to amortise deficits against EBITDA. Also, a part of the pension expense is separated into an interest component, removing it from EBITDA. Secondly, development costs must be capitalized under IFRS, provided that certain conditions are met, and reported as an intangible asset and as capital expenditures. Thirdly, when faced with a significant delay between the incurrence of a long-term liability and its settlement in cash, as in the case of lawsuits, the related expense is recorded as interest in the income statement.

Moody's (2008) reports that IFRS result in better portraying the underlying reality in many occasions. This is because IFRS generally necessitate a more comprehensive reporting relative to local GAAPs, specifically when considering cash flows, pension obligations, leases and liabilities of uncertain timing and amount. To begin with, cash flow statements are mandatory under IFRS. They are used during the rating process in assessing whether a company generates sufficiently cash flow from its operations to service its debt. Moreover, several key ratios are derived from the cash flow statement information. Regarding pensions, debt-like obligation for pensions is easier to assess under IFRS and can be an important factor in evaluating the relative creditworthiness of companies. Finally, more informative reporting on leases allows new insights into the scale and extent of the off-balance-sheet obligations.

However, Moody's (2008) reports that financial statements under IFRS are not necessarily easier to compare. This is because of a lack of standardisation in certain areas and also due to inconsistent interpretations by companies and their auditors. First, the lack of standardisation concerns the accounting for jointly controlled entities and cash flow statements. The report finds that French and Spanish companies favour proportionate consolidation whereas others prefer the one-line equity method. Regarding cash flow statements, the same cash flows, namely interest received and paid, dividends received and income taxes paid, can be

represented under different headings in the cash flow statement, leading to difficulties of comparability.

Second, concerning the interpretation of standards, the report (Moody's, 2008) states that the control principle⁴ can be difficult to implement in practice. Furthermore, companies interpret differently the accounting for leases. Arrangements that are largely similar in substance are dealt with differently in the financial statements. Also, there are different views on categorising certain cash flows and on what constitutes an operating activity.

Moreover, Moody's (2008) cautions that the usefulness of IFRS can be at risk because of false volatility and undue complexity. False volatility is introduced due to the use of different derivatives whereas undue complexity is related namely to different swap contracts. The true level of debt can be difficult to determine as the practise of reporting debt varies from country to country. For instance, in France and Spain, the tendency is to include financial derivatives in the headline figure for debt whereas in Germany, Scandinavia and the UK they are usually left out. Additionally, the actual cost of a company's debt, i.e. interest expense, can be difficult to determine on the basis of financial statements.

Soderstrom and Sun (2007) expects that cross-country differences are likely to prevail following the IFRS adoption since the quality of financial statement information is a function of the firm's overall institutional setting. Hence, future improvements in quality will be largely dependent on changes in a country's legal and political system and financial reporting incentives.

2.4.2 IFRS Relative to US GAAP

Barth, Landsman, Lang and Williams (2006) examines whether IFRS are associated with a higher quality of financial statement information relative to US GAAP in terms of earnings management, timely loss recognition and higher value relevance of accounting amounts. Prior research (Leuz, Nanda & Wysocki, 2003) suggests that accounting amounts reported by non-US companies under a domestic GAAP are of lower quality than financial statements prepared applying US GAAP. Economies with strong legal enforcement (United States and United Kingdom) show the lowest level of earnings management whereas economies with

⁴ IAS 27: Consolidated financial statements include all the entities that are controlled by the parent company.

weak enforcement (for instance, Italy and India) show the highest level of earnings management.

Barth et al. (2006) finds that IFRS firms have a lower quality of financial statement information compared to US firms. IFRS firms report 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 flow and a higher frequency of small positive net income as well as a significantly lower frequency of large negative net income and significantly lower value relevance of earnings and equity book value for share prices. Applying IFRS does move firms closer to US GAAP and thus reduces the quality differences. But even during the more recent years, accounting amounts for US firms are of higher quality than those for IFRS firms, regardless of the fact that IFRS underwent several changes during the sample period of nearly a decade.

However, Barth et al. (2006) states that IFRS accounting amounts are of similar quality than US GAAP reconciled amounts presented on Form 20-F. At this point the research compared firms applying IFRS with firms applying a domestic GAAP and reconciling to US GAAP. Thus, the results suggest that IFRS accounting amounts provide investors with information of comparable quality to that provided under Form 20-F. Prior research (Lang, Raedy & Wilson, 2005) has suggested that the reconciled US GAAP amounts provided by non-US companies are of lower quality than those under US GAAP.

Leuz (2003), on the other hand, compares the efficacy of US GAAP to that of IFRS by using bid-ask spreads as a proxy for information asymmetry and trading volume as a proxy for liquidity on the Germany's New Market where companies can choose to report under IFRS or US GAAP. The rationale is that the better the financial reporting, the better the flow of information and the lower the information asymmetry, leading to greater liquidity. The findings suggest that IFRS are equivalent to US GAAP in terms of liquidity.

Van der Meulen, Gaeremynck and Willekens (2006) also investigates the properties of IFRS companies compared to US GAAP companies listed on the Germany's New Market. Financial statement quality is measured in terms of value relevance, timeliness, predictability and accruals quality. The findings suggest that US GAAP earnings are very comparable to

IFRS earnings. Only in regard to the predictive ability of accounting information are US GAAP of higher quality.

Tarca (2004) finds, examining the voluntary use of international standards (US GAAP or IFRS) in the United Kingdom, France, Germany, Japan and Australia in 1999-2000, that US GAAP are more extensively used than IFRS. The research attributes this to the impact of US GAAP in the international business environment and to the importance of US capital markets. However, firms not subject to the mandatory reconciliation requirements, such as companies traded in the US OTC⁵ market, more likely apply IFRS over US GAAP, supporting the view that IFRS are a low cost way of standardizing information.

Van der Meulen et al. (2006) goes on to consider the reasons underlying the differences between IFRS and US GAAP. Firstly, differences between IFRS and US GAAP exist because of structural and organizational distinctions between the two sets of standards. According to the proponents of US GAAP, IFRS have not been subject to the same due process. On the contrary, the IFRS standard setting process may be more open to input from a wider interest group for this reason. Secondly, it is argued that the application of US rules-based standards results in more neutral information because of fewer opportunities to manage earnings. The IASB's approach relies more on principles whereas the FASB's approach relies more on rules. Reliance on principles specifies guidelines but requires judgement in application. On the contrary, reliance on rules specifies more requirements that leave less room for discretion. The flexibility of IFRS principles-based standards can allow firms to manage earnings, thereby decreasing the quality of financial statement information. (Barth et al, 2008.) On the other hand, the proponents of IFRS state that management can more freely signal the true economic situation and performance of the company. Thirdly, differences in the quality of financial statement information may also result from differences in specific standards. For instance, under IFRS it is possible to capitalize Research & Development costs resulting in more value relevant earnings.

⁵ over-the-counter

2.4.3 International Convergence Process

The last section of Chapter 2 handles the on-going international convergence process between the IASB and the FASB. Firstly, the convergence process is introduced and the recent development discussed. The section then goes on to illustrate the remaining differences between IFRS and US GAAP. Finally, the chapter ends with suggesting future challenges regarding the two sets of standards.

Recent Development

The convergence approach between the IASB and the FASB was documented in a Memorandum of Understanding in 2002 (IASB & FASB, 2002). The two Boards agreed to develop together a common set of high quality, fully compatible financial reporting standards to be used both in domestic and cross-border reporting. The ultimate objective of the convergence process is to make the two sets of standards as nearly as similar as possible across jurisdiction, to jointly cooperate on new standards and to improve the overall quality of the standards.

The US Securities and Exchange Commission (SEC) has taken an enormous step towards convergence by publishing a Roadmap in April 21, 2005 aiming at the elimination of the requirement that foreign private issuers present financial statements in accordance with US GAAP or with reconciliation to US GAAP. This requirement has been a major disincentive for companies to enter the US capital markets or become listed in the US. (Weiss, 2005.) The SEC's intention underlying the elimination of the requirement was to allow more investment opportunities both for US companies and international companies with US subsidiaries. Furthermore, having one set of reliable financial statements would increase investor confidence and companies would be able to look for foreign investors as well as the entrance to new markets. The risk and costs associated with the entrance to foreign markets would be reduced and a greater comparability achieved among international companies. (Ragan, Hadley and Raymond, 2007.) There were two major developments the SEC originally considered indispensable with regard to the elimination: firstly, the effectiveness of EU requirements for the mandatory use of IFRS by listed companies and, secondly, progress by the FASB and the IASB in reducing the differences between IFRS and US GAAP. (Weiss, 2005.)

The SEC agreed in December 21, 2007 to permit foreign private issuers to file financial statements prepared in accordance with IFRS without reconciliation to US GAAP (SEC, 2007). Furthermore, it has proposed a Roadmap for the potential use of financial statements prepared in accordance with IFRS by US issuers (SEC, 2008). An issuer whose industry uses IFRS as the basis of financial reporting would be eligible to use IFRS, beginning with filings in 2010. The Roadmap contains several milestones that, if achieved, could lead to the required use of IFRS by US issuers in 2014.

Remaining Differences

As a result of the recent development, several countries have adopted IFRS on the basis that companies are able to access capital markets more efficiently throughout the world. However, important differences still prevail between IFRS and US GAAP. Ragan et al. (2007) lists the remaining major differences as follows:

*Extraordinary items*⁶: Under IFRS the use of extraordinary items is prohibited whereas under US GAAP they are permitted. US GAAP require that the items are segregated from the results of ordinary operations and shown separately in the income statement.

*Format and methodology of cash flow statement*⁷: In the cash flow statement the items interest paid, interest received, dividends paid, dividends received and taxes paid can be classified into different activity sections under IFRS based on professional judgement. Under US GAAP there is only one allowable classification for each item. Interest paid, interest and dividends received as well as taxes paid are operating cash flows. Dividends paid are financing cash flows.

*Presentation of jointly controlled entities*⁸: IFRS allow the use of both the equity method and the proportionate consolidation method whereas US GAAP allow only the use of the equity method.

⁶ Current standards are IAS 1 and Accounting Research Bulletin (ARB) 30.

⁷ Current standards are IAS 7 and SFAS 95.

⁸ Current standards are IAS 31 and SFAS 94. IASB has published an exposure draft in 2007 and plans to publish the new standard IFRS X *Joint Arrangements* in the first quarter of 2010.

*Research and development costs*⁹: Under IFRS research costs must be expensed and costs associated with the development can be capitalized if they meet a certain criteria. Under US GAAP all expenditures, except for costs associated with the development of computer software that will be sold later, have to be expensed in the period they are incurred.

*Share-based compensation*¹⁰: Both sets of standards require the use of a fair value method. However, the existing differences include the definition of the grant date, the classification of awards between equity-based and cash-based shares and the attributed expenses for graded vesting scenarios, which may all have a substantial effect on the comparability of financial statements.

*Methods of accounting for inventory*¹¹: Under IFRS a reversing transaction is carried out as a result of an increase in value of an inventory that was previously written down. Under US GAAP a reversal is prohibited. In addition, US GAAP allow the use of LIFO whereas IFRS oppose the use of this method.

*Revenue recognition methods*¹²: IFRS standards require the use of the percentage-of-completion method to account for the sale of services. According to US GAAP, revenue is recognized when services have been rendered, it is reasonable to assume that the funds will be collectable, or there is persuasive evidence that an arrangement exists, and there is a determinable sales price. Specifically, revenue from software is recognized when it is delivered. Under IFRS there are no specific rules for software. Regarding construction contracts, the percentage-of-completion method is preferred by US GAAP and required by IFRS. However, US GAAP allow also the use of the completed contract method where revenue is recognized upon the completion of a project.

*Employee pension plans*¹³: Both US GAAP and IFRS divide employee pension plans into defined contribution and defined benefit plans. However, there are differences regarding the definition of a defined contribution plan, amortization and recognition of actuarial gains and

⁹ Current standards are IAS 38 and SFAS 2.

¹⁰ Current standards are IFRS 2 and SFAS 123.

¹¹ Current standards are IAS 2, SFAS 151 and ARB 43.

¹² Joint Board discussions are on-going. Estimated completion for the joint project is in 2011. Currently the guidance for IFRS is laid out in IAS 18 (Revenue) and IAS 11 (Construction Contracts) but the guidance for US GAAP can be found in numerous different standards, some of which are industry-specific.

¹³ Current standards are IAS 19 and SFAS 87. IASB has released an exposure draft in 2009 and envisages completion of the new standard in 2011.

losses, basis of the expected return on plan assets, recognition of a minimum pension liability as well as the recognition of losses due to elimination or reduction of benefits.

Future Challenges

American Accounting Association's Financial Accounting Standards Committee (AAA FASC, 2008) states that, since faced with no clear differences in quality between IFRS and US GAAP, competition, rather than harmonization, should be encouraged between the two sets of standards. The view supports permitting foreign private issuers a choice between IFRS and US GAAP. Additionally, the committee strongly recommends extending the choice of IFRS to US companies since it believes that standards-setting competition would help to improve both sets of standards.

The key question of whether IFRS are of sufficient quality, i.e. as informative and useful, compared to US accounting standards is addressed by numerous research papers. Evidence shows that IFRS benefit both preparers and users of financial statements (see for instance Ashbaugh & Pincuss, 2001; Leuz, 2003; Barth et al., 2008; Covrig et al., 2007). Furthermore, the value relevance literature finds US GAAP to be very similar to the national GAAP of developed countries, such as the United Kingdom, Canada, Australia, France and Germany. Since IFRS are highly influenced by the expertise and traditions of these countries, IFRS are likely to be of similar quality with US GAAP. (AAA FASC, 2008.)

The report (AAA FASC, 2008) states that the research results suggesting that IFRS accounting standards are of high quality are independent of any global convergence process. However, sceptical views have been presented in the academic literature regarding the benefits of accounting standards harmonization. This derives from the concern that in reality the incentives of preparers and auditors of financial statements determine the quality of financial statements. Incentives are highly affected by legal, auditing, governance and regulatory regimes as well as by market forces. (Ball, Robin & Wu, 2003.) Forcing one global accounting solution may lead to applying form over substance. On the other hand, since accounting standards depend on a country's legal, auditing, regulatory, governance, and financing systems, accounting is an evolving process. Regulatory competition would benefit the development of good accounting standards. Competitive environment among standard-

setters, enterprises and investors would result in better accounting practices and standards as well as to a lower cost of capital. (Sunder, 2002.)

Ball (2006) puts forward further concerns regarding the future. He points out that, despite increased globalization, most markets and political influences on financial reporting practice remain local for the foreseeable future. This makes it unclear how much convergence in the actual reporting practice will there turn out to be. Due to political and economic reasons, he expects the IFRS enforcement to be uneven around the world. Ball refers to the problem as the “IFRS brand name problem”. IFRS adoption is being viewed as a signal of quality. A free-rider problem arises as it is essentially costless for lower-quality regimes to use the IFRS brand name. The IFRS adoption decision becomes uninformative about quality when the lower quality and the higher quality countries adopt IFRS. In order to make IFRS an informative signal of quality, a worldwide enforcement mechanism would be needed under which countries not effectively implementing IFRS would be penalized or prohibited from using the IFRS brand name. However, in the absence of such a mechanism, local political and economic factors will continue to influence local financial reporting practice.

The widespread IFRS adoption raises a concern that investors will be misled into believing that there is more uniformity in practice than there actually is. International differences in reporting quality can easily be hidden under the seemingly uniform standards even for the sophisticated investors. Moreover, the advantages of IFRS for investors in reduced information costs and information risk are at risk to be limited due to the uneven implementation. On the contrary, uneven implementation might even increase the information processing costs to international investors by hiding accounting inconsistencies at a less transparent level than differences in standards. Implementation has not received enough attention, and the focus has been more on what the rules say. However, implementation is, according to Ball (2006), the Achilles heel of IFRS. Furthermore, Ball (2006) cautions that the IASB is at risk of becoming a representative, politicized, polarized, UN-style body. He expects that in the future the IFRS-adopting nations will present their politically-legitimate argument of deserving a representation in the standard-setting process.

3 CREDIT RATINGS – FROM THE COMPLEX PROCESS TO A SIMPLE MODEL

Chapter 3 concentrates on credit ratings. The chapter first introduces the concept of credit rating as a measure for credit risk. The second section of the chapter introduces the complex credit rating process as well as the several determinants affecting credit ratings. As the chapter moves to the third section, analytical financial statement adjustments are taken under examination and the most common standard adjustment types are presented. Finally, the last section turns to credit rating models and shows how prior literature has attempted to model the complex credit rating process as a function of financial ratios.

3.1 Measure of Credit Risk

In terms of public debt, investors are at distance relative to the issuer. Investors have to, to a large extent, rely on professional debt analysts, such as debt raters. Analysts and debt raters serve therefore an important role by closing the information gap between issuers and investors. (Palepu, Healy, Bernard & Peek 2007, 412.)

The purpose of credit ratings is to measure the extent of credit risk. Credit risk, on the other hand, is defined as the probability of an unfavourable state of events occurring with respect to the interests of creditors (Wild, Subramanyam & Halsey 2007, 538). Kaplan and Urwitz (1979) views bond ratings as representing the judgement of informed and sophisticated financial analysts regarding a firm's creditworthiness. This judgment is expressed as a series of symbols, all reflecting the extent of riskiness.

According to Standard & Poor's (2008), credit rating represents an opinion of the general creditworthiness of an obligor (issuer credit rating), or the credit risk associated with a particular debt security or other financial obligation (issue rating). Credit rating agencies issue both long-term and short-term credit ratings. Standard & Poor's divides its credit ratings into main categories ranging from AAA to D whereas Moody's uses symbols from Aaa to D. The ratings may be modified by adding a plus or minus sign (Standard & Poor's) or an index from 1 to 3 (Moody's) to indicate the relative standing within the main rating categories. A short-

term credit rating, on the other hand, is an assessment of an issuer's credit quality with respect to an instrument considered short-term in the relevant market (Standard & Poor's, 2008).

An important distinction is made between investment-grade and speculative-grade debt. Investment-grade companies are those that have a rating of BBB or above. For instance, many funds are prohibited from investing in bonds below that grade. Of all the European public non-financial companies rated by Standard & Poor's, only around 1 % have a rating of AAA. In the 2005 fiscal year those firms had average interest expenses of 2.81 % relative to total debt. The cost of debt rises substantially when the rating falls to the speculative-grade. The average interest expenses relative to total debt in 2005 for BBB, BB and B rated firms were 4.47 %, 5.86 % and 7.54 %, respectively. (Palepu et al. 2007, 412-413.)

Bond ratings are used widely in the investment community as a measure of the riskiness of bonds. Alternatively, credit risk can be described with capital-market measures, namely with the yields or spreads of a firm's bonds.¹⁴ Regarding bond yields, they correlate strongly with bond ratings, with high-rated bonds selling at considerably lower yields than low-rated bonds (Kaplan & Urwitz, 1979). That is why low-rated, or speculative-grade, debt is often referred as high-yield debt. Credit returns are characterized of being highly skewed and fat-tailed. This means that there is a limited upside to be expected from any improvement in credit quality while there is a substantial downside resulting from a downgrade and a default. (Crouhy, Galai & Mark, 2000.)

When considering bond spreads, Crouchy et al. (2000) states that risk of a downgrade is purely a credit spread risk. When the credit quality gets worse, the spread relative to the Treasury curve widens. However, when analyzing credit risk, one needs to account for the full integration of market risk and credit risk. Changes in market and economic conditions may affect the overall profitability of firms. Spread risk is thus related to both credit and market risk. Spreads can fluctuate either because conditions in capital markets change which affects credit spreads for all rating classes, or because the credit quality of an obligor has improved or deteriorated, or because of both factors. Another characterisation concerning capital-market measures is that market participants often anticipate forthcoming credit events before they actually happen. This means that spreads and yields already reflect the new credit status when the rating agencies downgrade an obligor.

¹⁴ Bond yield is the return on a bond whereas bond spread refers to the difference between the yields of a corporate bond and a risk-free Treasury bond.

3.2 Underlying Factors Affecting Credit Ratings

The empirical part of this thesis focuses largely on the financial statement information that is used in determining credit ratings. However, one must bear in mind that several factors in addition to financial statement information are taken into account when determining credit ratings. This section discusses the rating process and introduces the various determinants of credit ratings.

Standard & Poor's (2008) states that its rating methodology is based on a fundamental analysis. The rating process is not limited to an examination of financial measures. On the contrary, proper evaluation of credit quality of an industrial company includes a thorough review of business fundamentals, including factors such as industry prospects for growth and vulnerability to technological change, labour unrest, or regulatory actions. For example, public finance ratings involve an evaluation of the basic underlying economic strength of the public entity, as well as the effectiveness of the management to address problems. As far as financial institutions are concerned, the reputation of the bank or company may have an impact on the future financial performance and the institution's ability to repay its obligations. The impact of various factors affecting credit ratings can thus vary between industries. Additionally, the rating agency emphasizes that, despite published methodologies, ratings incorporate many subjective judgements.

More specifically, the analytical process of Standard & Poor's is organized according to a common framework. The rating process is divided into two broad areas. Rating analysis starts with a fundamental business analysis, followed by a financial analysis. Ratings can be provided only after quantitative, qualitative and legal analyses are performed. The analytical framework is thus divided further into several categories in order to take all key qualitative and quantitative issues into consideration. The categories underlying the business and financial risk assessments are:

1. Business risk: Country risk, Industry factors, Competitive position, Profitability and peer group comparisons; and
2. Financial risk: Governance, risk tolerance and financial policies, Accounting, Cash flow adequacy, Capital structure and asset protection, Liquidity and short-term factors.

Moody's (2007), on the other hand, states that quantitative factors altogether are assigned a weight of 70 % whereas the remaining 30 % is assigned to qualitative considerations. Moody's divides its rating process into the following categories in its Rating Methodology for Global Telecommunications Industry (2007):

1. Size, scale, business model and competitive environment (relative weight of the rating factor: 25 %);
2. Operating environment (20 %);
3. Strategy and financial policies (5 %);
4. Operating performance (10 %); and
5. Financial strength (40 %).

The first category includes size, scale, business model and competitive environment. According to Moody's (2007), the larger the scale, the less exposed the firm is to a regional weakness or a business downturn. A large scale also enhances the ability to confront an investment mistake. It eases a company's access to capital markets and may provide financing flexibility as well as competitive advantage. Furthermore, market leadership offers a superior access to customers relative to competitors.

In terms of the business model, factors such as the extent of service territory and revenue mix are evaluated. Regarding the competitive environment, Moody's (2007) assesses market structure, customer count and revenue trends. The competitive environment is a key driver of credit quality since the degree of competition directly impacts a company's pricing power and marketing expenses, and hence the quality and level of its operating margins. The competitive environment is also likely to drive the level and pace of capital spending on adopting new technologies in order to differentiate product offerings or to reduce costs.

Secondly, an evaluation of the operating environment consists of assessing regulatory, political and technology risks as well as market-share related considerations. The aim is to investigate whether there is external pressure on a company's performance and on its credit quality. Regulation may primarily influence the competitive environment. Furthermore, Moody's (2007) considers how exposed the company is to a technological advancement and how it is positioned in handling technological developments. The strength within the market, on the other hand, influences customer perceptions of the company and signals of the use of capabilities to develop and support revenue.

Thirdly, when considering management's strategy, it is a key determinant of rating since it directly impacts the debt levels and credit quality. Moody's (2007) assesses the desired capital structure or targeted credit rating relative to the history, company's commitment to maintain targets as well as the operational and financial flexibility built by the management. Fourthly, the two key ratios of operating performance are EBITDA Margin and EBITDA Trend. The level and stability of operating margins are key considerations in the rating process. EBITDA margin captures management's skill in growing revenues, retaining customers and controlling costs whereas the trend in EBITDA measures the direction of earnings.

Finally, an important part of the analytical process is to review the financial strength of a company, consisting of the ability to service debt as well as to generate cash and sufficient return to enable a continuous access to the capital markets. Moody's (2007) announces 5 key ratios measuring the financial strength of a company, namely Debt to EBITDA, Free Cash Flow to Debt, Retained Cash Flow to Debt, Funds from Operations plus Interest Expense to Interest Expense and EBITDA less Capital Expenditure to Interest Expense. The first ratio is an indicator of the debt level relative to operating cash flows. Debt payback ratios measure the ability to repay debt whereas the interest coverage ratios indicate a company's ability to cover interest expenses.

In addition to the already mentioned ratios, Moody's globally comparable key ratios include Operating Profit, EBITA to Average Assets, EBITDA to Interest Expense, EBIT to Interest Expense, Debt to Revenues and Debt to Book Capitalization. Operating Profit and EBITA to Average Assets indicate the success of operating performance and the profitability of the core business of an enterprise. EBITDA and EBIT interest coverage ratios signal the extent of these operating performance measures relative to interest expenses. Debt to Revenues and Debt to Book Capitalization, on the other hand, are indicators of the debt level. Hence, it can be seen that the credit rating agency emphasizes the importance of operating performance as well as the ability to service debt and interest payments during the rating process, as far as financial ratios are concerned.

3.3 Analytical Financial Statement Adjustments as an Integral Part of the Rating Process

It is a common practise that credit rating agencies perform adjustments to financial statement information during the rating process. Both Moody's (2006) and Standard & Poor's (2008) disclose their adjustments. Standard & Poor's (2008) states that the purpose of analytical adjustments is to better reflect reality and to minimize differences among companies. Adjustments are performed in order to produce an analysis of the best possible quality. The credit rating agency underlines that the objective of adjustments is to enhance the analytical value of financial data and not to measure compliance with rules.

Moody's (2006), on the other hand, suggests four reasons for financial statement adjustments. Firstly, the aim is to apply accounting principles that Moody's (2006) believes more faithfully capture underlying economics. Secondly, the effects of unusual or non-recurring items are identified and separated. The third reason underlying adjustments is to improve comparability by aligning accounting principles. Finally, adjusted financial statements seek to reflect estimates or assumptions that Moody's believes are more prudent, for analytical purposes, in a company's particular circumstances.

Moody's reports standard adjustments separately for financial statements under IFRS and US GAAP. Standard & Poor's (2008), on the other hand, discloses all possible adjustments and states that certain adjustments are routine and applied to many issuer for all periods, other adjustments are made on a specific industry basis, and that, at times, individual situations require the use of non-standard adjustments.

The remainder of this section concentrates on introducing four standard adjustment types according to the rating methodology of Moody's (2006) for companies reporting under IFRS. Firstly, the accounting standard will be briefly referred to. The most common standard adjustment types were identified during the descriptive analysis of this research, described in more detail in Chapter 5.

3.3.1 Underfunded and Unfunded Defined Benefit Pensions

“IAS 19 recognizes defined contribution plans and defined benefit plans as post-employment benefit plans. Defined benefit plans may be unfunded or wholly or partly funded by contributions by an entity into an entity or a fund legally separate from the reporting entity. The reporting entity’s obligation includes a guarantee regarding the specified return on the fund’s assets. Actuarial risk and investment risk fall on the reporting entity.” (Troberg 2007, 72-73.)

“The amount recognized as a defined benefit obligation in the balance sheet is the net total of 1) the present value of defined benefit obligation, 2) plus any actuarial gains (minus losses) not yet recognized, 3) minus any past service costs not yet recognized and 4) minus the fair value of plan assets. The net of the following items is recognized as an expense in the income statement: 1) current service costs, 2) plus interest costs, 3) minus expected return on any plan assets, 4) plus actuarial losses (minus actuarial gains) and 5) plus past service costs.” (Troberg 2007, 75.)

In a pre-funded defined benefit pension scheme companies are required to set aside assets in a separate trust to fund future benefits. In an unfunded defined benefit pension scheme companies are not required to set aside assets in a separate trust for future benefits. Moody’s (2006) considers two types of reporting problems relating to pension accounting. The first problem affects both pension schemes whereas the second problem is unique to unfunded pension plans.

Firstly, the economic obligation to the pension trust and employees is not often fully recognized because of the artificial smoothing mechanisms of pension accounting, permitting the deferral of large losses and gains. Also, cash contributions to the pension trust are reported as an operating cash outflow in the cash flow statement although the contribution is more like a reduction of debt, and thus a financing activity.

Balance sheet is adjusted by recording as debt the unfunded or underfunded pension obligation¹⁵ and by removing all other pension assets and liabilities recognized under IFRS from the balance sheet. Regarding income statement, the goal is to report pension expense without artificial smoothing. Firstly, all pension costs recognized under IFRS are cancelled. The pension expense recognized by Moody’s equals the year’s service cost plus interest on the gross pension obligation minus actual earnings on plan assets. The service cost is considered as an operating cost of the pension plan. Interest cost on the gross pension obligation is recognized in other non-recurring income/expense. Furthermore, interest expense to pension-related debt is reclassified from other non-recurring income/expense to

¹⁵ defined as actuarially determined defined benefit obligation – fair value of assets in the pension trust

interest expense. In addition, actual losses or gains on pension assets are recorded in other non-recurring income/expense. The volatility in the performance of the pension plan assets is no longer reflected in EBIT as Moody's excludes the item other non-recurring income/expense from EBIT.

Cash flow statement is adjusted so that only the service cost is recognized as an operating cash outflow and employer cash pension contributions in excess of the service costs are reclassified from an operating cash outflow to a financing cash outflow. Additionally, Moody's (2006) investigates the premises for the discount rate and the assumed rate of return on pension assets when these assumptions appear significantly different from the peer companies.

Secondly, countries with an unfunded pension system differ significantly from those with a pre-funded system in the following way. Balance sheet includes a gross pension obligation in the place of a net obligation. Furthermore, there is typically no statutory requirement for cash pre-funding of the gross obligation. Finally, these arrangements allow for a long time to deal with the actual funding of pension payments, offering companies flexibility in how to meet their obligations.

Balance sheet is adjusted so that Moody's simulates a pre-funding of pension obligations and assumes that management's targeted debt and equity mix will be used to fund future pension obligations. Moody's reverses a portion of the debt and incorporates a corresponding "equity credit" which reduces the amount of the gross pension obligation. Equity credit is calculated after excess liquid funds have been reduced from the defined benefit obligation since excess liquid funds reduce the likelihood for raising additional equity finance. Regarding income statement, interest expense is aligned with the adjustment to debt.

The IASB is currently working on a project to improve pension accounting significantly, leading to a fundamental review concerning all aspects of post-employment benefit accounting. The project is part of the 2006 Memorandum of Understanding between the FASB and the IASB.

3.3.2 Operating Leases

According to IAS 17, in a finance (or capital) lease the risks and rewards of ownership are transferred to lessee. All other leases are operating leases. A finance lease is recognized at fair value of the leased property as assets and liabilities on the financial statements of the lessee. The lessor reports a finance lease as receivables. An operating lease is recognized as an expense by the lessee and as an income by the lessor.

There are a number of reasons to adjust operating leases. Firstly, companies do not recognize debt on their balance sheet even though they have contractual obligations to make lease payments. A failure in lease payments often leads to events of default. Secondly, operating leases reduce a company's borrowing capacity from the view point of lenders. Thirdly, the company would be likely to resort to borrowing money and buying the asset without any leasing option. As a consequence, Moody's (2006) reproduces company's financial statements as if the company had bought the leased asset and financed it with debt.

Balance sheet is adjusted by increasing both debt and fixed assets. Income statement is adjusted by reclassifying one third of the rent expense to interest expense and considering the residual amount (2/3) as depreciation. Operating expenses are adjusted accordingly. Cash flow statement is adjusted by reclassifying a portion of the rent payments from an operating cash flow to a financing cash outflow. Capital expenditures for newly acquired assets under operating leases are calculated and recorded in investing cash flows and as a corresponding borrowing in financing cash flow to fund the capital expenditures.

Developing a common approach to lease accounting is one of the projects being part of the 2006 Memorandum of Understanding between the FASB and the IASB. The Boards have jointly issued a discussion paper for comments in March 2009. A final standard is envisaged for issuance in 2011.

3.3.3 Consistent Measurement of Funds from Operations (FFO)

Two methods of reporting cash flows from operating activities are allowed under IAS 7. In the direct method gross cash receipts and payments are reported by major classes. In the indirect method, profit or loss is adjusted for non-cash revenues and expenses included in the profit or loss. IAS 7 encourages the use of the direct method.

Under the indirect method companies have the freedom to use net income, operating profit or pre-tax profit as the starting point for the calculation of the cash flow from operating

activities. FFO represents cash from operations before changes in working capital. Moody's adjusts the working capital of those companies who use operating profit or pre-tax profit as the starting point for their cash flow statement to make the calculations consistent with those companies that start with net income. The adjustments only concern cash flow statement.

If the starting point is pre-tax income, working capital is adjusted by the difference between current tax expense and tax paid. If the starting point is operating profit, working capital is adjusted by the difference between 1) current tax expense and tax paid and by the difference between 2) net interest expense and net interest paid.

3.3.4 Unusual and Non-recurring Items

IAS 1 does not allow the presentation of extraordinary items.

Moody's aims at separating the effects of unusual and non-recurring items to a special category on the income and cash flow statements. The unusual and non-recurring items are identified from public disclosures as well as during management's discussions and the analysis of operations. The analytical ratios generally exclude the effects of unusual and non-recurring items.

Balance sheet is adjusted only when an unusual or non-recurring item may materially affect the analysis. Income statement is adjusted by reclassifying the revenues, gains or costs relating to the unusual or non-recurring item net of tax effect to a separate category below net profit after tax. Cash flow statement is adjusted by reclassifying the effects of unusual or non-recurring cash inflows and outflows to a special category in the operating section of the cash flow statement.

3.4 The Role of Financial Statement Information Quality in the Rating Process

Assessing the quality of financial statement information is a critical part of the credit rating process. Standard & Poor's states in its Corporate Ratings Criteria (2008) that credit ratings are based on information furnished by the obligors or obtained from other sources the credit rating agency considers reliable. Financial statements and related disclosures serve as the

primary source of information used in the rating process regarding the financial condition and financial performance. Information is considered critically but no audit is performed during the rating process. The first step is to determine whether the financial statement information can be used to measure appropriately the performance and position of a company relative other companies. After the review, analytical adjustments, discussed in the previous section, are made to the amounts reported in the financial statements.

Generally investors in the secondary market for corporate bonds find it difficult to observe a firm's assets directly because of noisy or delayed accounting reports or barriers to monitoring. Instead, investors must rely on the available accounting data and other publicly available information that would signal about the issuer's credit quality. (Duffie & Lando, 2001.)

The manipulation of accounting data is intended to make a firm appear less risky. Financial executives state that they try to meet earnings benchmarks as well as to achieve and preserve a desired credit rating. Evidence suggests that earnings management is more common for firms that are large and have a high credit rating. (Graham, Harvey & Rajgopal, 2005.) Moreover, Jorion et al. (2007) states that investment-grade firms have higher capabilities to manage earnings due to the scale of their operations and access to exotic financing sources. Additionally, an increased number of institutional investors in large companies may create pressures to meet and beat the market expectations.

With perfect information, yield spreads for surviving firms are zero at zero maturity and are relatively small for small maturities, regardless of the riskiness of the firm. For relatively risky firms, yield spreads climb rapidly with maturity with perfect information. Regarding imperfect information, yield spreads are strictly positive at zero maturity because of investors' uncertainty. Duffie and Lando (2001) shows that imprecision in accounting measures of firm value increases default risk. This implies that a declining quality of financial statement information would lead to a greater default risk and a higher debt yield spread. Also Francis, LaFond, Olsson and Shipper (2005) demonstrates that greater information risk is associated with higher debt costs.

The research of Jorion et al. (2007) demonstrates the critical role of accounting information in the credit rating process. The research strongly disagrees with the research paper published by Blume, Lim and MacKinlay (1998) whose main finding was that the reason for the average credit rating of US corporations trending down has been a systematic tightening of credit

rating standards on the behalf of credit rating agencies. The decline in average credit ratings is an observed phenomenon over the last twenty years but Jorion et al. (2007) re-examines its causes. Blume et al. (1998) has influenced the views of academics, practitioners and regulators on rating consistency. For instance, it has been quoted by the Federal Reserve Board in 2001 and the Federal Reserve Bank in 2003 in their research reports. However, a tightening of credit standards by rating agencies could undermine the usefulness of credit ratings and have an adverse impact on the cost of debt financing. Changes in the rating criteria that do not reflect changes in underlying default probabilities would distort the effectiveness of credit ratings since their usefulness depends critically on consistency in the credit rating standards. On the other hand, Jorion et al. (2007) argues that the interpretations of Blume et al. (1998) of tightening standards can be explained by changes in the quality of financial statement information over time. Jorion et al. (2007) states that, in addition to industry-specific factors and the increased risk of firms over time, the quality of financial statement information is an important determinant of credit rating.

Jorion et al. (2007) finds that financial statement information may have become less reliable over time because of increased earnings management. The paper documents for the first time notable temporal differences in the value relevance of accounting information and earnings management between investment-grade and speculative-grade firms. More specifically, the R-squared is halved over the observation period for investment-grade issuers. Decreasing credit quality is associated with lower values of the R-squares. This indicates that accounting information is progressively becoming less useful to predict credit ratings for investment-grade firms. Yet, the same pattern is not observed for speculative-grade issuers.

As rating agencies are faced with less informative accounting numbers, the average rating decreases over time. This is consistent with Duffie and Lando (2001). The analyses of Jorion et al. (2007) indicate that for the investment-grade firms, upward earnings management is associated with lower credit rating. When firms become more aggressive in implementing accounting rules, they tend to portray a much rosier picture than their true underlying economics. As a rational response, rating agencies discount the reported accounting data and assign lower ratings to accurately reflect the firms' economic reality. As indicated by Graham et al. (2005), earnings management is more prevalent for firms that are large and have a high credit rating, corresponding to the investment-grade sample of Jorion et al. (2007).

3.5 Modelling Credit Ratings

This thesis investigates the association between financial statement adjustments and credit ratings by using credit rating models. This section introduces now the premises for such models. Prior research demonstrates that a part of the credit rating process can be modelled and explained as a function of financial ratios, without incorporating human judgement. Furthermore, Palepu et al. (2007, 414) states that in situations where a public rating is not available some rating agencies relay on quantitative models. Such models are commonly used by insurance companies and banks to assess the riskiness of debt issues.

3.5.1 The Rating Models of Kaplan and Urwitz (1979)

The research of Kaplan and Urwitz (1979) attempts to determine what information bond raters use in making their judgement by constructing statistical models for explaining and predicting credit ratings. The rating models of Kaplan and Urwitz have been widely used in the literature as such, and furthermore, the methodology has been extensively referred to as a basis for credit rating modelling (for instance Blume et al., 1998; Jorion et al., 2007).

Based on prior research, Kaplan and Urwitz (1979) states that relatively simple functions on historical and publicly available data can be used as an excellent first approximation for the bond-rating process. A number of studies from the 1960s and 70s were able to develop a statistical model capable of classifying 60 % - 80 % of the bonds correctly in a holdout sample different from the one used to estimate the statistical function. However, the studies differed in the statistical procedure used to estimate the prediction equation, the selection of the independent variables, the population of bonds used to estimate the prediction equation and in the method for evaluating the predictions from the model.

Kaplan and Urwitz (1979) views the bond-rating process in the following way. A bond rater tries to measure the probability of default of a bond issue. However, due to inadequate measurement techniques the rater cannot measure default risk on a ratio or interval scale but can only make an ordinal ranking of the bond issues. Ex post, bond raters hope that low-rated bonds are in default more often relative to high-rated bonds. The different values of the dependent variable represent ordinal information that is not necessarily linear in scale. For example, AAA bonds are less risky than AA bonds but there is no quantitative measure of

how much less risky they are. Kaplan and Urwitz (1979) uses the maximum likelihood approach for estimating the bond rating equation. The research (1979) uses two separate samples: 1) all Moody's rated industrial bonds with unchanged ratings in the 1971-1972 time period ("seasoned bonds") and 2) all new industrial issues rated by Moody's between 1970-1974 ("new bonds"). The new-issue sample is further split up into an estimation sample and a holdout sample.

Studies prior to Kaplan and Urwitz (1979) have shown that a relatively small set of independent variables seems important in explaining and predicting bond ratings. All financial ratios are computed using a 5-year arithmetic average of the annual ratios because the authors believe that bond raters look beyond a single year's data to avoid temporary anomalies. The variables being part of the analyses of Kaplan and Urwitz (1979) measure subordination status, size, earnings stability, leverage, earnings coverage of interest and profitability. In addition, the residual standard error from the market model and the market beta are included as independent variables to test whether bond ratings are more associated with firm-specific or unsystematic risk than systematic risk. The analyses include the following variables:

- Subordination status: a dummy variable (S)
- Size: Total Assets (TA) and Size of Bond Issue (IS)
- Earnings stability: Coefficient of Variation of Total Assets (CVTA) and Coefficient of Variation of Net Income (CVNI)
- Leverage: Long-term Debt to Total Assets (LTD/TA) and Long-term Debt to Net Worth (LTD/NW)
- Earnings coverage of interest: Cash Flow Before Interest and Taxes to Interest Charges (CFBIT/INT) and Cash Flow Before Interest and Taxes to Total Debt (CFBIT/TD)
- Profitability: Net Income to Total Assets (NI/TA)
- Unsystematic risk: Residual Standard Error from the Market Model (σ_M)
- Systematic risk: Market Beta (β_M)

Kaplan and Urwitz (1979) finds that the subordination status and size variables are highly significant for both groups of bonds in explaining credit ratings. The financial leverage variable Long-term Debt to Total Assets is also significant. Surprisingly, the interest coverage cash flow variables are consistently insignificant, although emphasized by credit rating analysts. In addition, the following three rating models are selected for further cross-validation purposes from the models estimated on the new-issue sample:

1. M1: Rating = f(CFBIT/INT, LTD/TA, NI/TA, TA, S, β_M , σ_M)
2. M2: Rating = f(LTD/TA, TA, S, β_M)
3. M3: Rating = f(LTD/TA, NI/TA, TA, S)

The models estimated on the original estimation sample of new issues are used to predict the ratings for the holdout sample of new issues. Model 1 which includes both financial and market-determined risk measures performs best of the three models: 69 % of the predicted ratings are correct. With Models 2 and 3, 66 % and 54 % of the predictions are correct, respectively. Both models 1 and 2 predict 100 % of the issues within one category of the correct rating. These findings suggest that a statistical model (M2) consisting of subordination status, size (Total Assets), one financial ratio (Long-term Debt to Total Assets) and the Common Stock Market Beta coefficient can classify correctly about 2/3 of a holdout sample of newly issued bonds. The prediction capacity can be improved a bit further by adding two financial ratios and the residual standard error from the market model (M1).

Finally, Kaplan and Urwitz (1979) evaluates the performance of the above rating prediction models by observing the actual market yields of the newly issued bonds and by comparing the yields to the predicted ratings. They believe that the market is capable of evaluating bonds independently of the bond raters and adjusting yields to compensate bond holders for the perceived riskiness of individual bonds. This may not always agree with the risk assigned by the credit rating agency. Market yield comparisons indicate that the actual performance of the models in capturing the riskiness of bonds is probably even better than indicated by the percentages of correctly classified bonds. The analysis reveals that the models may predict the actual risk of a bond better than the rating agency in about half of the misclassifications. However, the research acknowledges that such a comparison is a rather crude mechanism since bonds are complicated instruments and one cannot separate the different and unique features of bonds, including for instance coupon rate and maturity, from the yield differential due solely to risk.

3.5.2 The Importance of Market-based Information

The variables used in the empirical part of this study are accounting variables. However, prior research shows that the explanatory power of bankruptcy prediction models can be enhanced if market-related data is used as well. Credit rating and bankruptcy literature are related. Indeed, bankruptcy, or default, can be seen as a special case of a downgrade. The credit quality has then deteriorated to the point where the obligor cannot service its debt obligations anymore. (Crouchy et al., 2000.) This section discusses the importance of market-based information.

Chava and Jarrow (2004) states that market variables appear to predict bankruptcy better than accounting variables. The most accurate public firm model in terms of forecasting includes no accounting variables. Accounting variables add little predictive power when market variables are already included in the bankruptcy model. The finding is consistent with the efficient market hypothesis. Market prices reflect all publicly available information regarding bankruptcy, including that contained in the accounting variables.

Beaver, McNichols and Rhie (2005) finds that the slight decline in the predictive ability of the financial ratios in predicting bankruptcy is offset by improvement in the predictive ability of market-related variables. Non-financial statement information thus compensates for the slight loss in the predictive power of the financial ratios. When combining financial and market-based ratios, the market-based variables remain significant even in the presence of the financial statement variables. This is consistent with the notion that the market-based variables contain the financial statement variables as a subset, as suggested previously by Chava and Jarrow (2004). Leverage also remains significant. This is because the market-based variables do not distinguish between volatility caused by business risk and that caused by financial risk.

Campbell, Hilscher and Szilagyi (2008) suggests that the explanatory power of the bankruptcy regression model is improved by scaling accounting variables by market values. When the time horizon at which failure is predicted is increased, the most persistent forecasting variable, market capitalization, becomes relatively more important as failure is predicted further into the future. Volatility and the market-to-book ratio also become more important at long horizons relative to net income, leverage and recent equity returns. Hillegeist, Keating, Cram and Lundstedt (2004), on the other hand, assesses the performance

of two popular accounting-based measures, Altman's Z-score and Ohlson's O-score, and evaluates whether they can effectively summarize publicly available information about the probability of bankruptcy. The relative information content of these scores is compared to a market-based measure of the probability of bankruptcy. The results indicate that the latter provides significantly more information than either of the two accounting-based measures.

Indeed, the use of market-based information includes several advantages. Three of them are now presented. Firstly, as mentioned, market prices reflect a rich and comprehensive mix of information which includes financial statement data as a subset. Market-based variables are not a substitute for the accounting-based information but rather a proxy for the predictive power attainable by capturing the total mix of information. (Beaver et al., 2005.)

Secondly, the ability of accounting-based information to estimate the probability of bankruptcy accurately and reliably is limited by the very nature of the information. To begin with, market-based variables can be measured with a finer partition of time while financial statements are available at best on a quarterly basis (Beaver et al., 2005). Additionally, an estimate for the probability of bankruptcy is a statement about the likelihood of a future event whereas the financial statements are designed to measure past performance and may not be very informative about the future of the firm. Furthermore, financial statements are formulated under the going-concern principle, which assumes that firms will not go bankrupt. Finally, the conservatism principle causes asset values to be understated relative to their market values, especially for fixed assets and intangibles. Downward-biased asset valuations will cause accounting-based leverage measures to be overstated. (Hillegeist et al., 2004.)

Thirdly, market-based variables can provide direct measures of volatility (Beaver et al., 2005). The probability of bankruptcy increases with volatility. Accounting-based bankruptcy prediction models fail to incorporate a measure of asset volatility which is a crucial variable in predicting bankruptcy because it captures the likelihood that the value of the firm's assets will decline to such an extent that the firm will be unable to repay its debt. (Hillegeist et al., 2004.)

Regarding the development of accounting-based information, Beaver et al. (2005) lists three forces that have influenced the predictive value of financial ratios with respect to bankruptcy over the past 40 years. First, the FASB and the SEC have been trying to increase the

usefulness of the financial statement information and to enhance the ability of such statements to convey the fair value of assets and liabilities. The use of fair values might increase the predictive ability of financial statements for bankruptcy. Second, the shift in economic activities towards intangible assets might offset the improvement in accounting standards since they are not well captured by the current accounting models. Third, financial statements may be more managed today than in the past. This brings the discussion back to the theme of Chapter 2. Although having been the subject of many improvements lately, reporting standards and the resulting financial statement information are influenced by several different factors. Most importantly, the incentives of those who demand and supply information have a major impact on the quality of the outcome. This clearly decreases the usefulness of accounting-based information in the favour of market-based information.

4 HYPOTHESIS

This thesis investigates whether financial statement adjustments matter in credit analysis. The empirical part of the thesis is constructed so that it begins with examining the difference between reported and adjusted data, then goes on to explain the quality differences between the two sets of data and finally concludes by investigating the association financial statement adjustments and credit ratings. Two related questions are addressed during the analyses, in order to answer the research question.

1. Are reporting standards and company-specific factors associated with financial statement adjustments?

Examining the first question offers descriptive evidence on reporting standards and company-specific factors and on their association with financial statement adjustments. The amount of adjustments is explained by constructing a regression model. US GAAP being the benchmark standards, the GAAP dummies included in the regression model are IFRS and LOCALGAAP. The coefficients of IFRS and LOCALGAAP are interpreted in relation to US GAAP. Therefore, if the coefficient of a GAAP dummy is positive, a change from US GAAP to the other GAAP increases the amount of adjustments. The firm-specific variables included in the model are identified from the credit rating and accounting quality literature.

Regression model:

$$\begin{aligned} \text{Amount of Adjustments} = & \beta_0 + \beta_1 * \text{IFRS} + \beta_2 * \text{LOCALGAAP} + \\ & \sum_f \beta_f * \text{Firm-specific Factors} + \sum_c \beta_c * \text{Control Variables} + \varepsilon \end{aligned} \tag{1}$$

2. Are financial statement adjustments associated with actual credit ratings?

In the context of credit ratings, financial statement adjustments can be considered from two different viewpoints. Firstly, assume that company Y discloses its financial statements and requests a credit rating from Credit Rating Agency X. However, the latter cannot determine the rating based on reported financial statement amounts but has to make adjustments to better reflect the underlying economics. If the reported financial statement figures are not of sufficient quality, the adjusted figures must be better for the purposes of a rating process. The more there are adjustments the lower the quality of the original amounts must be, since there is more need for corrections. The lower quality of reported financial statement information leads to a lower rating. Thus, adjustments are negatively associated with ratings and the adjustment variable can be seen as a measure of financial statement information quality.

However, the other way of looking at adjustments is that they must be useful for the decision making during the rating process. As adjustments make companies more comparable with each other, they decrease information risk. This improves the usefulness financial statement information and leads to a higher rating. In this case, adjustments are positively associated with ratings.

All in all, it is expected that adjustments are associated with credit ratings but the direction of the association is not clear. The research hypothesis is thus:

H1: The amount of financial statement adjustments is associated with credit rating.

The variable measuring the amount of adjustments is added to a linear regression model explaining credit ratings. Moreover, interaction terms for financial statement adjustments and reporting standards are included in the rating model to take into account the effect of IFRS and local GAAP adjustments on rating. The amount of adjustments variable measures the

effect of US GAAP adjustments since the interaction terms clean out the effect of IFRS and local GAAP adjustments. The two interaction terms, on the other hand, measure the impact of IFRS and local GAAP adjustments on rating relative to US GAAP.

Regression model:

$$\begin{aligned}
 \text{Rating} = & \beta_0 + \beta_1 * \text{Adjustments} + \beta_2 * \text{IFRS} * \text{Adjustments} + \\
 & \beta_3 * \text{LOCALGAAP} * \text{Adjustments} + \beta_4 * \text{IFRS} + \beta_5 * \text{LOCALGAAP} + \\
 & \sum_c \beta_c * \text{Control Variables} + \varepsilon
 \end{aligned}
 \tag{2}$$

5 DATA AND DESCRIPTIVE STATISTICS

The empirical part of this thesis is divided into two chapters. To begin with, Chapter 5 introduces the data and various descriptive statistics relating to the data as well as the variables used in the analyses. Chapter 6, on the other hand, describes the tests performed and reports the results.

5.1 Data

Two sets of data are used in the empirical part of this research, both provided by Credit Rating Agency X. Firstly, the main data consists of the time period 2004-2007 including companies active in the telecommunications industry. Secondly, the IFRS firms included in the main data are analyzed more thoroughly in terms of the adjustment type using a subset of the main data from year 2007.

5.1.1 Main Data 2004–2007

The original data consists of 196 firms from the time period 2004-2007. The data contains 4 different report types. Report 1 contains balance sheet information, Report 2 income statement and cash flow statement information, Report 3 rating related information and Report 4 numerous accounting ratios calculated on the basis of Reports 1 and 2. Reports 1, 2 and 4 include both reported and adjusted financial statement figures.

A few companies were removed from the original data, leaving altogether 191 companies and 764 firm-year observations in the data. Two of the removed companies were included only in Reports 1, 2 and 4. Three of the removed companies were included only in Report 3. One company was further removed from the data at the beginning of the analyses since its reported and adjusted revenues differed significantly from each other. The analyses in Chapter 6 will only use observations with an existing credit rating. Of the 764 observations left in the data, 515 have an existing rating.

There are 53 countries included in the data. Altogether 52 companies report under IFRS, 84 under US GAAP and 55 under a local GAAP. The distribution of countries relative to reporting standard is illustrated in Appendix 1.

5.1.2 Data 2007 with Specific Adjustments

The data set from 2007 with specific adjustments contains 195 companies, out of which 52 are IFRS companies, 87 US GAAP companies and 56 local GAAP companies. The companies included in the 2007 data are the same ones as in the main data described above. The IFRS companies included in the 2007 data will be examined more closely. Eight IFRS companies were removed from the data because their reporting date exceeded +/- 6 months from 31.12.2007. As a consequence, 44 IFRS companies are left under examination.

The 2007 data contains specific adjustments for balance sheet, income statement and cash flow statement divided into standard and non-standard adjustment categories. Standard adjustments are further categorized as follows:

1. Pensions;
2. Operating leases;
3. Financial leases;
4. Capitalized interest;
5. Capitalized development costs;
6. Interest expense related to discounted long-term liabilities other than debt;
7. Capitalized maintenance costs;
8. Stock compensation;
9. Hybrids;
10. Securitizations;

11. Consistent measurement of FFO; and
12. Unusual and non-recurring items.

Non-standard adjustments, on the other hand, are made whenever Credit Rating Agency X considers it necessary for the purposes of the rating process. The company-specific reasons underlying non-standard adjustments include, for instance, guarantees in favour of third parties, reclassification of Depreciation & Amortization, provisions for legal cases as well as the removal of equity-accounted income from EBIT and EBITDA.

5.2 Descriptive Statistics

This section illustrates the descriptive statistics relating both to the main data from 2004-2007 and the data from 2007. The difference between the reported and adjusted data is first investigated and the most common adjustment types are taken under examination. The section then goes on to introduce the variables as well as the models used during the analyses.

5.2.1 Difference between Reported and Adjusted Data

The first question of interest is whether the difference between reported and adjusted data is significant. The purpose is to identify those financial statement items which are most commonly adjusted. The financial statement items are evaluated with the ultimate objective of constructing variables describing the amount of adjustments.

Searching for Adjusted Financial Statement Items from the Main Data 2004-2007

The starting point for analyzing adjustments is to view a table illustrating the difference between adjusted and reported data (ADJ – REP) deflated with reported Total Assets and containing all the financial statement items. Appendices 2 and 3 represent the descriptive statistics of the proportioned difference for balance sheet items as well as those for income and cash flow statement items, respectively. Only rated companies are included in the analyses and included in the appendices. At a first glance, especially items such as Property, Plant and Equipment, Capitalized Leases, Debt, Interest Paid and Market and Book Capitalization stand out from the rest of the items when using the median of the deflated difference as a criterion.

Next, a non-parametric Wilcoxon test¹⁶ is performed on all of the financial statement items. In order to perform the test, all financial statement items from the raw data are deflated with reported Total Assets. The test is then conducted between adjusted financial statement items deflated with reported Total Assets and their corresponding reported financial statement items deflated with reported Total Assets. The aim is to see whether the difference between adjusted and reported financial statement items is statistically significant. The Wilcoxon test statistic Z is illustrated in Appendices 2 and 3 along with other descriptive statistics. Items having a statistically significant difference between adjusted and reported data are indicated with an asterisk.

Altogether 118 financial statement items have a statistically significant difference between adjusted and reported data with the Wilcoxon test (1). Since so many financial statement items have a significant difference, the focus is on the median of the deflated difference, while searching for items with a median above 5 % (2). Together these two criteria are used to determine important adjusted financial statement items to be tested further. At this point, all the sum items¹⁷ as well as items having a similar content¹⁸ are eliminated. The sum items are eliminated because, for the purposes of credit analysis, it is more interesting to investigate which individual financial statement items are adjusted, and later to see which adjustment types cause the adjustments of these individual financial statement items. The deflated differences are further transformed into absolute values.¹⁹ This is because during the analyses, the absolute deflated differences will be used as variables describing the amount of adjustments. When considering the median of absolute deflated differences, the same financial statement items stand out as before taking the absolute value.

According to the methodology of credit rating agencies, operating performance as well as debt payback and interest coverage are important considerations during the rating process. The financial statement items relating to these key considerations, namely Cash Flow from Operations, EBITDA, Operating Profit and EBIT for operating performance, Total Debt for debt payback and Interest Expense for interest coverage, also have a significant difference between adjusted and reported data with the Wilcoxon test. However, only Total Debt has a

¹⁶ The Wilcoxon signed-ranks method tests the null hypothesis that two related medians are the same. Two tests of normality were conducted in order to make sure that the Wilcoxon test suits better to the data over a t-test. Both Kolmogorov-Smirnova and Shapiro-Wilk tests indicate that the items are not close to a normal distribution.

¹⁷ such as Total Assets

¹⁸ for instance Total Debt is selected and other debt items disregarded

¹⁹ for example $|[(EBIT_{ADJ} - EBIT_{REP}) / Total\ Assets_{REP}]|$

median above 5 %, together with Capitalized Leases and Net Property, Plant and Equipment. At this point, the items indicated by the rating methodology are selected further. For operating performance all the 4 items mentioned above are selected as alternatives to be tested during the regression analyses. However, Operating Profit constantly generates a higher explanatory power relative to the alternatives during the analyses and is therefore selected over the other candidates. Moreover, Capitalized Leases and Net Property, Plant and Equipment have a very high correlation with Total Debt and Interest Expenses and are therefore eliminated.²⁰ Thus, the variables to be used later in Chapter 6 as measures describing the amount of adjustments include the absolute deflated difference of *Operating Profit*, *Interest Expense* and *Total Debt*.

Although the variables are constructed as absolute values, a review of the sign, or direction, of adjustments is important. Table 1 illustrates the number of the positive and negative adjustments of the three selected items, Operating Profit, Interest Expense and Total Debt, according to reporting standard. The table shows that a major part of the adjustments are positive. This means that the adjustments made by Credit Rating Agency X to a large extent increase Operating Profit, Interest Expense and Total Debt compared to the reported financial statement figures. On the one hand, when comparing different reporting standards, the negative Operating Profit adjustments are higher under US GAAP and IFRS than those under a local GAAP (17.2 %, 19.5 % and 8.8 %, respectively). On the other hand, local GAAP companies experience more negative adjustments in Interest Expense in comparison to companies reporting under US GAAP and IFRS (10.5 %, 3.3 % and 2.3 %, respectively). The sensitivity tests will include an analysis taking into account the sign of adjustments.

²⁰ Correlations with Total Debt and Interest Expense, respectively: Capitalized Leases 84.7 % / 75.5 % and Net Property, Plant and Equipment 84.6 % / 74.4 % with Spearman's correlation; Capitalized Leases 83.4 % / 60.9 % and Net Property, Plant and Equipment 83.3 % / 60.3 % with Pearson's correlation. Correlations were taken from the absolute deflated differences.

TABLE 1
Number of Positive and Negative Adjustments Relative to Reporting Standard

Financial Statement Item	Sign of Adjustments				Total
	<i>Positive</i>	<i>% of Total</i>	<i>Negative</i>	<i>% of Total</i>	
US GAAP					
Operating Profit	178	82.8 %	37	17.2 %	215
Interest Expense	208	96.7 %	7	3.3 %	215
Total Debt	208	96.7 %	7	3.3 %	215
IFRS					
Operating Profit	103	80.5 %	25	19.5 %	128
Interest Expense	125	97.7 %	3	2.3 %	128
Total Debt	127	99.2 %	1	0.8 %	128
LOCALGAAP					
Operating Profit	104	91.2 %	10	8.8 %	114
Interest Expense	102	89.5 %	12	10.5 %	114
Total Debt	114	100.0 %	0	0.0 %	114
ALL					
Operating Profit	385	84.2 %	72	15.8 %	457
Interest Expense	435	95.2 %	22	4.8 %	457
Total Debt	449	98.2 %	8	1.8 %	457

The reason why several financial statement items will be used as a measure for the amount of adjustments is that there is no theory to indicate how to calculate such a variable. Operating performance, debt payback and interest coverage are key components during a rating process and the evidence from the Wilcoxon test shows that in reality these items are also highly adjusted. Furthermore, it is important to consider several variables instead of just one since the impact of different types of adjustments on different financial statement items varies.

However, in addition to the mentioned three key rating components, two other variables are constructed to measure the amount of adjustments. Contrary to the three variables discussed above, these two ratios take into account the total amount of financial statement adjustments. The first variable will be based on the total sum of adjustments in absolute values deflated with reported Total Assets. The second variable, on the other hand, will describe the relative number of adjustments. Using these two variables together with the three other variables taking into account only the adjustments of one financial statement item will enable a deeper understanding of adjustments and their effect on credit ratings.

Searching for Adjusted Financial Statement Items from the 2007 Data

Additionally, the 2007 adjustment data is examined in order to see which financial statement items are mostly adjusted. Appendices 4, 5 and 6 illustrate the amount of standard adjustments, non-standard adjustments as well as the sum of these two amounts separately for balance sheet, income statement and cash flow statement, respectively. Furthermore, the adjustment types underlying standard adjustments can be seen in the tables. The number of standard adjustment type refers to the list of different adjustments types put forward in section *5.1.2 Data 2007 with Specific Adjustments*²¹. Only those items that face adjustments are a part of the appendices. The total amount of standard adjustments, the total amount of non-standard adjustments as well as the sum of the two (“ALL”) are proportioned to the total amount of reported Total Assets of the 44 IFRS firms. The percentages used in the text refer to the amount of adjustments relative to reported Total Assets. The specific adjustments were converted into absolute values before calculating the sum items.

When considering the adjustments performed to balance sheet items in Appendix 4²², Gross Property, Plant and Equipment and Capitalized Leases stand out from the rest of the items. The relative amount of adjustments of both of these items equals 6.9 %. This percentage is remarkably high compared to other financial statement items. The adjustments are standard adjustments and mainly due to operating leases (2). Moreover, the adjustments of Bonds / Senior Debt account for 1.9 % relative to Total Assets whereas those of Other Long-term Liabilities equal 1.3 %. Both of the items face standard adjustments due to pensions (1). The item Bonds / Senior Debt faces also a large amount of non-standard adjustments (1.0 %). In addition, other balance sheet items facing a great amount of adjustments due to operating leases are Current Portion of Borrowings / Long-term Debt (0.6 %) and Less: Current Maturities (0.6 %). A major part of the balance sheet adjustments are standard; the total

²¹ 1) Pensions; 2) Operating leases; 3) Financial leases; 4) Capitalized interest; 5) Capitalized development costs; 6) Interest expense related to discounted long-term liabilities other than debt; 7) Capitalized maintenance costs; 8) Stock compensation; 9) Hybrids; 10) Securitizations; 11) Consistent measurement of FFO; and 12) Unusual and non-recurring items.

²² The following balance sheet items are not a part of the table as the amount of adjustments equals 0: Accumulated Depreciation, Net Property Plant and Equipment, Investment in Subsidiaries / Affiliates, Goodwill, Deferred Tax Assets, NON-CURRENT ASSETS, Inventories, Trade Receivables, Other Receivables, CURRENT ASSETS, ASSETS IN DISPOSAL GROUPS HELD FOR SALE, TOTAL ASSETS, Secured Debt, Borrowings / Long-term Debt - Gross, Net Long-term Debt (Net of Current Maturities), NON-CURRENT LIABILITIES, Trade Payables, Accounts Payable - Other, Deferred Income, CURRENT LIABILITIES, TOTAL LIABILITIES, Cumulative Translation Adjustment, TOTAL EQUITY and TOTAL LIABILITIES & EQUITY.

amount of balance sheet standard adjustments accounts for 17.4 % relative to reported Total Assets whereas that of non-standard adjustments covers 3.6 %.

Regarding income statement in Appendix 5²³, the items that are adjusted the most are Cost of Goods / Products / Services Sold (2.6 %) and Depreciation (Including Impairment Charges) (2.0 %). Both of the items face mainly non-standard adjustments. The adjustments of Operating Expenses account for 1.5 % relative to reported Total Assets and the standard adjustments are mostly due to operating leases (2). Other adjusted income statement items are Other Operating Income (0.8 %), Depreciation - Capitalized Operating Leases (0.8 %), Amortisation of Intangibles (Including Impairment Charges) (0.9 %), Equity-accounted Income (After Tax) (0.7 %) and Unusual & Non-recurring Items - Adjusted After Tax (0.9 %). Interestingly, a greater part of income statement adjustments are non-standard (7.4 %) compared to standard adjustments (4.9 %).

As far as cash flow statement in Appendix 6²⁴ is concerned, items facing a significant amount of adjustments are Income Statement Activity (0.7 %), Depreciation & Amortisation (0.8 %), Cash Payments to Acquire PP&E and Intangibles (0.8 %), Proceeds from Long-term Borrowings (0.8 %) and Repayments of Borrowings (0.8 %). Apart from Income Statement Activity, the adjustments are due to operating leases (2). Altogether, a greater part of the adjustments consists of standard adjustments (4.1 % relative to 1.9 %). However, the items facing only non-standard adjustments are Other Investing Cash Flows (0.4 %), Interest Paid (0.5 %), Treasury Stock Issued / Repurchased (0.2 %) and Payment of Dividends (0.3 %).

It can be seen from the 2007 adjustment data that the same items, namely Plant, Property & Equipment, Capitalized Leases and Debt, face a large amount of adjustments, as was seen from the main data. Moreover, it seems that the two important adjustment types underlying

²³ The following income statement items are not a part of the table as the amount of adjustments equals 0: Net Sales, Gross Profit, OPERATING PROFIT, EBIT, PRE-TAX INCOME, Minority Interest Expense (After Tax), Net Profit After Tax Before Unusual Items, INCOME (LOSS) FROM DISCONTINUED OPERATIONS, NET INCOME and NET INCOME AFTER ADJUSTED FOR UNUSUAL & NON-RECURRING ITEMS.

²⁴ The following cash flow statement items are not a part of the table as the amount of adjustments equals 0: Minority Interest, Undistributed Equity Earnings, Discontinued Operations, Funds from Operations, CASH FLOW FROM OPERATIONS, CASH FLOW FROM OPERATIONS After Unusual & Non-recurring Adjustments, Proceeds from Disposal of PP&E and Intangibles, Business Acquisitions, Proceeds from Business Divestitures, INVESTING ACTIVITIES OF DISCONTINUED OPERATIONS, NET CASH FROM INVESTING ACTIVITIES, Long-term Debt Proceeds / Repayment - Net, Net Short-term Debt Changes, Preferred Stock Issued / Repurchased, Stock Options / Warrants - Net - Including Rights, Cash Dividends - Minority, FINANCING ACTIVITIES FROM DISCONTINUED OPERATIONS, NET CASH FROM FINANCING ACTIVITIES, Exchange Rate Impact on Cash and Cash Equivalents and NET INCREASE (DECREASE) IN CASH & EQUIVALENT.

the adjustments of these items are operating leases (2) and pensions (1). The next section concentrates more specifically on different adjustment types.

5.2.2 The Most Common Standard Adjustment Types

The 2007 data with specific adjustments allows a closer examination of the standard adjustment types that Credit Rating Agency X performs. Regarding firstly balance sheet standard adjustments in Appendix 4, the two most common adjustment types are operating leases (2) and pensions (1). The adjustments relating to operating leases account for 86.2 % of the total amount of balance sheet standard adjustments. Pension related adjustments, on the other hand, represent 11.3 % of the total balance sheet standard adjustments.

When considering operating leases, the balance sheet items Gross Property, Plant and Equipment and Capitalized Leases are adjusted with a positive record. Additionally, the current portion of long-term debt is shown separately by recording a negative adjustment in Less: Current Maturities and a corresponding positive adjustment in Current Portion of Borrowings / Long-term Debt. The adjustments relating to pensions are directed at Other Assets, Bonds / Senior Debt, Other Long-term Liabilities, Deferred Tax and Retained Earnings. Two of the most important adjusted balance sheet items relating to pension adjustments are Other Long-term Liabilities, facing a negative record, and Bonds / Senior Debt that is adjusted with a positive record, as indicated by the rating methodology. Furthermore, the equity credit under an unfunded pension system is recorded in Retained Earnings.

The income statement adjustments (Appendix 5) are most commonly due to operating leases (2), unusual and non-recurring items (12) and pensions (1). Operating leases account for 48.0 % of the total income statement standard adjustments whereas unusual and non-recurring items cover 26.7 % and pensions 21.3 % of the total income statement standard adjustments. Regarding income statement items adjusted due to operating leases, the items Cost of Goods / Products / Services Sold, Operating Expenses and Selling, General and Administrative Expenses are reduced by reclassifying the rent expense to Interest Expense and to Depreciation - Capitalized Operating Leases, which are increased correspondingly. When considering adjustments due to unusual and non-recurring items, several income statement items are concerned. Most commonly, amounts recorded in Other Operating Income, Other

Non-operating Income and Other Non-operating Expenses are removed to Unusual & Non-recurring Items - Adjusted After Tax.

The items adjusted due to pensions are Cost of Goods / Products / Services Sold, Operating Expenses, Selling, General and Administrative Expenses, Other Non-recurring Expenses / Gains, Interest Expense, Taxes and Unusual & Non-recurring Items - Adjusted After Tax. As illustrated in Chapter 3, the service cost is considered as an operating cost of the pension plan. The interest cost on defined benefit obligation is recognized in Other Non-recurring Expenses / Gains. Interest expense to pension-related debt is reclassified from Other Non-recurring Expenses / Gains to Interest Expense. Additionally, actual losses or gains on pension assets are recorded in Other Non-recurring Expenses / Gains.

Finally, two of the most common adjustment types when considering cash flow statement are operating leases (2) and align FFO (11), as seen in Appendix 6. The former accounts for 75.8 % of the total amount of cash flow statement standard adjustments whereas the latter represents a portion of 18.5 % of the total adjustments. Regarding operating lease adjustments, a portion of the rent payments is recorded from an operating cash outflow (a positive record to Depreciation & Amortisation) to a financing cash outflow (a negative record to Repayments of Borrowings). Capital expenditures are increased by recording a negative adjustment in Cash Payments to Acquire PP&E and Intangibles and a corresponding increase in Proceeds from Long-term Borrowings. The cash flow statement items adjusted for the measurement of FFO, on the other hand, are Income Statement Activity and Changes in Other Operating Assets & Liabilities – Short-term.

5.2.3 Explaining the Amount of Financial Statement Adjustments

This section will now demonstrate which variables are used to measure the amount of financial statement adjustments and which variables are included in the regression models to explain the amount of adjustments as well as how the variables have been determined. The objective of the first part of Chapter 6 will be to show whether the reporting standards and various company-specific factors are associated with the amount of adjustments. The effect of various variables on the amount of adjustments is examined by using the linear regression method. The data used in estimating the models is *reported* data from 2004-2007. Only rated companies are included in the analyses.

Dependent Variables

Regressions are run using the amount of adjustment variables one at a time as the dependent variable. As five different variables describing the amount of adjustments are constructed, five different regression models will be estimated. The dependent variables used are the following:

- SumADJ%TA: The relative amount of all financial statement adjustments, calculated as summing up the absolute values of the difference [ADJ – REP] of all financial statement items and deflating the sum with reported Total Assets.
- CountADJ%TA: The relative number of adjusted financial statement items, calculated as the number of the financial statement items that are adjusted, deflated with the number of financial statement items that have a reported figure.
- DiffOpPROF%TA: The relative amount of adjustments in Operating Profit, calculated as the absolute value of the difference between adjusted and reported Operating Profit deflated with reported Total Assets.
- DiffIntEXP%TA: The relative amount of adjustments in Interest Expense, calculated as the absolute value of the difference between adjusted and reported Interest Expense deflated with reported Total Assets.
- DiffTotDEBT%TA: The relative amount of adjustments in Total Debt, calculated as the absolute value of the difference between adjusted and reported Total Debt deflated with reported Total Assets.

Independent Variables

US GAAP are viewed as benchmark standards in this thesis, therefore the GAAP dummies included in the analyses are IFRS and LOCALGAAP. Various academic research papers have demonstrated the influence of the chosen reporting standards on the quality of financial statement information (for instance Barth et al., 2008; Soderstrom & Sun, 2007). Regarding company-specific factors, the selected characteristics include the size of a company, its profitability and capital intensity, growth and demand-related matters, business acquisitions and investments, capital need and financing, debt payback and interest coverage, liquidity as well as various operative risk related factors. Academic literature has identified several firm-specific characteristics having an impact on the quality of financial statement information. To begin with, large companies may engage more in earnings management (Graham et al., 2005). Profitability may affect the quality of information for instance when the bonuses of managers depend on reported earnings, leading them to manage earnings (Scott 2009, 406). As far as capital structure and leverage are concerned, shareholders may demand more information than

banks and increase incentives to improve the quality of information (Burgstahler et al., 2007; Sun, 2005). Increased risk may cause managers to smooth earnings in order to reduce the volatility, for instance in order to avoid the violation of contract clauses (Scott 2009, 405). Capital intensity, on the other hand, is an important feature characterizing companies present in the telecommunications industry. Such companies generally have high fixed costs, relating for instance to Research & Development, which in turn increases the operative risk of the companies.

When determining possible firm-specific variables to describe the mentioned characteristics, credit rating literature and key ratios of Moody's, introduced in section 3.2 *Underlying Factors Affecting Credit Ratings*, were both considered carefully. Originally 25 firm-specific variables were chosen for the tests.²⁵ The amount of variables was further reduced to 13 during the first regression analyses when determining the variables that best explained the amount of adjustments and also by eliminating several alternative variables having a similar content. During the first regression analyses, a severe multicollinearity problem was encountered because of the natural logarithm of Total Assets which is an important variable characterizing the size of the company. The condition index was constantly extremely high, although no high correlations were found. It may be that a company's size affects all the aspects of the firm to the extent that it increases considerably the condition index. After eliminating the variable, condition index was reduced well below 20 in all the regression models. Also, a natural logarithm of Revenues was tried as the size variable but the behaviour of the condition index was similar to that with the natural logarithm of Total Assets. However, the size of a company could be taken into account in the analyses by constructing four different dummy variables. Firstly, companies were divided into five different groups based on Total Assets. The first group was taken as a benchmark group, and the four other groups were assigned a number from 1 (the smallest) to 4 (the largest). By using these dummy variables the multicollinearity problem could be avoided.

²⁵ Ln(Total Assets), ROA, Profit Margin, Asset Turnover, Change in Sales, Goodwill to Total Assets, Depreciation to Total Assets, Capital Expenditures to Total Assets, Common Shares Issued to Total Assets, Long-term Debt Issued to Total Assets, Dividends to Total Assets, Debt to EBITDA, Debt to Total Assets, Short-term Debt to Long-term Debt, Retained Cash Flow to Debt, Free Cash Flow to Debt, Debt to Book Capitalization, EBIT to Interest Expense, EBITDA to Interest Expense, Funds from Operations plus Interest Expense to Interest Expense, Interest Expense to EBIT, Quick Ratio, Coefficient of Variation of Net Income, Operating Leverage and a dummy for negative Operating Profit.

Five other firm-specific variables²⁶ were further eliminated from the final models using the t-statistic as a criterion. When the variables were all included in the model at the same time, they had a t-statistic below 1. This means that they did not add to the explanatory power of the model but rather reduced it. However, the effect of these variables on the amount of adjustments will be investigated during sensitivity tests in section *6.3.1 Removed Variables from the Models Explaining the Amount of Adjustments*. The company-specific variables used in the final models are the following:

- AsTRNV: Asset Turnover, calculated as Revenues divided with Total Assets.
- ChgREV: Change in Revenues, calculated as the percentage change in Revenues relative to the previous year.
- DEBT/BCap: Debt to Book Capitalization.
- QckRATIO: Quick Ratio, calculated as Cash and Equivalents plus Net Trade Receivables divided with Current Liabilities.
- CVNI: Coefficient of Variation of Net Income, calculated as the standard deviation of Net Income divided with the mean of Net Income over 4 years.
- ProfMRG: Profit Margin, calculated as Net Income divided with Revenues.
- GROUP: 1 for the main company, otherwise 0. The main company is determined on the basis of Revenues.
- NegOpPROF: Negative Operating Profit; 1 if Operating Profit < 0, otherwise 0.
- PUBLIC: 1 for publicly listed company, otherwise 0.
- SIZE1: 1 for the 2nd quintile of companies, otherwise 0. The five groups are formed based on Total Assets, the smallest group being the benchmark.
- SIZE2: 1 for the 3rd quintile of companies, otherwise 0.
- SIZE3: 1 for the 4th quintile of companies, otherwise 0.
- SIZE4: 1 for the 5th quintile of companies, otherwise 0.

Regarding control variables, country dummies were determined firstly by constructing a dummy variable for each of the 53 countries, then using the country dummies as independent variables and the adjustment variables as dependent variables in a linear regression, and finally by selecting those countries that were significant during the regressions. The frequency was also investigated so that all the countries included in the analyses contain at least 7 firm-

²⁶ Common Shares Issued to Total Assets, Long-term Debt Issued to Total Assets, Dividends to Total Assets, Short-term Debt to Long-term Debt and Interest Expense to EBIT.

year observations in the data. The selected dummies include the following 11 countries: Argentina, Brazil, Hong Kong, Indonesia, Japan, Korea, Luxembourg, Mexico, Philippines, Thailand and United Kingdom. Additionally, regression models include dummy variables to control differences in years²⁷.

Table 2 represents the descriptive statistics relating to both dependent and independent variables used in the final regression models explaining adjustments. Table 3, on the other hand, illustrates the correlation matrix including the continuous company-specific variables used to explain adjustments in the final regression models.

5.2.4 Credit Rating Models

The objective of the second part of empirical analyses is to investigate the association between financial statement adjustments and credit ratings. For this purpose, a credit rating model will be constructed by combining some of the key ratios of Moody's as well as those of Kaplan and Urwitz (1979) to complement the model. The rating model is estimated with a linear regression method using data from 2004-2007. The main focus will be on six credit rating models, five of them containing a different adjustment variable and one of them containing a combination of two adjustment variables. These models are estimated using *reported* data. Also, an additional test will be conducted in which the rating model is estimated without any adjustment variables using 1) *reported* and 2) *adjusted* data. The quality differences between these two sets of data will be investigated by analyzing the resulting explanatory power of the two models.

The dependent variable of the credit rating models is the real credit rating assigned by Credit Rating Agency X. The primary focus is on a scale having categories from 1 to 19, including a separate rating category for all the ratings describing the relative standing within the main category. Additionally, a cruder scale from 1 to 8 will be used during the sensitivity tests including only the main rating categories, as in the study of Kaplan and Urwitz (1979).

²⁷ Year 2004 is considered as the benchmark year.

TABLE 2

Descriptive Statistics Relating to Regression Models Explaining the Amount of Adjustments

Characteristic	Variable	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>STD</i>
Dependent Variables					
Amount of Adjustments	SumADJ%TA	457	1.106	0.920	1.023
Amount of Adjustments	CountADJ%TA	457	0.460	0.468	0.087
Amount of Adjustments	DiffOpPROF%TA	457	0.012	0.005	0.043
Amount of Adjustments	DiffIntEXP%TA	457	0.008	0.005	0.009
Amount of Adjustments	DiffTotDEBT%TA	457	0.106	0.086	0.092
Independent Variables					
Capital Intensity	AsTRNV	457	0.570	0.523	0.257
Growth	ChgREV	436	0.111	0.053	0.208
Leverage	DEBT/BCap	457	0.621	0.480	0.773
Liquidity	QckRATIO	457	0.778	0.688	0.488
Operative Risk	CVNI	487	4.345	0.308	40.182
Profitability	ProfMRG	457	0.082	0.096	0.170
<i>Value = 1</i>					
Accounting Standard	IFRS	515	145	(28.2 %)	
Accounting Standard	LOCALGAAP	515	121	(23.5 %)	
Corporate Structure	GROUP	515	428	(83.1 %)	
Country	ARGENTINA	515	7	(1.4 %)	
Country	BRAZIL	515	15	(2.9 %)	
Country	INDONESIA	515	16	(3.1 %)	
Country	JAPAN	515	16	(3.1 %)	
Country	KOREA	515	11	(2.1 %)	
Country	LUXEMBOURG	515	11	(2.1 %)	
Country	MEXICO	515	17	(3.3 %)	
Country	PHILIPPINES	515	8	(1.6 %)	
Country	HONGKONG	515	7	(1.4 %)	
Country	THAILAND	515	7	(1.4 %)	
Country	UNITEDKINGDOM	515	16	(3.1 %)	
Operative Risk	NegOpPROF	456	41	(9.0 %)	
Public/Private	PUBLIC	515	299	(58.1 %)	
Size	SIZE1	515	87	(16.9 %)	
Size	SIZE2	515	91	(17.7 %)	
Size	SIZE3	515	97	(18.8 %)	
Size	SIZE4	515	113	(21.9 %)	

TABLE 3
Correlations Relating to the Continuous Firm-specific Variables Explaining the Amount of Adjustments
(upper-right diagonal Spearman; lower-left diagonal Pearson)

Variable	ProfMRG	AsTRNV	ChgREV	CVNI	DEBT/BCap	QckRATIO
ProfMRG		0.095*	0.079	0.050	-0.509**	-0.192**
		0.042	0.101	0.295	0.000	0.000
AsTRNV	-0.032		0.061	0.091	-0.080	0.028
	0.495		0.204	0.054	0.088	0.551
ChgREV	0.037	0.035		0.148**	-0.101*	0.109*
	0.447	0.461		0.002	0.034	0.023
CVNI	-0.034	-0.061	-0.013		0.016	-0.031
	0.467	0.196	0.783		0.730	0.518
DEBT/BCap	-0.141**	0.299**	-0.068	0.013		0.068
	0.003	0.000	0.155	0.782		0.144
QckRATIO	-0.032	-0.005	0.083	0.003	0.020	
	0.489	0.910	0.083	0.944	0.668	

*. Correlation is significant at the 0.05 level.

**. Correlation is significant at the 0.01 level.

Test Variables

The association between financial statement adjustments and credit ratings is investigated by including the adjustment variables introduced in section 5.2.3 *Explaining the Amount of Financial Statement Adjustments* in the credit rating model, one at a time. Additionally, the rating model will include interaction terms for reporting standards and adjustments to take into account the impact of IFRS and local GAAP adjustments on rating relative to US GAAP. When the interaction terms are included in the model, the adjustment variables measure the effect of US adjustments on rating. The interaction terms, on the other hand, measure the effect of IFRS and local GAAP adjustments on rating. Furthermore, GAAP dummies IFRS and LOCALGAAP are of interest. The GAAP dummies will indicate the impact of the reporting standards on credit rating relative to US GAAP before any adjustments are made. The interaction terms used in the rating models are defined as:

- IFRS*SumADJ%TA: IFRS dummy multiplied with the relative amount of all financial statement adjustments.
- LOCALGAAP*SumADJ%TA: LOCALGAAP dummy multiplied with the relative amount of all financial statement adjustments.
- IFRS*CountADJ%TA: IFRS dummy multiplied with the relative number of adjusted financial statement items.

- LOCALGAAP*CountADJ%TA: LOCALGAAP dummy multiplied with the relative number of adjusted financial statement items.
- IFRS*DiffOpPROF%TA: IFRS dummy multiplied with the relative amount of adjustments in Operating Profit.
- LOCALGAAP*DiffOpPROF%TA: LOCALGAAP dummy multiplied with the relative amount of adjustments in Operating Profit.
- IFRS*DiffIntEXP%TA: IFRS dummy multiplied with the relative amount of adjustments in Interest Expense.
- LOCALGAAP*DiffIntEXP%TA: LOCALGAAP multiplied with the relative amount of adjustments in Interest Expense.
- IFRS*DiffTotDEBT%TA: IFRS dummy multiplied with the relative amount of adjustments in Total Debt.
- LOCALGAAP*DiffTotDEBT%TA: LOCALGAAP dummy multiplied with the relative amount of adjustments in Total Debt.

Control Variables

Originally, five firm-specific continuous control variables were selected to the rating model. The selected key ratios of Moody's included EBITA to Average Assets, EBITDA to Interest Expense and Debt to Book Capitalization, whereas the natural logarithm of Total Assets and Coefficient of Variation of Net Income were selected from the Kaplan-Urwitz (1979) models. At the very beginning of the analyses, it became clear that the natural logarithm of Total Asset introduced a similar multicollinearity problem to the model as described previously with the model explaining the amount of adjustments. The natural logarithm of Total Assets was therefore replaced with the size dummies, as in the previous part. Furthermore, the variable EBITDA to Interest Expense was replaced by Interest Expense to EBIT, being more relevant in the model. The dummy variable for negative Operating Profit was further added to the model since it proved to be important in explaining the amount of adjustments. The control variables describing company characteristics in the final rating model are thus:

- EBITA/AvAs.: EBITA to Average Assets.
- IntEXP/EBIT: Interest Expense to EBIT.
- Debt/BCap
- CVNI
- NegOpProf
- GROUP
- PUBLIC
- SIZE1, SIZE2, SIZE3 and SIZE4

Other control variables include dummy variables for years 2005-2007 and 14 country dummies. Country dummies include the 11 countries being part of model explaining the amount of adjustments. Moreover, dummies for Chile, Netherlands and Russia are added to the rating model, being relevant when explaining ratings.

Table 4 represents the descriptive statistics relating to the variables included in the regression models. As the variables describing the amount of adjustments are the same as in Table 2, they are not a part of Table 4. Panel A includes the descriptive statistics relating to the interaction terms for reporting standards and adjustments. Panel B presents descriptive statistics of the company-specific variables calculated with reported data while Panel C illustrates those calculated with adjusted data. Although the size variable Total Assets is not a part of the rating models, it is included in the table in order to demonstrate the absolute size of companies. Some of the variables calculated with reported data are already included in Table 2 but they are shown in Table 4 to enable their comparison with variables calculated with adjusted data. Panel D shows the number of total observations as well as the number of observations getting a value of 1 for the three country dummies not being part of Table 2. Descriptive statistics relating to other dummy control variables used in the rating models are found in Table 2. Regarding Tables 5 and 6, they illustrate the correlation matrices for the continuous test and control variables used in the final rating models. Table 5 includes the adjustment variables together with firm-specific continuous control variables calculated with reported data. Table 6, on the other hand, presents correlations relating to firm-specific continuous control variables calculated with adjusted data.

TABLE 4

Descriptive Statistics Relating to Variables Included in the Rating Models

PANEL A: Interaction Terms for GAAPs and Adjustments

Characteristic	Variable	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>STD</i>
Interaction Term	IFRS*SumADJ%TA	457	0.326	0.000	0.808
Interaction Term	IFRS*CountADJ%TA	457	0.136	0.000	0.222
Interaction Term	IFRS*DiffOpPROF%TA	457	0.003	0.000	0.015
Interaction Term	IFRS*DiffIntEXP%TA	457	0.002	0.000	0.005
Interaction Term	IFRS*DiffTotDEBT%TA	457	0.030	0.000	0.076
Interaction Term	LOCALGAAP*SumADJ%TA	457	0.227	0.000	0.510
Interaction Term	LOCALGAAP*CountADJ%TA	457	0.108	0.000	0.197
Interaction Term	LOCALGAAP*DiffOpPROF%TA	457	0.002	0.000	0.005
Interaction Term	LOCALGAAP*DiffIntEXP%TA	457	0.002	0.000	0.006
Interaction Term	LOCALGAAP*DiffTotDEBT%TA	457	0.023	0.000	0.054

PANEL B: Company-specific Control Variables Calculated with Reported Data

Characteristic	Variable	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>STD</i>
Interest Coverage	IntEXP/EBIT	457	0.043	0.240	6.110
Leverage	DEBT/BCap	457	0.621	0.480	0.773
Operative Risk	CVNI	487	4.345	0.308	40.182
Profitability	EBITA/AvAs	457	0.120	0.111	0.117
Size	Total Assets	457	19,765,183	5,818,486	42,860,000
<i>Value = 1</i>					
Operative Risk	NegOpPROF	456	41	(9.0 %)	
Size	SIZE1	515	87	(16.9 %)	
Size	SIZE2	515	91	(17.7 %)	
Size	SIZE3	515	97	(18.8 %)	
Size	SIZE4	515	113	(21.9 %)	

PANEL C: Company-specific Control Variables Calculated with Adjusted Data

Characteristic	Variable	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>STD</i>
Interest Coverage	IntEXP/EBIT	457	0.711	0.297	6.407
Leverage	DEBT/BCap	457	0.632	0.557	0.358
Operative Risk	CVNI	487	0.082	0.269	2.582
Profitability	EBITA/AvAs	457	0.113	0.104	0.081
Size	Total Assets	457	21,014,602	6,262,874	45,150,000
<i>Value = 1</i>					
Operative Risk	NegOpPROF	456	33	(7.2 %)	
Size	SIZE1	515	87	(16.9 %)	
Size	SIZE2	515	89	(17.3 %)	
Size	SIZE3	515	98	(19.0 %)	
Size	SIZE4	515	114	(22.1 %)	

PANEL D: Country-related Control Variables

Characteristic	Variable	<i>N</i>	<i>Value = 1</i>
Country	CHILE	515	8
Country	NETHERLANDS	515	8
Country	RUSSIA	515	27

TABLE 5
Correlations Relating to Variables Included in the Rating Models Calculated with Reported Data
(upper-right diagonal Spearman; lower-left diagonal Pearson)

Variable	SumAdj%TA	CountAdj%TA	DiffOpPROF%TA	DiffIntEXP%TA	DiffTotDEBT%TA	IntEXP/EBIT	DEBT/BCap	CVNI	EBIT/A/AVAs
SumAdj%TA	0.339**	0.548**	0.752**	0.922**	-0.051	0.118*	-0.134**	-0.113*	
CountAdj%TA	0.000	0.000	0.202**	0.283**	0.278	0.107*	0.005	0.016	
DiffOpPROF%TA	0.000	0.001	0.000	0.000	0.006	0.023	0.334	0.004	
DiffOpPROF%TA	0.450**	0.019	0.679	0.462**	0.494**	0.073	-0.026	-0.157**	
DiffIntEXP%TA	0.000	0.198**	0.134**	0.000	0.101	0.118	0.579	0.001	
DiffIntEXP%TA	0.696**	0.000	0.004	0.795**	-0.024	0.089	-0.089	-0.024	
DiffTotDEBT%TA	0.891**	0.294**	0.183**	0.760**	0.608	0.058	0.059	0.610	
DiffTotDEBT%TA	0.000	0.000	0.000	0.000	-0.004	0.119*	-0.120*	-0.115*	
IntEXP/EBIT	-0.041	0.089	-0.007	-0.006	0.929	0.011	0.011	0.014	
IntEXP/EBIT	0.385	0.056	0.883	0.894	-0.048	0.398**	0.309**	-0.272**	
DEBT/BCap	0.413**	0.122**	0.131**	0.299**	0.304	0.000	0.000	0.000	
DEBT/BCap	0.000	0.009	0.005	0.000	0.443**	0.019	0.016	-0.319**	
CVNI	-0.043	0.007	-0.023	-0.061	0.000	0.679	0.730	0.000	
CVNI	0.358	0.884	0.634	0.196	-0.043	0.034	0.013	0.115*	
EBIT/A/AVAs	0.067	-0.030	-0.084	0.004	0.359	0.473	0.782	0.014	
EBIT/A/AVAs	0.152	0.516	0.073	0.929	-0.071	-0.083	-0.030	0.523	
EBIT/A/AVAs					0.131	0.075			

** Correlation is significant at the 0.01 level.

* Correlation is significant at the 0.05 level.

TABLE 6
Correlations Relating to Variables Included in the Rating Models Calculated with Adjusted Data
(upper-right diagonal Spearman; lower-left diagonal Pearson)

Variable	EBITA/AvAs	IntEXP/EBIT	DEBT/BCap	CVNI
EBITA/AvAs		-0.373	-0.302	0.209
IntEXP/EBIT	-0.076	0.000	0.000	0.000
DEBT/BCap	0.106		0.457	0.085
CVNI	-0.271**	0.068	0.000	0.070
	0.000	0.146		-0.100
	0.121*	-0.046	-0.013	0.034
	0.010	0.330	0.782	

** . Correlation is significant at the 0.01 level.

* . Correlation is significant at the 0.05 level.

6 TESTS AND RESULTS

Chapter 6 begins with addressing the first question introduced at the beginning of the thesis of which reporting standards and company-specific factors are associated with financial statement adjustments. The second part of the chapter seeks to find an answer to the second question posed in Chapter 1. The focus is then on the credit rating models and the aim is to investigate the association between adjustments and credit ratings. The last section of the chapter consists of sensitivity tests.

6.1 Association between Reporting Standards, Company-specific Factors and Financial Statement Adjustments

The descriptive tests in Chapter 5 identified those financial statement items that are most commonly adjusted. The attention is now directed towards the reasons that explain the quality differences, i.e. the amount of adjustments, between reported and adjusted data. Several adjustment variables were constructed in Chapter 5, and they are now used one at a time as a dependent variable. The following models are estimated:

1. Model explaining SumADJ%TA;
2. Model explaining DiffOpPROF%TA;
3. Model explaining DiffIntEXP%TA; and
4. Model explaining DiffTotDEBT%TA.

The regression results for models 1-4 are illustrated in Table 7. The explanatory power, the adjusted R^2 , of each of the regression model is 0.399, 0.351, 0.327 and 0.326, respectively. The condition index of Model 2 equals 19.327, whereas that of the other models is 19.074.

First, the model explaining the relative amount of all financial statement adjustments is taken under consideration (Model 1). The variables IFRS and LOCALGAAP for reporting standards have a positive effect on the amount of adjustments but are not statistically significant. Regarding firm-specific variables, AsTRNV, NegOpPROF, DEBT/BCap and QckRATIO are significant and all have a positive effect on the amount of adjustments. Country dummies ARGENTINA, INDONESIA, JAPAN and THAILAND are significant with a negative effect whereas KOREA, LUXEMBOURG and UNITEDKINGDOM are significant and have a positive effect on the amount of adjustments.

The second model explains the relative amount of adjustments in Operating Profit (Model 2). The GAAP dummies IFRS and LOCALGAAP are positive but not statistically significant. However, the variables ProfMRG, DEBT/BCap and GROUP are significant with a negative effect while AsTRNV and NegOpPROF are significant with a positive effect on the amount of adjustments. ARGENTINA and JAPAN are significant with a negative impact whereas UNITEDKINGDOM is significant with a positive impact.

Thirdly, GAAP dummies are not significant in the regression model explaining the relative amount of adjustments in Interest Expense (Model 3). The company-specific variables AsTRNV, NegOpPROF and DEBT/BCap are statistically significant with a positive effect whereas PUBLIC is significant with a negative effect on the amount of adjustments. Regarding control variables, BRAZIL, KOREA and UNITEDKINGDOM have a positive coefficient while that of THAILAND is negative.

TABLE 7
Association between Reporting Standards, Company-specific Factors and Financial Statement Adjustments

Variable	Model 1		Model 2		Model 3		Model 4					
	Coef.	t-value	Prob.	Coef.	t-value	Prob.	Coef.	t-value	Prob.			
Intercept	0.409	2.016	0.044	0.011	2.490	0.013	0.004	2.153	0.032	0.057	2.767	0.006
IFRS	0.041	0.383	0.702	0.001	0.610	0.542	0.000	-0.322	0.747	0.003	0.263	0.792
LOCALGAAP	0.145	1.071	0.285	0.005	1.704	0.089	0.000	-0.320	0.749	0.021	1.524	0.128
SIZE1	0.159	1.187	0.236	0.005	1.726	0.085	0.001	0.790	0.430	0.020	1.474	0.141
SIZE2	-0.063	-0.438	0.662	0.000	-0.260	0.795	-0.001	-0.724	0.470	-0.005	-0.330	0.742
SIZE3	-0.162	-1.112	0.267	-0.003	-0.810	0.418	-0.002	-1.442	0.150	-0.013	-0.909	0.364
SIZE4	0.080	0.531	0.596	0.004	1.355	0.176	-0.002	-1.128	0.260	0.010	0.670	0.503
ProfMRG	0.002	0.006	0.996	-0.037	-5.915	0.000	0.001	0.456	0.649	-0.017	-0.580	0.562
ASTRNV	0.941	5.943	0.000	0.011	2.976	0.003	0.007	4.679	0.000	0.068	4.249	0.000
ChgREV	-0.178	-0.993	0.321	0.003	0.732	0.465	0.003	1.459	0.145	-0.016	-0.858	0.391
CVNI	-0.025	-1.826	0.069	0.000	-0.883	0.378	0.000	-0.932	0.352	-0.003	-2.058	0.040
NegOPROF	0.621	4.281	0.000	0.011	3.486	0.001	0.003	1.991	0.047	0.026	1.742	0.082
DEBT/BCap	0.281	3.407	0.001	-0.006	-3.595	0.000	0.002	2.460	0.014	0.034	4.069	0.000
QCRATIO	0.194	2.313	0.021	0.001	0.795	0.427	0.000	-0.771	0.441	0.011	1.325	0.186
PUBLIC	-0.191	-1.885	0.060	0.002	1.072	0.284	-0.003	-3.240	0.001	-0.035	-3.384	0.001
GROUP	-0.201	-1.497	0.135	-0.006	-2.132	0.034	0.000	-0.241	0.810	-0.012	-0.848	0.397
ARGENTINA	-1.005	-2.822	0.005	-0.016	-2.041	0.042	-0.001	-0.346	0.730	-0.111	-3.055	0.002
BRAZIL	0.415	1.844	0.066	0.001	0.131	0.896	0.018	8.180	0.000	0.047	2.044	0.042
HONGKONG	-0.278	-0.884	0.377	-0.010	-1.494	0.136	-0.002	-0.711	0.478	-0.040	-1.251	0.212
INDONESIA	-0.466	-2.068	0.039	-0.004	-0.839	0.402	-0.002	-0.882	0.378	-0.054	-2.353	0.019
JAPAN	-0.469	-2.301	0.022	-0.010	-2.206	0.028	-0.002	-0.848	0.397	-0.027	-1.283	0.200
KOREA	0.516	2.006	0.046	-0.006	-1.033	0.302	0.007	2.754	0.006	0.051	1.944	0.053
LUXEMBOURG	0.854	3.030	0.003	0.002	0.363	0.717	0.001	0.409	0.683	0.067	2.350	0.019
MEXICO	-0.345	-1.577	0.116	-0.008	-1.750	0.081	-0.002	-0.769	0.443	-0.043	-1.951	0.052
PHILIPPINES	-0.020	-0.064	0.949	0.008	0.456	0.648	0.000	0.095	0.925	-0.006	-0.195	0.846
THAILAND	-0.831	-2.654	0.008	-0.008	-1.202	0.230	-0.007	-2.404	0.017	-0.105	-3.304	0.001
UNITEDKINGDOM	1.624	6.323	0.000	0.056	10.218	0.000	0.007	2.961	0.003	0.115	4.404	0.000
YEAR2005	0.039	0.369	0.713	-0.002	-0.727	0.467	0.001	1.150	0.251	0.008	0.764	0.446
YEAR2006	0.016	0.155	0.877	-0.004	-1.800	0.073	0.000	0.220	0.826	0.007	0.618	0.537
YEAR2007	0.035	0.335	0.738	-0.005	-2.029	0.043	0.000	0.392	0.695	0.006	0.527	0.599
Adjusted R-Squared	0.399			0.351			0.327			0.326		
Durbin-Watson Statistic	2.243			1.981			2.353			2.114		
Model F-Value	10.694			8.853			8.086			8.058		
Significance F-Value	0.000			0.000			0.000			0.000		
N	424			422			424			424		
CI	19.074			19.327			19.074			19.074		

Fourth, when turning to the model explaining the relative amount of adjustments in Total Debt (Model 4), dummies for IFRS and LOCALGAAP are not statistically significant. AsTRNV and DEBT/BCap are significant with a positive effect while PUBLIC and CVNI are significant with a negative effect. Furthermore, ARGENTINA, INDONESIA and THAILAND have a negative impact on the amount of adjustments whereas that of BRAZIL, LUXEMBOURG and UNITEDKINGDOM is positive.

Chapter 5 also introduced a fifth adjustment variable, CountADJ%TA, measuring the relative number of adjustments. Appendix 7 presents the regression results from the model explaining this variable. The reason that the results are not included in Table 6 with the other models is that when turning to the rating models, the variable causes significant multicollinearity problems. However, now when explaining adjustments the condition index stays at 19.074 whereas the adjusted R^2 is 0.357. The GAAP variable IFRS is statistically significant and its effect on the amount of adjustments is positive. Of the company-specific variables, SIZE1, SIZE3 and GROUP have a significant and negative effect on the amount of adjustments. Moreover, ARGENTINA and KOREA are significant with a negative impact and UNITEDKINGDOM is significant with a positive impact on adjustments.

Now, looking at the results of these five regression models together, evidence shows that different reporting standards do not explain the differences in financial statement adjustments for different companies. As these variables are interpreted in relation to US GAAP, a change from US GAAP to IFRS or to a local GAAP does not affect the amount of adjustments. In other words, US GAAP, IFRS and local GAAPs have all a similar effect on adjustments.

As the GAAPs are not the underlying reason for the amount of adjustments, one must look for the answer in the business fundamentals and company-specific factors. The evidence shows that capital intensity, operative risk and leverage have a significant impact on the amount of adjustments. Moreover, the mentioned characteristics are positively associated with adjustments.²⁸ Thus, the greater the capital intensity, the riskier or the more levered the company, the larger the amount of adjustments made during a rating process. Additionally, it seems that public companies face fewer adjustments relative to private companies and that the main companies of a corporate group also face fewer adjustments relative to the other companies.

²⁸ Except for DEBT/BCap in Model 2 explaining the relative amount of adjustments in Operating Profit, the variable has a negative coefficient. However, in Models 1, 3 and 4 the coefficient is positive.

These findings are consistent with prior academic evidence. A higher risk may lead to increased earnings management (Scott 2009, 405) lowering the quality of financial statement information whereas a higher level of debt financing decreases the incentives to improve the quality of information (Sun, 2005). The results of this research suggest that, in both of these cases, adjustments increase. Moreover, results are consistent with Burgstahler et al. (2007) suggesting that the earnings of public firms are of higher quality relative to private ones. The results of this thesis indicate that adjustments are smaller for public companies. Thus, when the results are compared to prior academic evidence, it seems that circumstances relating to lower information quality are associated with greater amount of financial statement adjustments. Capital intensity, on the other hand, is an important characteristic relating to telecommunication companies (Moody's, 2007). It might be that it is an important industry-related determinant for adjustments and explains why telecommunication companies face more adjustments relative to companies active in less capital intensive industries. However, further evidence from cross-industry comparisons is needed in order to confirm whether that is true.

When considering country-related variables in the models altogether, the companies in Argentina and Thailand face fewer adjustments in average whereas the companies in United Kingdom experience more adjustments on average relative to companies in countries not having a country dummy included in the models. Furthermore, there is some evidence that companies in Brazil and Luxembourg face more adjustments on average and companies in Indonesia and Japan fewer adjustments on average than companies in countries not being part of the model country dummies.

What then seems to be the ultimate underlying reason for adjustments? As was seen in section 5.2.2 *The Most Common Standard Adjustment Types* when analyzing the adjustment data from 2007, two of the most common standard adjustment types are operating leases and pensions. Leasing is essentially an alternative to acquire an asset without buying it. The company makes a choice of how it finances its investments; either with debt or by resorting to leasing. Regarding defined benefit pensions, companies follow either a pre-funded or unfunded scheme. The two schemes differ considerably in how the pension obligation is financed. In the case of the latter system, the financial statements are adjusted, among other, by constructing a pre-funding of pension obligations. It is essentially these two standard adjustment types that have a major effect on leverage as well as on operating performance

measures. It all crystallizes in the question of how pensions and investments are financed. Thus, the financing and capital structure as well as contractual decisions do matter and influence the amount of adjustments.

6.2 Association between Financial Statement Adjustments and Credit Ratings

The second section of the empirical analyses focuses on investigating whether financial statement adjustments are associated with credit ratings. The effect of adjustments on credit ratings is investigated firstly by adding the different variables describing the amount of adjustments in the rating model. Secondly, the rating models are estimated in an additional test without the adjustment variables and the adjusted R^2 s are compared between reported and adjusted data.

6.2.1 Adjustment Variables Included in the Credit Rating Model

The research hypothesis H1 presented in Chapter 4 assumes that the amount of financial statement adjustments made by a credit rating agency is associated with credit ratings. In order to test the hypothesis, the adjustment variables introduced in section 5.2.3 *Explaining the Amount of Financial Statement Adjustments* are included one at a time in a benchmark rating model including no adjustment variables. The rating models are estimated using *reported* data from the time period 2004-2007. The rationale is that reported data is the starting point for the rating process and that the aim is to measure the quality of reported data. The following models are estimated:

0. Benchmark model not including any adjustment variables;
1. Model including the variable SumADJ%TA;
2. Model including the variable DiffOpPROF%TA;
3. Model including the variable DiffIntEXP%TA;
4. Model including the variable DiffTotDEBT%TA;
5. Model including the variables DiffOpPROF%TA and DiffTotDEBT%TA.

The regression results of Models 0-5 are illustrated in Table 8, respectively. The explanatory power of the models, measured with the adjusted R^2 s, is 0.523, 0.542, 0.535, 0.536, 0.542 and 0.539, respectively. The condition indices, on the other hand, are 14.534, 16.850, 14.972,

16.219, 17.045 and 15.585, respectively. Using both GAAP dummies and interaction terms for GAAPs and adjustments leads to a slight increase in the multicollinearity of the regression models, which can be seen in increased VIF values. This is why Models 0-5 are also estimated without GAAP dummies (see Appendix 8). The text will mention how the models estimated without GAAPs differ from those estimated with GAAPs.

First, the benchmark model estimated without any adjustments variables (Model 0) has an explanatory power slightly lower than that of the other models (0.523). Of the test variables, the GAAP dummy for IFRS is statistically significant, its effect being positive on credit rating. LOCALGAAP, on the other hand, is positive but not significant. Regarding control variables, three of the size dummies, namely SIZE2, SIZE3 and SIZE4, are extremely significant having a positive coefficient while those of DEBT/BCap, CVNI, NegOpPROF and GROUP are negative. CHILE and JAPAN have a positive effect on rating whereas the impact of ARGENTINA, INDONESIA, LUXEMBOURG, NETHERLANDS and RUSSIA is negative. When the model is estimated without GAAP dummies, the adjusted R^2 decreases slightly to 0.521 while the condition index equals 13.611. In addition to the mentioned variables, EBITA/AvAs is significant with a positive impact. On the other hand, CVNI and JAPAN are no longer significant.

When considering Model 1, the variable SumADJ%TA is significant having a positive coefficient whereas the interaction term LOCALGAAP*SumADJ%TA is significant with a negative coefficient. Also, both of the GAAP dummies are significant with a positive effect on rating. Of the firms-specific control variables, SIZE2, SIZE3, and SIZE4 have a positive effect whereas DEBT/BCap, NegOpPROF and GROUP have a negative effect on rating. The control dummies CHILE and JAPAN have a positive coefficient while those of ARGENTINA, INDONESIA, LUXEMBOURG, NETHERLANDS and RUSSIA are negative. When the GAAP dummies are excluded from the model, the variable SumADJ%TA is no longer significant. As a consequence, the adjusted R^2 and the condition index are 0.532 and 15.906, respectively.

TABLE 8
Association between Financial Statement Adjustments and Credit Ratings

Variable	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5								
	Coef.	t-value	Prob.	Coef.	t-value	Prob.	Coef.	t-value	Prob.	Coef.	t-value	Prob.							
Intercept	12.564	19.840	0.000	11.928	17.448	0.000	12.411	19.529	0.000	12.159	18.098	0.000	11.949	17.276	0.000	12.089	18.473	0.000	
Test Variables																			
SumADJ%TA				0.598	2.553	0.011													
IFRS*SumADJ%TA				-0.218	-0.588	0.557													
LOCALGAAP*SumADJ%TA				-1.722	-2.839	0.005													
DifOpPROF%TA							9.754	2.432	0.015										8.342
IFRS*DifOpPROF%TA							-9.330	-0.768	0.443										2.202
LOCALGAAP*DifOpPROF%TA							-19.063	-0.556	0.578										0.028
DifInEXP%TA										54.032	2.067	0.039							
IFRS*DifInEXP%TA										9.596	0.190	0.850							
LOCALGAAP*DifInEXP%TA										-79.795	-1.893	0.059							
DifToDEBT%TA													6.104	2.520	0.012	3.440	1.841	0.066	
IFRS*DifToDEBT%TA													-1.360	-0.354	0.723				
LOCALGAAP*DifToDEBT%TA													-16.098	-2.913	0.004				
IFRS	1.393	3.314	0.001	1.623	2.926	0.004	1.476	3.428	0.001	1.359	2.614	0.009	1.508	2.762	0.006	1.392	3.339	0.001	
LOCALGAAP	0.074	0.144	0.885	1.738	2.171	0.031	0.238	0.394	0.694	0.498	0.873	0.383	1.731	2.185	0.029	-0.059	-0.115	0.909	
Control Variables																			
SIZE1	0.350	0.679	0.497	0.333	0.652	0.515	0.374	0.727	0.468	0.351	0.680	0.497	0.268	0.525	0.600	0.265	0.518	0.605	
SIZE2	1.866	3.485	0.001	2.141	3.987	0.000	1.879	3.520	0.000	2.030	3.774	0.000	2.110	3.939	0.000	1.890	3.558	0.000	
SIZE3	2.594	4.864	0.000	2.710	5.086	0.000	2.585	4.856	0.000	2.743	5.099	0.000	2.698	5.057	0.000	2.690	5.066	0.000	
SIZE4	4.165	8.080	0.000	4.286	8.362	0.000	4.100	7.969	0.000	4.291	8.271	0.000	4.296	8.343	0.000	4.116	8.034	0.000	
EBIT/AVAs	2.713	1.588	0.113	2.196	1.293	0.197	3.968	2.215	0.027	2.511	1.466	0.144	2.247	1.325	0.186	3.890	2.182	0.030	
InEXP/EBIT	0.016	0.688	0.492	0.014	0.628	0.530	0.015	0.667	0.505	0.015	0.646	0.519	0.012	0.514	0.608	0.015	0.662	0.508	
DEBT/BCap	-1.153	-5.834	0.000	-1.299	-5.855	0.000	-1.228	-6.046	0.000	-1.318	-5.845	0.000	-1.343	-5.916	0.000	-1.325	-6.325	0.000	
CVNI	-0.009	-1.979	0.048	-0.009	-1.917	0.056	-0.009	-1.930	0.054	-0.008	-1.744	0.082	-0.009	-1.868	0.062	-0.008	-1.807	0.071	
NegOpPROF	-3.270	-5.860	0.000	-3.728	-6.425	0.000	-3.455	-6.130	0.000	-3.485	-6.117	0.000	-3.531	-6.255	0.000	-3.612	-6.384	0.000	
GROUP	-3.840	-7.313	0.000	-3.748	-7.204	0.000	-3.802	-7.201	0.000	-3.777	-7.213	0.000	-3.749	-7.206	0.000	-3.742	-7.161	0.000	
PUBLIC	0.548	1.431	0.153	0.581	1.525	0.128	0.479	1.246	0.213	0.686	1.762	0.079	0.651	1.695	0.091	0.567	1.468	0.143	

TABLE 8 (Continued)
Association between Financial Statement Adjustments and Credit Ratings

Variable	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5								
	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value							
ARGENTINA	-3.574	-2.597	0.010	0.573	-4.546	-3.069	0.002	-3.623	-2.562	0.011	-3.496	-2.549	0.011	-4.572	-3.096	0.002	-2.964	-2.134	0.033
BRAZIL	0.495	0.564	0.025	0.730	0.893	0.999	0.319	0.471	0.538	0.591	0.905	0.863	0.389	0.800	0.903	0.367	0.303	0.346	0.730
CHILE	2.384	2.251	0.025	2.311	2.130	0.034	2.510	2.288	0.023	2.490	2.330	0.020	2.052	1.850	0.065	2.756	2.569	0.011	
HONGKONG	-0.059	-0.052	0.958	0.058	0.052	0.959	0.012	0.010	0.992	0.048	0.043	0.966	0.092	0.082	0.935	0.139	0.123	0.902	
INDONESIA	-2.843	-3.156	0.002	-3.356	-3.540	0.000	-3.089	-3.386	0.001	-2.827	-3.130	0.002	-3.465	-3.609	0.000	-2.715	-2.989	0.003	
JAPAN	1.753	2.245	0.025	1.554	1.978	0.049	1.826	2.334	0.020	1.735	2.226	0.027	1.336	1.689	0.092	1.918	2.469	0.014	
KOREA	-0.644	-0.631	0.528	0.136	0.127	0.899	-0.616	-0.604	0.546	-0.485	-0.464	0.643	-0.230	-0.223	0.824	-0.815	-0.802	0.423	
LUXEMBOURG	-4.042	-3.905	0.000	-4.349	-4.126	0.000	-4.072	-3.945	0.000	-4.158	-4.005	0.000	-4.303	-4.101	0.000	-4.236	-4.111	0.000	
MEXICO	-0.735	-0.869	0.385	-0.939	-1.102	0.271	-0.799	-0.935	0.350	-0.720	-0.851	0.395	-1.153	-1.322	0.187	-0.516	-0.610	0.542	
NETHERLANDS	-4.527	-3.960	0.000	-4.450	-3.933	0.000	-4.504	-3.950	0.000	-4.432	-3.891	0.000	-4.466	-3.948	0.000	-4.447	-3.919	0.000	
PHILIPPINES	-2.015	-1.866	0.063	-2.006	-1.875	0.062	-2.124	-1.971	0.049	-2.037	-1.892	0.059	-1.926	-1.801	0.072	-1.983	-1.847	0.065	
RUSSIA	-2.525	-4.020	0.000	-2.284	-3.637	0.000	-2.623	-4.175	0.000	-2.648	-4.143	0.000	-2.332	-3.710	0.000	-2.599	-4.153	0.000	
THAILAND	-0.649	-0.530	0.596	-1.464	-1.121	0.263	-0.756	-0.606	0.545	-0.609	-0.493	0.622	-1.408	-1.078	0.282	-0.174	-0.141	0.888	
UNITEDKINGDOM	-0.797	-0.912	0.362	-1.263	-1.275	0.203	-0.625	-0.609	0.543	-1.215	-1.288	0.199	-1.269	-1.335	0.183	-1.385	-1.548	0.122	
YEAR2005	-0.337	-0.879	0.380	-0.320	-0.843	0.400	-0.305	-0.792	0.429	-0.378	-0.990	0.323	-0.343	-0.905	0.366	-0.377	-0.992	0.322	
YEAR2006	-0.314	-0.823	0.411	-0.336	-0.889	0.374	-0.348	-0.914	0.361	-0.369	-0.970	0.333	-0.358	-0.948	0.344	-0.386	-1.017	0.310	
YEAR2007	-0.464	-1.204	0.229	-0.499	-1.306	0.192	-0.492	-1.280	0.201	-0.547	-1.418	0.157	-0.514	-1.345	0.179	-0.527	-1.375	0.170	
Adjusted R-Squared	0.532			0.542			0.535			0.536			0.542		0.539			0.539	
Durbin-Watson Statistic	2.031			1.987			1.995			2.032			2.007		2.026			2.026	
Model F-Value	17.840			16.926			16.518			16.549			16.958		17.259			17.259	
Significance F-Value	0.000			0.000			0.000			0.000			0.000		0.000			0.000	
N	446			446			446			446			446		446			446	
CI	14.534			16.850			14.972			16.219			17.045		15.885			15.885	

Moving to Model 2, DiffOpPROF%TA together with the GAAP interaction terms are included in the benchmark rating model. DiffOpPROF%TA is statistically significant together with IFRS, both having a positive effect on rating. The three size dummies SIZE2, SIZE3, and SIZE4 have a positive effect while that of DEBT/BCap, NegOpPROF and GROUP is negative, as with previous models. However, in this model also EBITA/AvAs is significant with a positive impact on rating. Regarding other controls, CHILE and JAPAN have a positive coefficient whereas ARGENTINA, INDONESIA, LUXEMBOURG, NETHERLANDS, PHILIPPINES and RUSSIA have a negative coefficient. When the model is estimated without GAAP dummies, the same variables are significant with the same sign of coefficient, except for country dummies CHILE, JAPAN and PHILIPPINES that are no longer significant. The resulting adjusted R^2 and condition index equal 0.541 and 14.494, respectively.

Model 3 contains two significant test variables. DiffIntEXP%TA and IFRS are significant with a positive coefficient. The size dummies SIZE2, SIZE3, and SIZE4 have a positive impact, contrary to DEBT/BCap, NegOpPROF and GROUP that have a negative impact on rating. As previously, the same country-related controls stand out; CHILE and JAPAN are significant and positive while ARGENTINA, INDONESIA, LUXEMBOURG, NETHERLANDS and RUSSIA are significant and negative. When Model 3 is estimated without GAAP dummies, the interaction term IFRS*DiffIntEXP%TA is statistically significant with a positive impact on rating. As far as country dummies are concerned, CHILE and JAPAN are not significant anymore. The model estimated without GAAP dummies generates an adjusted R^2 of 0.549 and a condition index of 15.871.

Next, in Model 4 four test variables are significant. DiffTotDEBT%TA, IFRS and LOCALGAAP have a positive coefficient whereas that of LOCALGAAP*DiffTotDEBT%TA is negative. Also in this model variables SIZE2, SIZE3 and SIZE4 are significant and positive, and DEBT/BCap, NegOpPROF and GROUP are significant and negative. ARGENTINA, INDONESIA, LUXEMBOURG, NETHERLANDS and RUSSIA are all negative. Excluding the GAAP dummies results in DiffTotDEBT%TA being no longer significant. In addition to the country dummies mentioned above, CHILE becomes significant with a positive effect. The adjusted R^2 is 0.533 and the condition index 16.015 in the model estimated without GAAP dummies.

Finally, Model 5 includes two adjustment variables, namely DiffOpPROF%TA and DiffTotDEBT%TA. The model could not be estimated with interaction terms for GAAPs and adjustments due to multicollinearity problems. Therefore, the test variables consist of the two adjustment variables and GAAP dummies. DiffOpPROF%TA is significant together with IFRS, both having a positive impact on rating. Regarding firm-specific control variables, SIZE2, SIZE3, SIZE4 and EBITA/AvAs have a positive effect on rating while DEBT/BCap, NegOpPROF and GROUP have a negative effect. Moreover, the coefficients of CHILE and JAPAN are positive whereas those of ARGENTINA, INDONESIA, LUXEMBOURG, NETHERLANDS and RUSSIA are negative.

Model 5 was also estimated by including three adjustment variables, DiffOpPROF%TA, DiffIntEXP%TA and DiffTotDEBT%TA, in the model (Appendix 9). Including DiffIntEXP%TA, having a t-statistic below 1 and a high correlation with DiffTotDEBT%TA, leads to a slightly lower adjusted R^2 (0.538) and a bit higher condition index (16.126) compared to the model with two variables. However, the same variables are significant with the same sign of coefficient as with the model estimated with two adjustment variables. When the GAAP dummies are not part of the model, country dummies CHILE and JAPAN are no longer significant with both two and three adjustment variables in the model.²⁹

As mentioned earlier, when the variable CountADJ%TA is included in the benchmark model, a severe multicollinearity problem is encountered. Having the variable CountADJ%TA in the model together with the interaction terms and GAAP dummies (1) increases the condition index all the way to 61.874 and the VIF values of the interaction terms and GAAP dummies are around 50-70.³⁰ The model is then estimated by including in the benchmark model several combinations of the test variables: 2) CountADJ%TA together with the interaction terms³¹, 3) CountADJ%TA together with GAAP dummies³², and 4) CountADJ%TA alone without GAAPs or interaction terms³³. The multicollinearity problem stays in each of these regressions although the variable CountADJ%TA does not have a high correlation with the other variables. The signs of regression coefficients relating to test variables are in line with other models. However, the condition index indicates that the regression results cannot be

²⁹ With two adjustment variables the adjusted R^2 equals 0.545 and condition index 15.165 (Appendix 8) while with three adjustment variables the statistics are 0.545 and 15.746 (Appendix 9), respectively.

³⁰ Adjusted R^2 is 0.548.

³¹ Adjusted R^2 is 0.533 and condition index equals 34.873.

³² Adjusted R^2 is 0.531 and condition index equals 33.099.

³³ Adjusted R^2 is 0.521 and condition index equals 31.220.

reliably analyzed when the variable CountADJ%TA is included in the model. Moreover, when the GAAP dummies are removed from the model (combinations (1) and (2)), the size of the coefficients of the remaining test variables decreases considerably. The regression models are shown in Appendix 10.

Now, taken the results of these regression analyses together, when GAAPs are included in the models the test variables for the amount of adjustments and IFRS are significant and positive in all of the models 1-5.³⁴ The interaction terms for the amount of adjustments and IFRS are never significant. On the contrary, the interaction terms for the amount of adjustments and local GAAPs are always negative and the variables are significant in Models 1 and 4. LOCALGAAP is significant with a positive effect in Models 1 and 4. However, the sign of the coefficient changes and is negative in Model 5, although the variable is not significant. When considering the two adjustment variables in the same model (Model 5), DiffOpPROF%TA is significant in explaining ratings with a positive impact. The size dummies SIZE2, SIZE3 and SIZE4 are significant and positive whereas DEBT/BCap and NegOpPROF are significant and negative in all models. Moreover, GROUP has a negative impact on rating in every regression model. Regarding country dummies, CHILE and JAPAN³⁵ have a positive effect on rating whereas ARGENTINA, INDONESIA, LUXEMBOURG, NETHERLANDS and RUSSIA have a negative effect.

When the GAAPs are not included in the models, the adjustment variables are always positive, and they are significant in Models 2 and 5. The interaction term for IFRS adjustments is significant once with a positive effect, in Model 3. The interaction term for local GAAP adjustments is always negative and it is significant in Models 1 and 4. As in the models with GAAPs, DiffOpPROF%TA is a significant variable in explaining ratings with a positive impact when two adjustment variables are included. Besides CHILE and JAPAN that no longer are significant without GAAPs, the same firm-specific and country-related variables are significant.

Based on these regression analyses, it seems that the amount of US adjustments, measured with four different variables, have a significantly positive association with credit ratings. The larger the amount of adjustments made to US companies, the higher the rating. This finding is consistent regardless of the adjustment variable used in the rating model. Additionally, the

³⁴ IFRS is also significant in the Benchmark Model 0.

³⁵ With the exception of Model 4, where JAPAN is not significant.

results indicate that, without any adjustments performed, credit ratings are higher for companies reporting under IFRS, relative to companies reporting under US GAAP. There is no strong evidence of the relative standing of local GAAP ratings before adjustments are performed relative to US ratings. However, the results suggest that local GAAP adjustments decrease credit ratings relative to US GAAP ratings. As Model 5 does not include interaction terms for adjustments and different GAAPs, the adjustment variable does not describe anymore US adjustments, but the adjustments in general for companies included in the analyses. The evidence from Model 5 suggests that adjustments in Operating Profit increase rating, and further that adjustments in Operating Profit are more important in explaining ratings relative to adjustments in Total Debt and Interest Expense. Sensitivity tests will further include an analysis where Model 1 is estimated separately using data from one reporting standard at a time in order to find more evidence of the behaviour of the adjustment variable.

In addition to statistical significance, it seems that financial statement adjustments are also economically significant. When considering the size of the coefficients, in Models 2-5 the coefficients of US and local GAAP adjustments are greater than 1.³⁶ This means that an increase of 1 in the adjustment variables leads to a change at least in the relative standing of the rating within the main rating category.

As far as company-specific and country-related issues are concerned, a larger size increases credit ratings. The larger the size relative to the smallest benchmark group the larger the coefficient, and thus the greater the impact on rating. Leverage and operative risk, on the other hand, decrease rating. Companies which are the main companies of a corporate group have a lower rating relative to companies that are not. Interestingly, those countries that turn out to be significant in explaining ratings, have a negative impact on rating. Companies in Argentina, Indonesia, Luxembourg, Netherlands and Russia have on average a lower rating relative to companies in countries not having a country dummy included in the rating models.

The findings from the analyses support the hypothesis H1 and the evidence suggests that financial statement adjustments are associated with credit ratings. All in all, the strongest findings in the regression analyses, in statistical terms, are that IFRS companies have higher ratings relative to US companies before adjustments are performed and that US adjustments increase ratings. Compared to IFRS companies, the financial situation and performance

³⁶ In Model 1, the coefficient of local GAAP adjustments is also greater than 1.

metrics of US companies thus seem relatively less favourable before any adjustments are made. Reasons for the relatively worse standing can be found from the extent of leasing arrangement in the US as well as from the differences in the pension system. However, adjustments increase ratings for US firms and consequently bring IFRS and US companies closer to each other. Financial statements become more comparable across companies, which in turn decreases the information risk and increases the quality of financial statement information. Thus, evidence supports the view that adjustments increase the usefulness of information and that they benefit the decision making during the rating process.

As far as local GAAP companies are concerned, adjustments seem to be negatively associated with ratings. As local GAAPs are expected to be reporting standards of lower quality relative to US GAAP, adjustments do not decrease the information risk enough. This causes the decreasing of local GAAP ratings relative to US GAAP. If IFRS and US GAAP companies are brought closer to one another, financial statement adjustments do not suffice to take local GAAP companies to the same level because of the lower quality standards underlying the financial statement information.

6.2.2 Additional Test: Comparing Explanatory Powers Resulting from Reported and Adjusted Data

Another way to investigate the quality differences between reported and adjusted data is to estimate the rating model without adjustment variables, using 1) reported and 2) adjusted data and then comparing the adjusted R^2 s resulting from the two sets of data. The data that yields a higher explanatory power better explains ratings and can be considered to be of higher quality in terms of credit ratings. The models are estimated using data from 2004-2007.

The model estimated without adjustment variables with reported data is the benchmark model (Model 0) illustrated in Table 6. The regression results of the corresponding model estimated with adjusted data, on the other hand, are shown in Appendix 11. Adjusted data generates an adjusted R^2 of 0.573 compared to that of 0.532 with reported data. When considering the regression results resulting from adjusted data, in addition to size, leverage and operative risk control variables, also the profitability variable EBITA/AvAs and the interest coverage ratio IntEXP/EBIT are significant, both with a positive effect on rating. Both GROUP and PUBLIC are significant, the former with a negative effect and the latter with a positive effect

on rating. On the other hand, CVNI is no longer significant. There are slight differences in the country dummies that are significant compared to the benchmark model with reported data. ARGENTINA, INDONESIA, LUXEMBOURG, NETHERLANDS, PHILIPPINES and RUSSIA are all significant with a negative effect. When the model is estimated with adjusted data and without GAAP dummies, the adjusted R^2 equals 0.571. The model estimated with reported data and without GAAP dummies, on the other hand, yields an adjusted R^2 of 0.521, as mentioned earlier. Using adjusted data, the same firm-specific variables are significant in the model without GAAPs as in the model estimated with GAAP dummies. In addition, KOREA and MEXICO are significant and negative whereas PHILLIPPINES is no longer significant.

The model estimated with adjusted data, both with and without GAAP dummies, thus results in an explanatory power that is higher than that estimated with reported data. The statistical significance of the difference between the two adjusted R^2 s will be tested with an F-test. The test indicates that the difference in the explanatory power is not statistically significant. Panel A in Table 9 illustrates the test result when GAAP dummies are included whereas Panel B shows the result when GAAP dummies are not a part of the model.

TABLE 9
Statistical Significance between Explanatory Powers

PANEL A: Rating Models Estimated with GAAPs

	Adjusted Data		Reported Data	
	Sum of Squares	df	Sum of Squares	df
Residual	2,969.213	415	3,258.065	415
Residual Variance	7.155		7.851	
F-Value	1.097			
Significance F-Value	0.172			

PANEL B: Rating Models Estimated without GAAPs

	Adjusted Data		Reported Data	
	Sum of Squares	df	Sum of Squares	df
Residual	2,997.522	417	3,349.290	417
Residual Variance	7.188		8.032	
F-Value	1.117			
Significance F-Value	0.129			

6.3 Sensitivity Tests

The empirical part of this thesis ends with sensitivity tests. Firstly, the removed variables from the model explaining the amount of adjustments are considered. Secondly, the rating model is taken under examination and models from the main analyses are re-estimated with slight modifications.

6.3.1 Removed Variables from the Models Explaining the Amount of Adjustments

As mentioned in section 5.2.3 *Explaining the Amount of Financial Statement Adjustments*, five firm-specific control variables were eliminated from the final models because of their low t-statistics, and consequently low contribution to the explanatory power of the models. The effect of those variables on the amount of adjustments as well as on the entire model is now tested. Model 1 explaining SumADJ%TA³⁷ is chosen for sensitivity tests. The tested variables cover firm-characteristics such as the financing of investments either with equity or with debt, corporate governance related dividend decision, maturity structure of debt and interest coverage. The regression results are shown in Appendix 12.

Firstly, the variable Common Shares Issued to Total Assets (ComSHARES/TA) is added to the model (1). Including the variable in Model 1 increases the adjusted R² to 0.404 and the condition index to 19.365. The variable ComSHARES/TA is statistically significant with a negative effect on the amount of adjustments. In addition, now CVNI and PUBLIC are significant with a negative impact on adjustments. However, INDONESIA is not significant anymore.

Secondly, including the variable Long-term Debt Issued to Total Assets (LtDEBT/TA) decreases slightly the adjusted R² to 0.398 (2). The condition index of the regression model is 19.583. The variable LtDEBT/TA is not significant in explaining adjustments. As a result, the same variables are significant in the model with the same sign of coefficient as before including the variable.

³⁷ Model 1 has an adjusted R² of 0.399 and a condition index of 19.074.

Thirdly, Dividends to Total Assets (Div/TA) is included in Model 1 explaining adjustments (3). Consequently, the adjusted R^2 decreases to 0.314 whereas the condition index increases to 20.169. The variable Div/TA is statistically significant with a negative impact on adjustments. However, compared to the model estimated without this variable, DEBT/BCap is not significant anymore. Additionally, GROUP is significant with a negative effect whereas BRAZIL is significant with a positive effect. KOREA and LUXEMBOURG, UNITEDKINGDOM are not significant anymore. THAILAND, that was significant when the model was estimated without Div/TA, drops out from the model. Also, the number of observations decreases to 394, compared to that of 424 otherwise.

Fourthly, the inclusion of Short-term Debt to Long-term Debt (StDEBT/LtDEBT) does not change the adjusted R^2 which stays at 0.399 (4). The condition index, on the other hand, increases to 19.327. The variable StDEBT/LtDEBT is not significant in explaining adjustments. The same variables are significant in the regression model with the same sign of coefficient as before including the variable.

Finally, the impact of Interest Expense to EBIT (IntEXP/EBIT) on the amount of adjustments is examined (5). The adjusted R^2 decreases slightly to 0.398 while the condition index is 19.084. The variable IntEXP/EBIT is not significant in explaining adjustments. Relative to the model estimated without the variable, KOREA is not significant anymore.

From these five variables considered individually as a part of the original model, the variable ComSHARES/TA seems to be important in explaining adjustments. As the coefficient of the variable is negative, the larger the amount of common shares issued relative to total assets, the smaller the amount of adjustments performed. Thus, in addition to the characteristics mentioned in section 6.1 *Association between Reporting Standards, Company-specific Factors and Financial Statement Adjustments*, it seems that the ability to finance investments with equity capital decreases the amount of adjustments. This finding is consistent with prior evidence that public companies also disclose higher quality information to the markets (for instance Burgstahler et al., 2007). As a result, there is less need for adjustments on the behalf of credit rating agencies. Moreover, the variable Div/TA is significant as a part of the original model with a negative effect on adjustments. However, the inclusion of the variable decreases the explanatory power of the model and results in other relevant variables being no longer significant.

6.3.2 Rating Model Estimated with Scale 1-8

The sensitivity tests include the rating models estimated with a scale including only the main rating categories, as in the research of Kaplan and Urwitz (1979) in order to see whether the rating scale affects the results of the main analyses. For the sensitivity test, Model 1, introduced in section 6.2.1 *Adjustment Variables Included in the Credit Rating Model*, is selected. Furthermore, the benchmark model (Model 0) is re-estimated both with reported and adjusted data and the resulting adjusted R^2 s are compared. The regression models are illustrated in Appendix 13 and the results of the F-test in Appendix 14.

When Model 1 is re-estimated with a scale from 1 to 8, the resulting adjusted R^2 is 0.615 and the condition index 17.262. SumADJ%TA together with IFRS and LOCALGAAP are significant and positive whereas the interaction term for local GAAP adjustments is significant and negative, as when the model was estimated with the scale 1-19. However, now also CVNI, MEXICO and PHILIPPINES are significant with a negative effect on rating. When Model 1 is re-estimated without GAAPs, local GAAP adjustments have a negative effect on rating, as when the model was estimated with the scale 1-19. In addition, now CVNI is significant with a negative effect.

When models including no adjustment variables are re-estimated using 1) reported and 2) adjusted data with the scale 1-8 and the significance of the difference in the explanatory power is tested, the results remain unchanged, both with and without GAAP dummies. The benchmark model estimated with GAAPs generates an adjusted R^2 of 0.607 with reported data compared to that of 0.633 with adjusted data, whereas the adjusted R^2 s for the models estimated without GAAPs are 0.597 and 0.630, respectively. The difference in the explanatory power resulting from the two sets of data is not statistically significant.

These sensitivity tests suggest that the results concerning the findings of the main analyses remain unchanged when using only the main rating categories for the dependent variable.

6.3.3 Sign of Adjustments Included in the Rating Model

The amount of positive and negative adjustments was seen in Table 1. The table illustrated that most of the adjustments are positive. Models 2-4 from section 6.2.1 *Adjustment Variables Included in the Credit Rating Model* are now re-estimated with the sign of adjustments. The regression results are shown in Appendix 15. The sign of adjustments is taken into account in these rating models by constructing a dummy variable for negative adjustments (1). Furthermore, the dummy for negative adjustments is multiplied with the corresponding adjustment variable (2). Interaction terms, where the dummy variable multiplied with the amount of adjustments is multiplied further with IFRS and LOCALGAAP, are also included in the models (3). The variables for negative adjustments are the following:

1. Dummy for negative adjustments:
 - NegADJOpPROF
 - NegADJIntEXP
 - NegADJTotDEBT
2. Dummy multiplied with the amount of adjustments:
 - NegADJOpPROF*DiffOpPROF%TA
 - NegADJIntEXP*DiffIntEXP%TA
 - NegADJTotDEBT*DiffTotDEBT%TA
3. Dummy multiplied with the amount of adjustments and with GAAP dummies:
 - IFRS*NegADJOpPROF*DiffOpPROF%TA
 - LOCALGAAP*NegADJOpPROF*DiffOpPROF%TA
 - IFRS*NegADJIntEXP*DiffIntEXP%TA
 - LOCALGAAP*NegADJIntEXP*DiffIntEXP%TA
 - IFRS*NegADJTotDEBT*DiffTotDEBT%TA
 - LOCALGAAP*NegADJTotDEBT*DiffTotDEBT%TA.

Firstly, when considering the re-estimated Model 2 including the adjustments in Operating Profit, the adjusted R^2 is 0.534 while the condition index is 15.601. The variable DiffOpPROF%TA is significant with a positive effect and now describes the effect of positive US adjustments on rating. Also, IFRS is significant and positive, as previously. Of the included variables for negative adjustments, none of them are significant. However, compared to the model before including the variables for negative adjustments, CVNI is now significant with a negative effect while PHILIPPINES not significant anymore.

Secondly, when the sign of Interest Expense adjustments is included in Model 3, major multicollinearity problems arise. The condition index is 91.422 while the VIF values of $\text{NegADJIntEXP*DiffIntEXP\%TA}$ and $\text{LOCALGAAP*NegADJIntEXP*DiffIntEXP\%TA}$ are over 500. The correlation between these two terms equals 0.998 with the Pearson's correlation. This model cannot be analyzed due to multicollinearity problems.

Thirdly, re-estimating Model 4 by including the variables for negative adjustments, results in an adjusted R^2 of 0.540 and a condition index of 17.151. The results concerning the test variables remain unchanged compared to Model 4. The variable for positive US adjustments together with IFRS and LOCALGAAP are significant, the effect being positive. The effect of positive local GAAP adjustments is negative. As seen in Table 1, none of the local GAAP Total Debt adjustments are negative. Therefore, the interaction term for negative local GAAP adjustments $\text{LOCALGAAP*NegADJTotDEBT*DiffTotDEBT\%TA}$ drops out from the regression model. None of the included variables for negative adjustments are significant. All the same control variables are significant with the same sign of coefficient compared to the original Model 4.

It can be seen that the inclusion of variables for negative adjustments does not change the results of the main analyses concerning the test variables. Negative adjustments do not seem to influence ratings. However, as the number of observations of the negative adjustment variables is extremely small, the multicollinearity included in the models increases and affects the reliability of the results.

6.3.4 Rating Model Estimated Separately for Different Reporting Standards

In order to get a better understanding of the behaviour of the adjustment variables across reporting standards, a rating model is estimated using only data from one reporting standard at a time. Consequently, three rating models are estimated using companies reporting under 1) US GAAP, 2) IFRS and 3) local GAAPs. The adjustment variable used in the model is SumADJ\%TA . The model does not include GAAP dummies or interaction terms for GAAPs and adjustments. The company-specific and country-related variables are the same as used in the main analyses. The regression results are found in Appendix 16.

Firstly, estimating the model with only US GAAP companies results in an adjusted R^2 of 0.641 and a condition index of 13.490. The variable SumADJ%TA is statistically significant with a positive effect. Secondly, using IFRS companies yields an adjusted R^2 of 0.614 while the condition index rises to 25.907. The variable SumADJ%TA is positive but not statistically significant. Thirdly, using only local GAAP companies generates an adjusted R^2 of 0.684. However, now the condition index increases to 30.291. The variable SumADJ%TA is statistically significant with a negative impact on rating. The findings from this additional analysis are consistent with the evidence of the main analyses. First, the adjustments made to US GAAP companies increase rating. Second, no evidence is found concerning the association between IFRS adjustments and ratings. Third, local GAAP adjustments decrease rating.

7 CONCLUSIONS

The objective of this thesis is to find an answer to the question of whether financial statement adjustments made by a credit rating agency matter in credit analysis. Financial statement adjustments can be thought of either as a means to measure the quality of financial statement information or as a method to improve the usefulness of information during the rating process.

Usefulness is often mentioned as the primary objective for high quality financial statement information. Information must provide facts about the firm's future prospects as well as faithfully represent without bias what it is intended to represent. Increasing the quality of financial statement information aims at reducing information asymmetry and thereby improving its decision-usefulness for all users. Improving the quality of financial statement information has desirable economic consequences. Indeed, prior research shows that increasing quality results in decreasing cost of capital, reduced analysts' cost of information acquisition, improvement in forecast accuracy as well as increasing market liquidity, foreign ownership and equity valuation.

When considering determinants underlying the quality of financial statement information, academic literature suggests factors such as the quality of accounting standards chosen, legal and political systems, development of financial markets, capital structure, ownership structure

and tax system that all have an impact on the quality of information. Moreover, the incentives of those who prepare and demand financial statement information have a major influence on the quality of the outcome. Incentives, on the other hand, are largely affected by legal, auditing, governance and regulatory regimes as well as by market forces. Therefore, high quality standards do not suffice alone to increase the quality and usefulness of information. What is also needed is high quality implementation and enforcement of those standards in practice. In the absence of a global enforcement mechanism, as is the case currently for IFRS, local political and economic factors continue to influence local financial reporting practice. Academics caution that uneven implementation is therefore likely to remain.

This thesis compares the quality of financial statement information according to three reporting standard groups. The empirical analyses consider US GAAP as the benchmark standards to which IFRS and local GAAPs are compared. Traditionally, US GAAP has been thought of as higher quality reporting standards relative to the other standards. Currently academic literature suggests that IFRS are of similar quality with US GAAP although remaining differences still exist between the two sets of standards. Moreover, some researchers have even voiced a concern that harmonizing the two sets of standards would not benefit the quality of information. Instead, competition should be encouraged between IFRS and US GAAP. As far as local reporting standards are concerned, prior evidence shows that they are of lower quality relative to the two other sets of standards.

Regarding the context of credit ratings, prior research shows that the quality of financial statement information is an important determinant affecting credit ratings. Increased earnings management leads to the credit rating agencies discounting the reported financial statement information and assigning a lower rating as a result. Today, a bit more than a year after the world-wide credit crunch, it is easy to agree with the importance of high quality financial statement information as a part of a credit analysis.

The first part of the empirical analyses aims at providing descriptive evidence on factors associated with financial statement adjustments. Evidence indicates that different reporting standards do not explain the differences in the amount of adjustments between different companies. On the other hand, capital intensity, operative risk and leverage are positively associated with financial statement adjustments. Therefore, the more capital intensive, the riskier or the more levered the company, the greater the amount of adjustments. Also, it seems

that public companies face fewer adjustments relative to private companies. The findings are consistent with earnings management literature which suggests that increased risk and leverage may cause companies to manage earnings, as well as that the earnings of public companies are more informative relative to private companies. Capital intensity, on the other hand, is an important characteristic relating to telecommunication companies. All in all, the ultimate underlying reason for financial statement adjustments seems to be company-specific decisions on how to finance investments and pensions. Thus, the financing and capital structure as well as contractual decisions matter and influence the amount of adjustments.

However, in the future it would be interesting to investigate whether the findings remain unchanged when financial statement adjustments are compared across several industries. Indeed, the mentioned company-specific characteristics are all strongly related to the telecommunications industry. Telecommunication companies are characterized by high capital intensity, and as large investments must be financed at least to some extent with debt, the companies have to deal with leverage. In addition, high operative risk relates inseparably to the industry as telecommunication companies face considerable fixed costs and as the asset life cycles are short when trends change fast. Therefore, it might be that these characteristics are important industry-related determinants for adjustments. For this reason, it would be worthwhile to examine whether the findings hold with a cross-industry sample.

The second part of the empirical analyses examines the research hypothesis. The objective is to find evidence of whether financial statement adjustments are associated with credit ratings. Evidence shows that US adjustments increase credit ratings. Additionally, the results indicate that, without any adjustments, credit ratings are higher for companies reporting under IFRS relative to companies reporting under US GAAP. To begin with, the financial situation of US companies seems less favourable before any adjustments are made. However, adjustments increase ratings for US firms and thus bring IFRS and US companies closer to each other. Financial statements become more comparable across companies, which in turn decreases the information risk and increases the quality of financial statement information. Therefore, evidence supports the view that adjustments increase the usefulness of information and that they are made in order to benefit the decision making during the rating process.

However, as far as local GAAP companies are concerned, adjustments decrease ratings relative to US ratings. As local GAAPs are expected to be reporting standards of lower quality

relative to US GAAP, the effect of adjustments under a local GAAP is smaller and adjustments do not decrease the information risk enough. Financial statement adjustments do not suffice to take local GAAP companies to the same level with US GAAP and IFRS companies because of the lower quality standards underlying the financial statement information.

On the basis of these findings, financial statement adjustments do matter in credit analysis. In short, they increase the comparability of information across companies and make information more decision-useful for the rating process. On the other hand, the circumstances underlying adjustments are company-specific. Financial statement adjustments seem to be affected largely by financing and contractual decisions.

At the beginning of the thesis it was suggested that the amount of adjustments having a negative association with credit ratings can be seen as a measure of financial statement information quality. The evidence of this thesis does not support this view but finds instead that adjustments increase ratings, consistent with the decision-usefulness point of view. However, in the future a possible research topic would be to investigate how a quality measure based on adjustments compares with the other more traditional quality metrics. Moreover, as adjustments consist of standard and non-standard adjustments, it would be worthwhile to separate these two dimensions and investigate their effect on rating separately.

REFERENCES

American Accounting Association's Financial Accounting Standards Committee (AAA FASC) 2008. A Perspective on the SEC's Proposal to Accept Financial Statements Prepared in Accordance with International Financial Reporting Standards (IFRS) without Reconciliation to US GAAP. *Accounting Horizons*, 22(2), 241-248.

Armstrong, C., Barth, M., Jagolinzer, A. and Riedl, A. 2008. Market Reaction to the IFRS Adoption in Europe. Working Paper, Stanford University.

Ashbaugh, H. and Pincus, M. 2001. Domestic Accounting Standards, International Accounting Standards, and the Predictability of Earnings. *Journal of Accounting Research*, 39(3), 417-434.

Ball, R. 2006. International Financial Reporting Standards (IFRS): Pros and Cons for Investors. Working Paper, University of Chicago.

Ball, R., Robin, A. and Wu, J. 2003. Incentives versus Standards: Properties of Accounting Income in Four East Asian Countries. *Journal of Accounting and Economics*, 36, 235-270.

Barth, M.E., Landsman, W.R. and Lang, M. 2008. International Accounting Standards and Accounting Quality. *Journal of Accounting Research*, 46(3), 467-498.

Barth, M.E., Landsman W.R., Lang, M. and Williams, C. 2006. Accounting Quality: International Accounting Standards and US GAAP. Working Paper, March, Stanford University.

Beaver, W.H., McNichols, M.F. and Rhie, J. 2005. Have Financial Statements Become Less Informative? Evidence from the Ability of Financial Ratios to Predict Bankruptcy. *Review of Accounting Studies*, 10, 93-122.

Blume, M.E., Lim, F. and MacKinlay, A.C. 1998. The Declining Credit Quality of US Corporate Debt: Myth or Reality? *The Journal of Finance*, LIII, 4, 1389-1413.

Burgstahler, D., Hail, L. and Leuz, C. 2006. The Importance of Reporting Incentives: Earnings Management in European Private and Public Firms. *The Accounting Review*, forthcoming.

Campbell, J.Y., Hilscher, J. and Szilagyi, J. 2008. In Search of Distress Risk. *The Journal of Finance*, LXIII, 6, 2899-2939.

Chava, S. and Jarrow, R.A. 2004. Bankruptcy Prediction with Industry Effects. *Review of Finance*, 8, 537-569.

Chen, H., Tang, Q., Jiang, Y. and Lin, Z. 2009. Mandatory IFRS Adoption and Accounting Quality: Evidence from the European Union. Working Paper, Shanghai University of Finance and Economics.

Covrig, V., DeFond, M. and Hung, M. 2007. Home Bias, Foreign Mutual Fund Holdings, and the Voluntary Adoption of International Accounting Standards. *Journal of Accounting Research*, 45, 41-70.

Crouhy, M., Galai, D. and Mark, R. 2000. A Comparative Analysis of Current Credit Risk Models. *Journal of Banking & Finance*, 24, 59-117.

Daske, H., Hail, L., Leuz, C. and Verdi, R. 2008. Mandatory IFRS Reporting Around the World: Early Evidence on the Economic Consequences. *Journal of Accounting Research*, forthcoming.

Diamond, D. and Verrechia, R. 1991. Disclosure, Liquidity, and the Cost of Capital. *Journal of Finance*, 46(4), 1325-1359.

Duffie, D. and Lando, D. 2001. Term Structure of Credit Spreads With Incomplete Accounting Information. *Econometrica*, 69(3), 633-664.

Fan, J. and Wong, T.J. 2002. Corporate Ownership Structure and the Informativeness of Accounting Earnings in East Asia. *Journal of Accounting and Economics*, 33(3), 401-425.

Financial Accounting Standards Board (FASB) 2008a. Original Pronouncements as Amended, Statement of Financial Accounting Concepts No. 1: Objectives of Financial Reporting by Business Enterprises. Available at:

<http://www.fasb.org/cs/BlobServer?blobcol=urldata&blobtable=MungoBlobs&blobkey=id&blobwhere=1175818738309&blobheader=application%2Fpdf> 24.9.2009.

Financial Accounting Standards Board (FASB) 2008b. Original Pronouncements as Amended Statement of Financial Accounting Concepts No. 2: Qualitative Characteristics of Accounting Information. Available at:

<http://www.fasb.org/cs/BlobServer?blobcol=urldata&blobtable=MungoBlobs&blobkey=id&blobwhere=1175818786280&blobheader=application%2Fpdf> 24.9.2009.

Francis, J., Khurana, I. and Pereina, R. 2005. Disclosure Incentives and Effects on Cost of Capital Around the World. *The Accounting Review*, 80(4), 113-129.

Francis, J., LaFond, R., Olsson, P. and Schipper, K. 2005. The Market Pricing of Accruals Quality. *Journal of Accounting and Economics*, 39, 295–327.

Graham, J.R., Harvey, C.R. and Rajgopal, S. 2005. The Economic Implications of Corporate Financial Reporting. *Journal of Accounting and Economics*, 40, 3-73.

Guenter, D. and Young, D. 2000. The Association between Financial Accounting Measures and Real Economic Activity: A Multinational Study. *Journal of Accounting and Economics*, 29(1), 53-72.

Hillegeist, S.A., Keating, E.K., Cram, D.P. and Lundstedt, K.G. 2004. Assessing the Probability of Bankruptcy. *Review of Accounting Studies*, 9, 5-34.

International Accounting Standards Board (IASB) 2009a. Who We Are and What We Do.

Available at: <http://www.iasb.org/NR/rdonlyres/95C54002-7796-4E23-A327-28D23D2F55EA/0/April09Whoweareandwhatwedo.pdf> 11.10.2009.

International Accounting Standards Board (IASB) 2009b. Current projects. Available at: <http://www.iasb.org/Current+Projects/IASB+Projects/IASB+Work+Plan.htm> 24.9.2009.

International Accounting Standards Board (IASB) & Financial Accounting Standards Board (FASB) 2002. Memorandum of Understanding. Available at: <http://www.iasb.org/Current+Projects/Memorandum+of+Understanding+with+the+FASB.htm> 24.9.2009.

International Accounting Standards Board 2001. Framework for the Preparation and Presentation of Financial Statements. London: IASB.

Investopedia 2009. The Industry Handbook: The Telecommunications Industry. Available at: <http://www.investopedia.com/features/industryhandbook/telecom.asp> 3.12.2009.

Jorion, P., Shi, C. and Zhang, S. 2007. Tightening Credit Standards: The Role of Accounting Quality. *Review of Accounting Studies*, forthcoming.

Kaplan, R.S. and Urwitz, G. 1979. Statistical Models of Bond Ratings: A Methodological Inquiry. *Journal of Business*, 52, 231-261.

Lang, M., Raedy, J. and Wilson, W. 2005. Earnings Management and Cross Listing: Are Reconciled Earnings Comparable to US Earnings? Working Paper, University of North Carolina.

La Porta, R., Lopez-De-Silanes, F. Shleifer, A. and Vishny, R. 1998. Law and Finance. *Journal of Political Economy*, 106(6), 1113-1155.

Leuz, C., Nanda, D. and Wysocki, P. 2003. Earnings Management and Investor Protection: An International Comparison. *Journal of Financial Economics*, 69, 505-527.

Leuz, C. 2003. IAS versus US GAAP: Information Asymmetry-based Evidence from Germany's New Market. *Journal of Accounting Research*, 41, 445-427.

Leuz, C. and Verrecchia, R. 2000. The Economic Consequences of Increased Disclosure. *Journal of Accounting Research*, 38(Supplement), 91-124.

Moody's 2009a. Market Capitalization. Available at:
http://moneycentral.msn.com/detail/stock_quote?Symbol=mco 11.10.2009.

Moody's 2009b. Scale of Operations. Available at:
<http://www.moody.com/moodys/cust/AboutMoody/AboutMoody.aspx?topic=intro&redirecturl=/cust/AboutMoody/staticRedirect.asp> 11.10.2009.

Moody's 2008. Are We Better Off Under IFRS? Available at:
<http://www.complianceweek.com/s/documents/MoodysIFRSGAAP.pdf> 11.10.2009.

Moody's 2007. Moody's Rating Methodology for Global Telecommunications Industry.

Moody's 2006. Moody's Approach to Global Standard Adjustments in the Analysis of Financial Statements for Non-Financial Corporations – Part II, Standardized Adjustments to Enable Global Consistency for Issuers Reporting under International Financial Reporting Standards ('IFRS').

Pae, J., Thornton, D. and Welker, M. 2006. The Reduction of Firms' Ownership Induced Agency Costs Following Financial Reporting Reform in the European Union. Working Paper, Queen's University.

Palepu, K.G., Healy, P.M., Bernard, V.L. and Peek, E. 2007. *Business Analysis and Valuation - IFRS Edition*. Thomson Learning, London.

Ragan, J., Hadley, A. and Raymond, A. 2007. IFRS: Approaching a State of Convergence. *International Business & Economics Research Journal*, 6(12).

Scott, W.R. 2009. *Financial Accounting Treory*. 5th edition, Pearson Prentice Hall.

SEC 2008. Elimination of Reconciliation Requirement for US Issuers. Available at:
<http://www.sec.gov/rules/proposed/2008/33-8982.pdf> 24.9.2009.

SEC 2007. Elimination of Reconciliation Requirement for Foreign Issuers. Available at: <http://www.sec.gov/rules/final/2007/33-8879.pdf> 24.9.2009.

Shipper, K. 2005. The Introduction of International Accounting Standards in Europe: Implications for International Convergence. *European Accounting Review*, 14(1), 101-126.

Soderstrom, N.S. and Sun, K.J. 2007. IFRS Adoption and Accounting Quality: A Review. Working Paper, University of Colorado at Boulder.

Standard & Poor's 2009. Scale of Operations. Available at: http://www2.standardandpoors.com/portal/site/sp/en/us/page.topic/aboutsp_overview/4,1,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0.html?lid=us_topnav_aboutoverview 11.10.2009.

Standard & Poor's 2008. Standard & Poor's Corporate Ratings Criteria.

Stulz, R. and Williamson, R. 2003. Culture, Openness and Finance. *Journal of Financial Economics*, 70(3), 313-349.

Sun, K. 2005. Financial Reporting Quality, Capital Allocation Efficiency, and Financing Structure: An International Study. Working Paper, University of Hawaii at Manoa.

Sunder, S. 2002. Regulatory Competition among Accounting Standards within and across International Boundaries. *Journal of Accounting and Public Policy*, 21(3) (Autumn), 219-234.

Tarca, A. 2004. International Convergence of Accounting Practices: Choosing Between IAS and US GAAP. *Journal of International Financial Management and Accounting*, 15(1).

Troberg, P. 2007. *IFRS and US GAAP. A Finnish Perspective*. Talentum Media Oy.

Van der Meulen, S., Gaeremynck, A. and Willekens, M. 2006. Attribute Differences Between US GAAP and IFRS Earnings: An Exploratory Study. Working Paper, Tilburg University.

Weiss, P. 2005. Update: SEC Chairman Addresses IFRS-US GAAP Convergence, Roadmap for Modification of US GAAP Reconciliation Rules and Deregistration Initiative. Available at:

http://www.paulweiss.com/files/Publication/d596eabf-8fd3-4cbb-acd3-4052749fbd74/Presentation/PublicationAttachment/f6a806a6-e2d5-4807-ae1e-48001c4379e4/10006_1.pdf 12.10.2009.

Wild, J.J., Subramanyam, K.R. and Halsey, R.F. 2007. *Financial Statement Analysis*. 9th Edition (International Edition), McGraw-Hill Education.

APPENDICES

APPENDIX 1

Distribution of Countries Relative to Reporting Standard

GAAP	Country	Company	GAAP	Country	Company
US GAAP	BERMUDA	1	IFRS	AUSTRALIA	1
	CANADA	2		AUSTRIA	1
	CHILE	1		BELGIUM	1
	GREECE	1		CAYMAN ISLANDS	1
	INDIA	2		CHINA	1
	ISRAEL	1		DENMARK	2
	JAPAN	2		EGYPT	1
	PUERTO RICO	1		FINLAND	1
	RUSSIA	7		FRANCE	3
	TAIWAN	1		GERMANY	2
	UKRAINE	1		HONG KONG	3
	UNITED STATES	64		HUNGARY	1
	Total	84		INDIA	1
				IRELAND	1
		ITALY	2		
		KUWAIT	1		
		LITHUANIA	1		
		LUXEMBOURG	3		
		NETHERLANDS	2		
		NEW ZEALAND	1		
		NORWAY	1		
		PAKISTAN	1		
		PHILIPPINES	2		
		POLAND	1		
		PORTUGAL	1		
		RUSSIA	1		
		SINGAPORE	1		
		SLOVENIA	1		
		SOUTH AFRICA	2		
		SPAIN	1		
		SWEDEN	2		
		SWITZERLAND	1		
		TURKEY	1		
		UNITED ARAB EMIRATES	1		
		UNITED KINGDOM	5		
		Total	52		
Local GAAPs					
Argentine GAAP	ARGENTINA	3			
Australian GAAP	AUSTRALIA	1			
Brazilian GAAP	BRAZIL	7			
Canadian GAAP	CANADA	7			
Chilean GAAP	CHILE	1			
Chinese GAAP	TAIWAN	1			
Hong Kong GAAP	CHINA	1			
	HONG KONG	1			
Indian GAAP	INDIA	3			
Indonesian GAAP	INDONESIA	6			
Israeli GAAP	ISRAEL	1			
Japanese GAAP	JAPAN	2			
Korean GAAP	KOREA	5			
Malaysian GAAP	MALAYSIA	2			
Mexican GAAP	MEXICO	5			
Philippine GAAP	PHILIPPINES	1			
Russian GAAP	RUSSIA	1			
Singapore GAAP	SINGAPORE	1			
Sri Lanka GAAP	SRI LANKA	1			
Thai GAAP	THAILAND	5			
	Total	55			
TOTAL NUMBER OF COMPANIES		191			

APPENDIX 2

Descriptive Statistics of the Amount of Adjustments Relating to Balance Sheet Items

Financial Statement Item	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>STD</i>	<i>Z</i>
Cash & Cash Equivalents	457	0.002	0.000	0.013	-4.883 *
Short-term Investments	457	-0.002	0.000	0.014	-5.098 *
Deposits	323	0.000	0.000	0.000	-0.135
Restricted Cash	287	0.000	0.000	0.000	0.000
Accounts Receivable - Trade (net)	457	0.001	0.000	0.006	-3.180 *
Accounts Receivable - Other	419	0.000	0.000	0.000	0.000
Unbilled Revenues / Accrued Receivables	19	0.000	0.000	0.000	0.000
Inventories	457	0.000	0.000	0.000	0.000
Deferred Tax Asset - Current	181	0.000	0.000	0.000	0.000
Other Current Assets	457	0.000	0.000	0.001	-2.165 *
Discontinued Operations	12	0.000	0.000	0.000	0.000
CURRENT ASSETS	457	0.001	0.000	0.009	-1.982 *
Investment in Subsidiaries / Affiliates	457	0.000	0.000	0.000	0.000
Loans / Advances to Subsidiaries / Affiliates	305	0.000	0.000	0.000	0.000
Other Investments	457	-0.001	0.000	0.012	-4.286 *
Gross Plant	457	0.088	0.065	0.080	-18.172 *
Less: Accumulated Depreciation	455	0.001	0.000	0.010	-2.666 *
Net Property Plant and Equipment	457	0.087	0.065	0.078	-18.172 *
Goodwill	304	0.000	0.000	0.000	-1.342
Intangibles - Other	444	0.000	0.000	0.003	-0.784
Deferred Tax Asset - Non-Current	433	0.000	0.000	0.002	-5.333 *
Other Assets	457	-0.001	0.000	0.007	-4.820 *
Discontinued Operations - Non-Current Assets	9	0.000	0.000	0.000	0.000
Assets in Disposal Groups Held for Sale	36	0.000	0.000	0.000	-1.342
TOTAL ASSETS	457	0.085	0.065	0.080	-17.787 *

*. Z is significant at the 0.05 level.

APPENDIX 2 (Continued)

Descriptive Statistics of the Amount of Adjustments Relating to Balance Sheet Items

Financial Statement Item	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>STD</i>	<i>Z</i>
Short-term Debt	457	0.001	0.000	0.005	-4.452 *
Current Portion of Long-term Debt	457	0.006	0.004	0.007	-17.026 *
Accounts Payable - Trade	457	0.000	0.000	0.001	-1.342
Accounts Payable - Other	453	0.000	0.000	0.001	-1.483
Accruals	449	0.000	0.000	0.001	-0.169
Income Taxes	449	0.000	0.000	0.002	-2.803 *
Deferred Income - Current	413	0.000	0.000	0.000	0.000
Deferred Tax Liability - Current	43	0.000	0.000	0.001	-1.000
Due to Affiliates - Current	24	0.000	0.000	0.000	0.000
Other Current Liabilities	457	-0.001	0.000	0.006	-4.039 *
CURRENT LIABILITIES	457	0.006	0.004	0.011	-15.274 *
Equipment Trust	287	0.000	0.000	0.002	-1.342
Secured Debt	330	0.001	0.000	0.010	-2.599 *
Senior Debt	455	0.010	0.000	0.026	-11.190 *
Subordinated Debt	311	0.008	0.000	0.052	-4.625 *
Mandatorily Redeemable Preferred Securities	14	0.000	0.000	0.000	0.000
Capitalized Leases	456	0.088	0.066	0.078	-18.135 *
Long-term Debt - Gross	457	0.104	0.086	0.093	-18.173 *
Less: Current Maturities	457	-0.006	-0.004	0.007	-17.026 *
Net Long-term Debt	457	0.098	0.080	0.090	-18.110 *
Total Loans / Advances from Subsidiaries / Affiliates	287	0.000	0.000	0.000	0.000
Deferred Income Taxes - Non-current	438	-0.002	0.000	0.006	-9.582 *
Investment Tax Credit	287	0.000	0.000	0.000	0.000
Unfunded Accumulated Pension Benefit Obligations	295	-0.004	0.000	0.016	-5.579 *
Other Accumulated Post-retirement Benefit Obligations	20	0.000	0.000	0.000	0.000
Other Long-term Liabilities	457	-0.005	0.000	0.014	-10.113 *
Deferred Income - Non-current	49	0.000	0.000	0.000	0.000
Minority Interest	422	-0.001	0.000	0.009	-3.621 *
Liabilities in Disposal Groups Held for Sale	13	-0.001	0.000	0.001	-1.604
TOTAL LIABILITIES	457	0.094	0.072	0.092	-17.884 *
Preferred Stock	319	0.001	0.000	0.051	-1.163
Common Stock & Paid-in-capital	457	0.000	0.000	0.010	-1.957 *
Total Retained Earnings	456	-0.008	0.000	0.080	-9.568 *
Accumulated Other Comprehensive Income	353	-0.002	0.000	0.009	-6.006 *
TOTAL EQUITY	457	-0.008	0.000	0.044	-9.772 *
TOTAL LIABILITIES & EQUITY	457	0.085	0.065	0.080	-17.787 *

*. Z is significant at the 0.05 level.

APPENDIX 3

Descriptive Statistics of the Amount of Adjustments Relating to Income Statement and Cash Flow Statement Items

Financial Statement Item	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>STD</i>	<i>Z</i>
Revenues	457	0.000	0.000	0.002	-2.521 *
Cost of Goods / Products / Services Sold	457	-0.011	0.000	0.037	-10.013 *
GROSS PROFIT	457	0.010	0.000	0.037	-8.985 *
Operating Expenses	453	-0.007	-0.005	0.013	-14.723 *
Selling, General and Administrative Expenses	457	-0.006	-0.004	0.008	-15.562 *
Depreciation	451	0.006	0.000	0.024	-3.760 *
Depreciation - Capitalized Operating Leases	430	0.012	0.008	0.010	-17.969 *
Amortization of Intangibles	457	0.001	0.000	0.012	-5.324 *
Depreciation & Amortization	449	0.007	0.000	0.029	-4.599 *
Unusual Expense (Gains)	287	-0.005	0.000	0.052	-5.024 *
OPERATING PROFITS	457	0.008	0.004	0.044	-12.742 *
Other Expenses	174	-0.003	0.000	0.008	-6.359 *
Equity Income (Before Income Tax Expense)	457	-0.001	0.000	0.005	-7.605 *
Minority Interest Expense	25	-0.003	0.000	0.007	-2.982 *
Other Income	457	-0.002	0.000	0.008	-8.948 *
Other Expense / Income	295	0.000	0.000	0.000	0.000
Other Gains & Losses	76	-0.002	0.000	0.010	-1.005
Interest Expense	457	0.006	0.005	0.010	-16.546 *
Unusual Items - Expenses / Gains	295	0.005	0.000	0.074	-1.531
Other Non-Recurring Expenses / Gains	272	0.002	0.000	0.034	-0.610
PRETAX INCOME	457	-0.005	-0.001	0.082	-7.436 *
Taxes	456	-0.002	0.000	0.026	-8.312 *
Equity Income (After Income Tax Expense)	457	0.001	0.000	0.005	-6.409 *
Net Income Before Minority Interests	295	-0.004	-0.001	0.071	-4.662 *
Minority Interest Expense (After Tax)	417	0.000	0.000	0.001	-1.826
Net Profit After Tax Before Unusual Items	457	-0.002	-0.001	0.059	-6.074 *
Extraordinary Items -Gains / Expense	307	-0.001	0.000	0.008	-2.666 *
Income (Loss) from Discontinued Operations	79	0.000	0.000	0.002	-1.342
Cumulative Effect of Changes in Accounting Principles	10	0.000	0.000	0.000	0.000
NET INCOME	457	-0.003	-0.001	0.059	-6.635 *
Unusual & Non-recurring Items - Adjusted After Tax	400	0.001	0.001	0.039	-6.177 *
NET INCOME AFTER ADJUSTED FOR UNUSUAL & NON-RECURRING ITEMS	457	0.000	0.000	0.004	-2.214 *

*. Z is significant at the 0.05 level.

APPENDIX 3 (Continued)

Descriptive Statistics of the Amount of Adjustments Relating to Income Statement and Cash Flow Statement Items

Financial Statement Item	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>STD</i>	<i>Z</i>
Preferred Dividends Declared	449	0.000	0.000	0.004	-2.214 *
Income Available to Common Shareholders	457	0.000	0.000	0.000	0.000
Common Dividends Declared	233	0.000	0.000	0.000	0.000
Comprehensive Income	287	0.000	0.000	0.000	0.000
Average Common Shares Outstanding	172	0.000	0.000	0.000	0.000
Earnings per Share	287	0.000	0.000	0.000	0.000
Deferred Income Taxes	373	0.000	0.000	0.001	-8.029 *
Minority Interest	327	0.000	0.000	0.000	0.000
Undistributed Equity Earnings	449	0.000	0.000	0.000	-1.000
Other Non-cash Items	457	0.000	0.000	0.002	-1.849
Other Operating Cash Flow	457	0.000	0.000	0.007	-0.282
Discontinued Operations	48	0.000	0.000	0.000	0.000
Funds from Operations	457	0.010	0.008	0.017	-14.469 *
Changes in Working Capital Items	457	0.000	0.000	0.004	-0.809
Changes in Other Operating Assets & Liabilities - Short-term	402	0.001	0.000	0.006	-2.116 *
Changes in Other Operating Assets & Liabilities - Long-term	449	0.001	0.000	0.004	-6.964 *
CASH FLOW FROM OPERATIONS	457	0.011	0.009	0.017	-14.847 *
Unusual & Non-recurring Items - Cash Flow Adjustments	44	-0.002	-0.002	0.021	-2.415 *
CASH FLOW FROM OPERATIONS After Unusual & Non-recurring Adjustments	457	0.011	0.008	0.016	-15.090 *
Additions to PP&E (Capital Expenditures)	457	-0.010	-0.008	0.011	-17.341 *
Proceeds from Disposal of PP&E	457	0.000	0.000	0.000	0.000
Business Acquisition	457	0.000	0.000	0.000	0.000
Proceeds from Business Divestitures	365	0.000	0.000	0.000	0.000
Acquisitions - Net	287	0.000	0.000	0.000	0.000
Liquidation of Restricted Cash / Investments in - Net	30	0.000	0.000	0.000	0.000
Sale of Investment Securities	295	0.000	0.000	0.000	0.000
Purchase of Investment Securities	295	0.000	0.000	0.000	0.000
Net Sales / Purchases of Investment Securities	295	0.000	0.000	0.000	0.000
Other Investment Activities	457	-0.001	0.000	0.004	-6.886 *
Investing Activities of Discontinued Operations	10	0.000	0.000	0.000	0.000
NET CASH FROM INVESTING ACTIVITIES	457	-0.011	-0.008	0.012	-17.471 *

*. Z is significant at the 0.05 level.

APPENDIX 3 (Continued)

Descriptive Statistics of the Amount of Adjustments Relating to Income Statement and Cash Flow Statement Items

Financial Statement Item	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>STD</i>	<i>Z</i>
Long-term Debt Proceeds	457	0.011	0.008	0.010	-18.114 *
Long-term Debt Payments	457	-0.011	-0.008	0.010	-18.002 *
Long-term Debt Proceeds / Repayment - Net	449	0.000	0.000	0.000	0.000
Net Short-term Debt Changes	457	0.000	0.000	0.003	-1.083
Other Financing Activities - Net	390	-0.002	0.000	0.016	-8.054 *
Common Stock Issued / Repurchased	457	0.000	0.000	0.006	-1.604
Capital Contribution from Parent	7	0.000	0.000	0.000	0.000
Preferred Stock Issued / Repurchased	292	0.000	0.000	0.000	0.000
Treasury Stock Issued / Repurchased	332	0.000	0.000	0.006	-1.342
Stock Options / Warrants - Net - Including Rights	66	0.000	0.000	0.000	-1.859
Subsidiary / Minority Issued Stock	295	0.000	0.000	0.000	0.000
Cash Dividends - Common	418	0.000	0.000	0.013	-0.711
Cash Dividends - Preferred	51	0.003	0.000	0.012	-2.214 *
Cash Dividends - Minority	348	0.001	0.000	0.015	-2.366 *
Interest Paid	33	0.021	0.022	0.013	-5.012 *
Financing Activity from Discontinued Operations	13	0.000	0.000	0.000	0.000
NET CASH FROM FINANCING ACTIVITIES	457	0.001	0.000	0.012	-0.401
NET INCREASE (DECREASE) IN CASH & EQUIVALENT	457	0.000	0.000	0.000	0.000
Total Debt	457	0.105	0.086	0.093	-18.176 *
Secured Debt + Equipment Trust	330	0.002	0.000	0.010	-2.903 *
Net Debt	457	0.103	0.083	0.094	-18.105 *
EBITA	457	0.002	0.003	0.085	-5.311 *
Average Assets	457	0.082	0.059	0.079	-17.804 *
EBIT	457	0.003	0.003	0.086	-6.100 *
EBITDA	457	0.012	0.011	0.085	-13.031 *
Market Capitalization	299	0.085	0.074	0.063	-14.368 *
Book Capitalization	457	0.094	0.074	0.082	-17.915 *
Retained Cash Flow	457	0.011	0.008	0.022	-14.890 *
Free Cash Flow	457	0.002	0.000	0.020	-4.582 *
Dividends	423	-0.002	0.000	0.019	-2.431 *
Market Value	299	0.000	0.000	0.000	0.000

*. Z is significant at the 0.05 level.

APPENDIX 4
The Amount of Standard and Non-standard Adjustments of IFRS Firms Relating to Balance Sheet Items

Financial Statement Item	STANDARD					NON-STANDARD		ALL	
	(1)	(2)	(4)	(5)	(9)	Total	% of TA	Total	% of TA
Gross Property, Plant and Equipment	0	99,553	95	0	0	99,649	6.9 %	0	0.0 %
Other Non-current Investments	0	0	0	0	0	0	0.0 %	2496	0.2 %
Other Intangible Assets	0	0	0	468	0	468	0.0 %	0	0.0 %
Other Assets	294	0	0	0	0	294	0.0 %	1682	0.1 %
Other Current Assets	0	0	0	0	0	0	0.0 %	640	0.0 %
Deposits	0	0	0	0	0	0	0.0 %	541	0.0 %
Short-term Investments	0	0	0	0	0	0	0.0 %	4733	0.3 %
Cash & Cash Equivalents	0	0	0	0	0	0	0.0 %	6072	0.4 %
Bonds /Senior Debt	9,965	0	0	0	2,449	12,414	0.9 %	14,743	1.0 %
Subordinated Debt	0	0	0	0	476	476	0.0 %	327	0.0 %
Other Borrowings - Non-current	0	0	0	0	0	0	0.0 %	1,368	0.1 %
Capitalized Leases	0	99,553	0	0	0	99,553	6.9 %	832	0.1 %
Less: Current Maturities	0	8,951	0	0	0	8,951	0.6 %	0	0.0 %
Other Long-term Liabilities	13,547	0	0	0	0	13,547	0.9 %	5,380	0.4 %
Deferred Tax	374	0	31	136	0	540	0.0 %	0	0.0 %
Minority Interest	0	0	0	0	0	0	0.0 %	2,309	0.2 %
Accruals	0	0	0	0	0	0	0.0 %	70	0.0 %
Current Tax Payables	0	0	0	0	0	0	0.0 %	4,368	0.3 %
Other Liabilities and Payables	0	0	0	0	0	0	0.0 %	1,146	0.1 %
Short-term Debt	0	0	0	0	0	0	0.0 %	46	0.0 %
Current Portion of Borrowings / Long-term Debt	0	8,951	0	0	0	8,951	0.6 %	0	0.0 %
Common Stock & Paid-in-capital	0	0	0	0	0	0	0.0 %	26	0.0 %
Preferred Stock	0	0	0	0	2,136	2,136	0.1 %	0	0.0 %
Retained Earnings	4,353	0	64	332	0	4,749	0.3 %	4,870	0.3 %
	28,532	217,009	190	935	5,061	251,728	17.4 %	51,649	3.6 %
% of Total Standard Adjustments	11.3 %	86.2 %	0.1 %	0.4 %	2.0 %	100.0 %		303,377	21.0 %

APPENDIX 5

The Amount of Standard and Non-standard Adjustments of IFRS Firms Relating to Income Statement Items

Financial Statement Item \$ in Millions	STANDARD												NON-STANDARD		ALL	
	(1)	(2)	(4)	(5)	(6)	(9)	(12)	Total	% of TA	Total	% of TA	Total	% of TA			
Cost of Goods / Products/ Services Sold	268	4,513	0	0	578	0	1	5,359	0.4%	32,873	2.3%	38,232	2.6%			
Other Operating Income	0	0	0	0	0	0	6,323	6,323	0.4%	5,753	0.4%	12,076	0.8%			
Operating Expenses	760	9,364	0	91	460	0	1,377	12,052	0.8%	9,142	0.6%	21,194	1.5%			
Selling, General and Administrative Expenses	158	2,269	0	0	0	0	0	2,427	0.2%	1,030	0.1%	3,458	0.2%			
Depreciation (Including Impairment Charges)	0	840	0	0	0	0	81	921	0.1%	28,494	2.0%	29,415	2.0%			
Depreciation - Capitalized Operating Leases	0	11,324	0	0	0	0	0	11,324	0.8%	0	0.0%	11,324	0.8%			
Amortisation of Intangibles (Including Impairment Charges)	0	0	0	77	0	0	50	127	0.0%	13,067	0.9%	13,194	0.9%			
Equity-accounted Income	0	0	0	0	0	0	0	0	0.0%	4,318	0.3%	4,318	0.3%			
Other Non-operating Income	0	0	0	0	0	0	1,187	1,187	0.1%	285	0.0%	1,473	0.1%			
Other Non-operating Expenses	0	0	0	0	0	0	898	898	0.1%	79	0.0%	977	0.1%			
Other Non-recurring Expenses / Gains	5,500	0	0	0	0	0	93	5,593	0.4%	98	0.0%	5,692	0.4%			
Interest Expense	1,449	5,662	95	0	1,038	169	272	8,686	0.6%	228	0.0%	8,913	0.6%			
Taxes	2,028	0	31	4	0	0	391	2,454	0.2%	2,021	0.1%	4,475	0.3%			
Equity-accounted Income (After Tax)	0	0	0	0	0	0	0	0	0.0%	10,075	0.7%	10,076	0.7%			
Unusual & Non-recurring Items - Adjusted After Tax	4,919	0	64	10	0	0	8,185	13,179	0.9%	102	0.0%	13,280	0.9%			
Income Available to Common Shareholders	0	0	0	0	0	0	0	0	0.0%	0	0.0%	169	0.0%			
Preferred Dividends Declared	15,083	33,971	190	181	2,077	339	18,859	70,700	4.9%	107,565	7.4%	178,265	12.3%			
% of Total Standard Adjustments	21.3 %	48.0 %	0.3 %	0.3 %	2.9 %	0.5 %	26.7 %	100.0 %								

APPENDIX 6

The Amount of Standard and Non-standard Adjustments of IFRS Firms Relating to Cash Flow Statement Items

Financial Statement Item \$ in Millions	STANDARD												NON-STANDARD		ALL	
	(1)	(2)	(4)	(5)	(9)	(11)	(12)	Total	% of TA	Total	% of TA	Total	% of TA			
Income Statement Activity	0	0	64	10	169	5,527	309	6,079	0.4 %	4,136	0.3 %	10,215	0.7 %			
Depreciation & Amortisation	0	11,324	0	77	0	0	0	11,401	0.8 %	0	0.0 %	11,401	0.8 %			
Deferred Income Taxes	0	0	31	4	0	0	0	35	0.0 %	0	0.0 %	35	0.0 %			
Other Non-cash Items	0	0	0	0	0	0	45	45	0.0 %	867	0.1 %	912	0.1 %			
Other Operating Cash Flows	0	0	0	0	0	0	109	109	0.0 %	125	0.0 %	234	0.0 %			
Changes in Working Capital Items	0	0	0	0	0	0	291	291	0.0 %	105	0.0 %	395	0.0 %			
Changes in Other Operating Assets & Liabilities - Short-term	0	0	0	0	0	5,527	0	5,527	0.4 %	83	0.0 %	5,610	0.4 %			
Changes in Other Operating Assets & Liabilities - Long-term	893	0	0	0	0	0	45	938	0.1 %	815	0.1 %	1,752	0.1 %			
Unusual & Non-recurring Items - Cash Flow Adjustments	0	0	0	0	0	0	127	127	0.0 %	0	0.0 %	127	0.0 %			
Cash Payments to Acquire PP&E and Intangibles	0	11,324	95	91	0	0	0	11,510	0.8 %	62	0.0 %	11,572	0.8 %			
Other Investing Cash Flows	0	0	0	0	0	0	0	0	0.0 %	5,771	0.4 %	5,771	0.4 %			
Proceeds from Long-term Borrowings	0	11,324	0	0	0	0	0	11,324	0.8 %	0	0.0 %	11,324	0.8 %			
Repayments of Borrowings	0	11,324	0	0	0	0	0	11,324	0.8 %	0	0.0 %	11,324	0.8 %			
INTEREST PAID	0	0	0	0	0	0	0	0	0.0 %	6,677	0.5 %	6,677	0.5 %			
Other Financing Cash Flows	893	0	0	0	0	0	0	893	0.1 %	0	0.0 %	893	0.1 %			
Common Stock Issued / Repurchased	0	0	0	0	0	0	0	0	0.0 %	445	0.0 %	445	0.0 %			
Treasury Stock Issued / Repurchased	0	0	0	0	0	0	0	0	0.0 %	3,130	0.2 %	3,130	0.2 %			
Payment of Dividends	0	0	0	0	0	0	0	0	0.0 %	4,522	0.3 %	4,522	0.3 %			
Cash Dividends - Preferred	0	0	0	0	169	0	0	169	0.0 %	0	0.0 %	169	0.0 %			
% of Total Standard Adjustments	1,785	45,295	190	181	339	11,053	926	59,770	4.1 %	26,737	1.9 %	86,507	6.0 %			
	3.0 %	75.8 %	0.3 %	0.3 %	0.6 %	18.5 %	1.5 %	100.0 %								

APPENDIX 7

Association between Reporting Standards, Company-specific Factors and Financial Statement Adjustments
(The Relative Number of Adjusted Financial Statement Items)

Variable	<i>Coef.</i>	<i>t-value</i>	<i>Prob.</i>
Intercept	0.524	25.880	0.000
IFRS	0.023	2.145	0.033
LOCALGAAP	0.004	0.320	0.749
SIZE1	-0.033	-2.478	0.014
SIZE2	-0.027	-1.854	0.064
SIZE3	-0.035	-2.386	0.017
SIZE4	-0.008	-0.513	0.609
ProfMRG	-0.035	-1.236	0.217
AsTRNV	-0.011	-0.696	0.487
ChgREV	-0.026	-1.478	0.140
CVNI	0.002	1.373	0.171
NegOpPROF	-0.015	-1.052	0.293
DEBT/BCap	0.009	1.148	0.252
QckRATIO	-0.014	-1.674	0.095
PUBLIC	0.006	0.613	0.540
GROUP	-0.037	-2.762	0.006
ARGENTINA	-0.395	-11.113	0.000
BRAZIL	0.038	1.691	0.092
HONGKONG	0.008	0.249	0.803
INDONESIA	0.001	0.058	0.954
JAPAN	-0.024	-1.172	0.242
KOREA	-0.102	-3.973	0.000
LUXEMBOURG	0.049	1.748	0.081
MEXICO	0.032	1.445	0.149
PHILIPPINES	0.009	0.282	0.778
THAILAND	-0.027	-0.857	0.392
UNITEDKINGDOM	0.071	2.789	0.006
YEAR2005	0.005	0.467	0.641
YEAR2006	-0.005	-0.512	0.609
YEAR2007	-0.011	-1.058	0.291
Adjusted R-Squared	0.357		
Durbin-Watson Statistic	1.847		
Model F-Value	9.093		
Significance F-Value	0.000		
N	424		
CI	19.074		

APPENDIX 8
Association between Financial Statement Adjustments and Credit Ratings (Rating Models without GAAPs)

Variable	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5								
	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value							
Intercept	12.368	19.391	0.000	12.278	17.989	0.000	12.952	20.010	0.000	13.017	19.320	0.000	12.335	17.936	0.000	12.629	19.019	0.000	
Test Variables																			
SumADJ%TA				0.292	1.346	0.179													
IFRS*SumADJ%TA				0.494	1.758	0.079													
LOCALGAAP*SumADJ%TA				-0.778	-1.996	0.047													
DiffOpPROF%TA							10.812	2.716	0.007										10.012
IFRS*DiffOpPROF%TA							-1.744	-0.149	0.882										
LOCALGAAP*DiffOpPROF%TA							-27.513	-0.964	0.336										
DiffIntEXP%TA										45.23	1.858	0.064							
IFRS*DiffIntEXP%TA										93.322	2.332	0.020							
LOCALGAAP*DiffIntEXP%TA										-71.569	-1.923	0.055							
DiffToDEBT%TA													2.992	1.338	0.182	3.511	1.911	0.057	
IFRS*DiffToDEBT%TA													5.539	1.878	0.061				
LOCALGAAP*DiffToDEBT%TA													-7.314	-2.032	0.043				
Control Variables																			
SIZE1	0.417	0.801	0.424	0.329	0.639	0.523	0.263	0.515	0.607	0.141	0.278	0.781	0.250	0.485	0.628	0.180	0.354	0.723	
SIZE2	2.019	3.742	0.000	2.135	3.968	0.000	1.802	3.409	0.001	1.871	3.535	0.000	2.081	3.875	0.000	1.800	3.421	0.001	
SIZE3	2.855	5.381	0.000	2.874	5.363	0.000	2.523	4.818	0.000	2.513	4.732	0.000	2.803	5.213	0.000	2.577	4.935	0.000	
SIZE4	4.534	8.925	0.000	4.460	8.669	0.000	4.105	8.154	0.000	4.116	8.060	0.000	4.396	8.491	0.000	4.104	8.199	0.000	
EBIT/AVAs	3.485	2.035	0.043	2.809	1.646	0.100	4.027	2.280	0.023	2.139	1.275	0.203	2.915	1.715	0.087	4.001	2.280	0.023	
IntEXP/EBIT	0.013	0.537	0.592	0.013	0.545	0.586	0.014	0.602	0.548	0.014	0.632	0.528	0.012	0.502	0.616	0.014	0.602	0.547	
DEBT/BCap	-1.180	-5.911	0.000	-1.455	-6.725	0.000	-2.252	-7.395	0.000	-2.556	-8.120	0.000	-1.499	-6.816	0.000	-2.382	-7.742	0.000	
CVNI	-0.007	-1.532	0.126	-0.007	-1.563	0.119	-0.007	-1.441	0.150	-0.006	-1.244	0.214	-0.007	-1.527	0.127	-0.006	-1.298	0.195	
NeqOpPROF	-3.262	-5.811	0.000	-3.592	-6.152	0.000	-3.330	-5.976	0.000	-3.246	-5.817	0.000	-3.444	-6.066	0.000	-3.423	-6.151	0.000	
GROUP	-3.509	-6.866	0.000	-3.428	-6.637	0.000	-3.267	-6.516	0.000	-3.401	-6.750	0.000	-3.489	-6.725	0.000	-3.295	-6.613	0.000	
PUBLIC	0.622	1.613	0.107	0.637	1.662	0.097	0.498	1.316	0.189	0.798	2.108	0.036	0.702	1.817	0.070	0.616	1.616	0.107	

APPENDIX 8 (Continued)
Association between Financial Statement Adjustments and Credit Ratings (Rating Models without GAAPs)

Variable	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5							
	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value						
ARGENTINA	-3.809	-2.899	0.004	-3.485	-2.649	0.008	-3.963	-3.087	0.002	-3.614	-2.809	0.005	-3.494	-2.659	0.008	-3.566	-2.764	0.006
BRAZIL	0.018	0.023	0.982	0.902	1.005	0.315	0.001	0.001	0.999	0.705	0.693	0.489	0.893	1.008	0.314	-0.454	-0.584	0.559
CHILE	2.071	1.967	0.050	2.381	2.254	0.025	1.971	1.814	0.070	1.960	1.902	0.058	2.283	2.156	0.032	2.003	1.921	0.055
HONGKONG	0.809	0.723	0.470	0.445	0.395	0.693	0.470	0.429	0.668	0.064	0.059	0.953	0.549	0.491	0.624	0.580	0.531	0.595
INDONESIA	-3.201	-4.077	0.000	-2.659	-3.313	0.001	-3.443	-4.417	0.000	-2.949	-3.796	0.000	-2.726	-3.414	0.001	-3.373	-4.368	0.000
JAPAN	1.172	1.545	0.123	1.498	1.981	0.048	1.192	1.607	0.109	1.304	1.768	0.078	1.430	1.895	0.059	1.192	1.616	0.107
KOREA	-1.020	-1.101	0.272	0.043	0.040	0.968	-0.971	-1.020	0.308	-0.697	-0.714	0.476	-0.124	-0.120	0.905	-1.528	-1.677	0.094
LUXEMBOURG	-3.002	-3.000	0.003	-4.076	-3.839	0.000	-3.011	-3.072	0.002	-3.707	-3.692	0.000	-4.044	-3.832	0.000	-3.134	-3.219	0.001
MEXICO	-1.147	-1.559	0.120	-0.472	-0.612	0.541	-1.262	-1.737	0.083	-0.934	-1.283	0.200	-0.560	-0.741	0.459	-1.254	-1.748	0.081
NETHERLANDS	-3.481	-3.127	0.002	-3.835	-3.425	0.001	-3.310	-3.048	0.002	-3.700	-3.388	0.001	-3.938	-3.509	0.000	-3.271	-3.027	0.003
PHILIPPINES	-1.098	-1.038	0.300	-1.430	-1.346	0.179	-1.320	-1.279	0.202	-1.682	-1.618	0.106	-1.386	-1.308	0.192	-1.188	-1.155	0.249
RUSSIA	-2.809	-4.473	0.000	-2.690	-4.323	0.000	-3.155	-5.121	0.000	-3.271	-5.336	0.000	-2.746	-4.425	0.000	-3.104	-5.057	0.000
THAILAND	-0.910	-0.781	0.435	-0.508	-0.435	0.664	-0.967	-0.851	0.395	-0.466	-0.409	0.683	-0.440	-0.376	0.707	-0.606	-0.528	0.598
UNITEDKINGDOM	0.231	0.278	0.781	-1.363	-1.363	0.174	0.004	0.004	0.997	-1.244	-1.343	0.180	-1.224	-1.276	0.203	-0.411	-0.494	0.621
YEAR2005	-0.317	-0.819	0.413	-0.372	-0.970	0.333	-0.168	-0.440	0.660	-0.233	-0.619	0.536	-0.355	-0.927	0.354	-0.209	-0.553	0.581
YEAR2006	-0.305	-0.792	0.429	-0.350	-0.918	0.359	-0.189	-0.499	0.618	-0.177	-0.472	0.637	-0.337	-0.885	0.377	-0.215	-0.570	0.569
YEAR2007	-0.430	-1.103	0.271	-0.506	-1.310	0.191	-0.334	-0.877	0.381	-0.388	-1.023	0.307	-0.490	-1.271	0.204	-0.363	-0.957	0.339
Adjusted R-Squared	0.521			0.532			0.541			0.549			0.533			0.545		
Durbin-Watson Statistic	1.967			1.981			1.916			1.987			1.996			1.954		
Model F-Value	18.277			17.297			17.910			18.420			17.380			18.763		
Significance F-Value	0.000			0.000			0.000			0.000			0.000			0.000		
N	446			446			445			445			446			445		
CI	13.611			15.906			14.494			15.871			16.015			15.165		

APPENDIX 9

Association between Financial Statement Adjustments and Credit Ratings (3 Adjustment Variables Included)

Variable	With GAAPs			Without GAAPs		
	Coef.	t-value	Prob.	Coef.	t-value	Prob.
Intercept	12.087	18.441	0.000	12.626	18.994	0.000
Test Variables						
DiffOpPROF%TA	8.324	2.192	0.029	9.943	2.636	0.009
DiffIntEXP%TA	2.508	0.089	0.929	11.671	0.420	0.674
DiffTotDEBT%TA	3.266	1.208	0.228	2.706	1.019	0.309
IFRS	1.393	3.336	0.001			
LOCALGAAP	-0.056	-0.109	0.913			
Control Variables						
SIZE1	0.269	0.523	0.601	0.194	0.382	0.703
SIZE2	1.893	3.552	0.000	1.813	3.436	0.001
SIZE3	2.694	5.045	0.000	2.598	4.948	0.000
SIZE4	4.123	7.945	0.000	4.136	8.164	0.000
EBITA/AvAs	3.867	2.145	0.033	3.892	2.191	0.029
IntEXP/EBIT	0.015	0.657	0.511	0.013	0.585	0.559
DEBT/BCap	-1.324	-6.304	0.000	-2.385	-7.741	0.000
CVNI	-0.008	-1.803	0.072	-0.006	-1.287	0.199
NegOpPROF	-3.617	-6.358	0.000	-3.446	-6.156	0.000
GROUP	-3.741	-7.151	0.000	-3.289	-6.593	0.000
PUBLIC	0.569	1.469	0.143	0.624	1.635	0.103
ARGENTINA	-2.983	-2.121	0.034	-3.643	-2.792	0.005
BRAZIL	0.266	0.275	0.783	-0.617	-0.710	0.478
CHILE	2.755	2.565	0.011	2.000	1.917	0.056
HONGKONG	0.139	0.123	0.902	0.578	0.529	0.597
INDONESIA	-2.718	-2.987	0.003	-3.378	-4.370	0.000
JAPAN	1.917	2.463	0.014	1.187	1.608	0.109
KOREA	-0.824	-0.806	0.421	-1.563	-1.707	0.089
LUXEMBOURG	-4.230	-4.091	0.000	-3.105	-3.178	0.002
MEXICO	-0.518	-0.611	0.541	-1.256	-1.748	0.081
NETHERLANDS	-4.444	-3.911	0.000	-3.258	-3.011	0.003
PHILIPPINES	-1.985	-1.846	0.066	-1.197	-1.162	0.246
RUSSIA	-2.606	-4.122	0.000	-3.142	-5.059	0.000
THAILAND	-0.177	-0.142	0.887	-0.607	-0.529	0.597
UNITEDKINGDOM	-1.383	-1.543	0.124	-0.402	-0.482	0.630
YEAR2005	-0.379	-0.994	0.321	-0.215	-0.569	0.570
YEAR2006	-0.386	-1.016	0.310	-0.214	-0.569	0.570
YEAR2007	-0.527	-1.373	0.170	-0.364	-0.957	0.339
Adjusted R-Squared	0.538			0.545		
Durbin-Watson Statistic	2.026			1.955		
Model F-Value	16.696			18.127		
Significance F-Value	0.000			0.000		
N	446			445		
CI	16.129			15.746		

APPENDIX 10

Association between Financial Statement Adjustments and Credit Ratings (the Relative Number of Adjustments Included)

Variable	(1)			(2)			(3)			(4)		
	Coef.	t-value	Prob.	Coef.	t-value	Prob.	Coef.	t-value	Prob.	Coef.	t-value	Prob.
Intercept	8.923	5.024	0.000	12.236	9.114	0.000	11.972	9.308	0.000	11.433	8.898	0.000
Test Variables												
CountADJ%TA	7.378	2.216	0.027	0.648	0.279	0.780	1.165	0.529	0.597	1.849	0.839	0.402
IFRS*CountADJ%TA	-3.076	-0.625	0.532	2.707	3.028	0.003						
LOCALGAAP*CountADJ%TA ^A	-18.912	-4.118	0.000	-0.920	-0.834	0.405						
IFRS	2.697	1.159	0.247				1.367	3.226	0.001			
LOCALGAAP	8.661	4.041	0.000				0.044	0.085	0.932			
Control Variables												
SIZE1	0.287	0.565	0.572	0.352	0.682	0.496	0.369	0.715	0.475	0.447	0.857	0.392
SIZE2	2.096	3.962	0.000	1.918	3.583	0.000	1.876	3.499	0.001	2.030	3.761	0.000
SIZE3	2.689	5.084	0.000	2.682	4.986	0.000	2.630	4.887	0.000	2.902	5.437	0.000
SIZE4	4.129	8.102	0.000	4.174	8.075	0.000	4.172	8.084	0.000	4.533	8.920	0.000
EBITA/AvAs	2.831	1.680	0.094	2.855	1.670	0.096	2.788	1.625	0.105	3.585	2.087	0.037
IntEXP/EBIT	0.027	1.167	0.244	0.016	0.680	0.497	0.015	0.639	0.523	0.011	0.467	0.641
DEBT/BCap	-1.195	-6.112	0.000	-1.179	-5.973	0.000	-1.155	-5.837	0.000	-1.181	-5.916	0.000
CVNI	-0.009	-1.956	0.051	-0.009	-1.934	0.054	-0.009	-1.956	0.051	-0.007	-1.510	0.132
NegOpPROF	-3.117	-5.649	0.000	-3.262	-5.840	0.000	-3.245	-5.791	0.000	-3.217	-5.705	0.000
GROUP	-3.433	-6.532	0.000	-3.687	-6.952	0.000	-3.816	-7.235	0.000	-3.489	-6.816	0.000
PUBLIC	0.360	0.946	0.345	0.499	1.297	0.195	0.559	1.457	0.146	0.641	1.658	0.098
ARGENTINA	-7.923	-3.875	0.000	-3.233	-2.023	0.044	-3.077	-1.846	0.066	-3.055	-1.919	0.056
BRAZIL	0.717	0.829	0.408	0.844	0.962	0.336	0.490	0.557	0.578	-0.013	-0.016	0.987
CHILE	1.458	1.148	0.252	2.550	2.161	0.031	2.675	2.240	0.026	2.524	2.132	0.034
HONGKONG	0.036	0.033	0.974	-0.015	-0.013	0.990	-0.042	-0.037	0.970	0.814	0.727	0.468
INDONESIA	-2.845	-3.186	0.002	-2.444	-2.737	0.006	-2.806	-3.104	0.002	-3.175	-4.039	0.000
JAPAN	2.032	2.615	0.009	1.926	2.452	0.015	1.805	2.291	0.022	1.256	1.640	0.102
KOREA	-1.682	-1.545	0.123	-0.256	-0.251	0.802	-0.496	-0.468	0.640	-0.815	-0.850	0.396
LUXEMBOURG	-4.291	-4.167	0.000	-4.174	-4.003	0.000	-4.071	-3.923	0.000	-3.073	-3.059	0.002
MEXICO	-0.233	-0.278	0.781	-0.311	-0.365	0.715	-0.733	-0.866	0.387	-1.172	-1.590	0.113
NETHERLANDS	-4.452	-3.950	0.000	-4.549	-3.971	0.000	-4.528	-3.958	0.000	-3.510	-3.150	0.002
PHILIPPINES	-1.998	-1.882	0.061	-1.977	-1.832	0.068	-1.995	-1.844	0.066	-1.089	-1.029	0.304
RUSSIA	-2.168	-3.351	0.001	-2.575	-4.078	0.000	-2.474	-3.890	0.000	-2.717	-4.261	0.000
THAILAND	-1.185	-0.965	0.335	-0.292	-0.240	0.810	-0.562	-0.455	0.649	-0.803	-0.684	0.494
UNITEDKINGDOM	-1.012	-1.135	0.257	-0.990	-1.106	0.270	-0.868	-0.981	0.327	0.091	0.107	0.915
YEAR2005	-0.392	-1.038	0.300	-0.372	-0.971	0.332	-0.349	-0.910	0.363	-0.337	-0.870	0.385
YEAR2006	-0.298	-0.793	0.428	-0.337	-0.886	0.376	-0.314	-0.823	0.411	-0.305	-0.792	0.429
YEAR2007	-0.471	-1.241	0.215	-0.476	-1.235	0.218	-0.457	-1.183	0.237	-0.419	-1.073	0.284
Adjusted R-Squared	0.548			0.533			0.531			0.521		
Durbin-Watson Statistic	1.952			2.024			2.027			1.964		
Model F-Value	17.367			17.356			17.243			17.659		
Significance F-Value	0.000			0.000			0.000			0.000		
N	446			446			446			446		
CI	61.874			34.873			33.099			31.220		

APPENDIX 11

Benchmark Credit Rating Model Estimated with Adjusted Data

Variable	With GAAPs			Without GAAPs		
	<i>Coef.</i>	<i>t-value</i>	<i>Prob.</i>	<i>Coef.</i>	<i>t-value</i>	<i>Prob.</i>
Intercept	14.003	20.486	0.000	13.969	20.398	0.000
Test Variables						
IFRS	0.790	1.885	0.060			
LOCALGAAP	-0.045	-0.092	0.927			
Control Variables						
SIZE1	0.253	0.511	0.609	0.232	0.468	0.640
SIZE2	1.463	2.867	0.004	1.520	2.978	0.003
SIZE3	1.949	3.828	0.000	2.038	4.034	0.000
SIZE4	3.482	7.035	0.000	3.655	7.523	0.000
EBITA/AvAs	7.129	3.372	0.001	7.844	3.758	0.000
IntEXP/EBIT	0.047	2.061	0.040	0.048	2.104	0.036
DEBT/BCap	-3.914	-9.089	0.000	-4.011	-9.371	0.000
CVNI	-0.035	-0.595	0.552	-0.070	-1.243	0.214
NegOpPROF	-2.072	-3.471	0.001	-2.055	-3.442	0.001
GROUP	-3.612	-7.200	0.000	-3.453	-7.126	0.000
PUBLIC	0.749	2.059	0.040	0.811	2.238	0.026
ARGENTINA	-4.236	-3.212	0.001	-4.434	-3.555	0.000
BRAZIL	0.128	0.152	0.879	-0.229	-0.307	0.759
CHILE	1.578	1.531	0.126	1.395	1.373	0.170
HONGKONG	-1.087	-0.990	0.323	-0.687	-0.635	0.526
INDONESIA	-4.283	-4.786	0.000	-4.620	-5.917	0.000
JAPAN	1.395	1.855	0.064	1.038	1.434	0.152
KOREA	-1.503	-1.586	0.113	-1.809	-2.138	0.033
LUXEMBOURG	-3.471	-3.488	0.001	-2.881	-3.029	0.003
MEXICO	-1.255	-1.551	0.122	-1.595	-2.289	0.023
NETHERLANDS	-3.569	-3.106	0.002	-2.805	-2.590	0.010
PHILIPPINES	-2.429	-2.343	0.020	-1.939	-1.922	0.055
RUSSIA	-3.706	-5.574	0.000	-4.019	-6.236	0.000
THAILAND	-1.094	-0.852	0.395	-1.314	-1.080	0.281
UNITEDKINGDOM	-1.429	-1.779	0.076	-0.826	-1.109	0.268
YEAR2005	-0.202	-0.553	0.580	-0.193	-0.528	0.598
YEAR2006	-0.075	-0.205	0.837	-0.063	-0.173	0.863
YEAR2007	-0.311	-0.845	0.399	-0.288	-0.780	0.436
Adjusted R-Squared	0.573			0.571		
Durbin-Watson Statistic	1.865			1.845		
Model F-Value	20.921			22.170		
Significance F-Value	0.000			0.000		
N	446			446		
CI	16.244			15.437		

APPENDIX 12
Association between Reporting Standards, Company-specific Factors and Financial Statement Adjustments (Removed Variables Included)

Variable	(1)		(2)		(3)		(4)		(5)						
	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value					
Intercept	0.474	2.317	0.021	0.404	1.972	0.049	0.691	3.577	0.000	0.381	1.858	0.064	0.409	2.010	0.045
ComSHARES/TA	-1.696	-2.013	0.045												
LtDEBT/TA				0.040	0.200	0.842									
Div/TA							-1.555	-2.420	0.016						
StDEBT/LtDEBT										0.035	0.928	0.354			
IntEXP/EBIT												0.000	-0.103	0.918	
IFRS	0.074	0.677	0.499	0.037	0.337	0.737	0.012	0.117	0.907	0.040	0.370	0.711	0.041	0.377	0.706
LOCALGAAP	0.158	1.171	0.242	0.143	1.057	0.291	0.088	0.710	0.478	0.153	1.125	0.261	0.144	1.065	0.287
SIZE1	0.123	0.909	0.364	0.160	1.192	0.234	0.133	1.038	0.300	0.154	1.144	0.253	0.159	1.184	0.237
SIZE2	-0.116	-0.797	0.426	-0.060	-0.418	0.676	-0.017	-0.127	0.899	-0.071	-0.493	0.623	-0.063	-0.441	0.659
SIZE3	-0.213	-1.444	0.149	-0.159	-1.088	0.277	-0.175	-1.263	0.207	-0.164	-1.123	0.262	-0.162	-1.110	0.268
SIZE4	0.014	0.094	0.925	0.082	0.544	0.587	0.085	0.598	0.550	0.091	0.606	0.545	0.080	0.529	0.597
Prof/MRG	-0.082	-0.287	0.775	0.008	0.027	0.979	-0.283	-1.033	0.302	-0.009	-0.031	0.975	0.002	0.006	0.995
ASTRNV	0.887	5.548	0.000	0.945	5.903	0.000	1.045	6.643	0.000	0.935	5.903	0.000	0.942	5.934	0.000
ChgREV	-0.159	-0.886	0.376	-0.186	-1.012	0.312	-0.117	-0.684	0.494	-0.170	-0.948	0.344	-0.179	-0.996	0.320
CVNI	-0.028	-2.015	0.045	-0.025	-1.826	0.069	-0.017	-1.267	0.206	-0.025	-1.791	0.074	-0.025	-1.817	0.070
NegOpPROF	0.652	4.487	0.000	0.617	4.203	0.000	0.797	5.631	0.000	0.625	4.307	0.000	0.620	4.250	0.000
DEBT/BCap	0.278	3.373	0.001	0.278	3.317	0.001	-0.158	-1.379	0.169	0.293	3.505	0.001	0.281	3.402	0.001
QcRRATIO	0.219	2.600	0.010	0.194	2.315	0.021	0.212	2.797	0.005	0.209	2.447	0.015	0.194	2.308	0.022
PUBLIC	-0.205	-2.030	0.043	-0.191	-1.887	0.060	-0.016	-0.157	0.875	-0.182	-1.786	0.075	-0.191	-1.883	0.060
GROUP	-0.204	-1.528	0.127	-0.203	-1.505	0.133	-0.342	-2.622	0.009	-0.207	-1.544	0.123	-0.199	-1.479	0.140

APPENDIX 12 (Continued)

Association between Reporting Standards, Company-specific Factors and Financial Statement Adjustments (Removed Variables Included)

Variable	(1)			(2)			(3)			(4)			(5)		
	Coef.	t-value	Prob.	Coef.	t-value	Prob.	Coef.	t-value	Prob.	Coef.	t-value	Prob.	Coef.	t-value	Prob.
ARGENTINA	-1.064	-2.989	0.003	-0.998	-2.787	0.006	-1.056	-3.293	0.001	-1.004	-2.818	0.005	-1.003	-2.809	0.005
BRAZIL	0.424	1.893	0.059	0.414	1.840	0.067	0.442	2.183	0.030	0.408	1.814	0.070	0.416	1.845	0.066
HONGKONG	-0.328	-1.043	0.298	-0.272	-0.859	0.391	-0.306	-0.918	0.359	-0.271	-0.863	0.389	-0.278	-0.885	0.377
INDONESIA	-0.429	-1.908	0.057	-0.465	-2.060	0.040	-0.568	-2.579	0.010	-0.461	-2.047	0.041	-0.465	-2.062	0.040
JAPAN	-0.444	-2.185	0.029	-0.469	-2.299	0.022	-0.589	-3.183	0.002	-0.483	-2.363	0.019	-0.469	-2.300	0.022
KOREA	0.529	2.063	0.040	0.516	2.004	0.046	0.321	1.365	0.173	0.514	2.000	0.046	0.509	1.924	0.055
LUXEMBOURG	0.895	3.178	0.002	0.860	3.031	0.003	0.007	0.021	0.983	0.871	3.082	0.002	0.855	3.028	0.003
MEXICO	-0.355	-1.627	0.105	-0.343	-1.565	0.118	-0.400	-2.029	0.043	-0.354	-1.616	0.107	-0.345	-1.575	0.116
PHILIPPINES	-0.026	-0.083	0.934	-0.015	-0.049	0.961	-0.009	-0.033	0.973	0.000	0.000	1.000	-0.020	-0.063	0.949
THAILAND	-0.834	-2.672	0.008	-0.828	-2.639	0.009				-0.816	-2.603	0.010	-0.835	-2.646	0.008
UNITEDKINGDOM	1.579	6.151	0.000	1.634	6.232	0.000	0.363	1.289	0.198	1.624	6.323	0.000	1.624	6.316	0.000
YEAR2005	0.043	0.406	0.685	0.040	0.380	0.704	-0.001	-0.013	0.990	0.038	0.360	0.719	0.039	0.369	0.712
YEAR2006	0.009	0.086	0.931	0.017	0.162	0.871	0.008	0.086	0.931	0.009	0.089	0.929	0.016	0.150	0.881
YEAR2007	0.042	0.405	0.686	0.036	0.339	0.735	0.010	0.106	0.916	0.028	0.268	0.789	0.035	0.334	0.739
Adjusted R-Squared	0.404			0.398			0.314			0.399			0.398		
Durbin-Watson Statistic	2.062			2.073			2.198			2.062			2.074		
Model F-Value	10.552			10.313			7.204			10.362			10.312		
Significance F-Value	0.000			0.000			0.000			0.000			0.000		
N	424			424			394			424			424		
CI	19.365			19.583			20.169			19.327			19.084		

APPENDIX 13
Association between Financial Statement Adjustments and Credit Ratings (Rating Model Estimated with Scale 1-8)

Variable	Model 1 with GAAPs		Model 1 without GAAPs		Model 0 (Reported)		Model 0 (Adjusted)		Model 0 without GAAPs (Reported)		Model 0 without GAAPs (Adjusted)								
	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value							
Intercept	4.977	24.411	0.000	5.082	24.971	0.000	5.160	27.004	0.000	5.438	26.901	0.000	5.111	26.495	0.000	5.427	26.761	0.000	
Test Variables																			
SumADJ%TA	0.182	2.670	0.008	0.093	1.476	0.141													
IFRS*SumADJ%TA	-0.069	-0.640	0.523	0.144	1.758	0.079													
LOCALGAAP*SumADJ%TA	-0.479	-2.722	0.007	-0.231	-2.042	0.042													
IFRS	0.484	3.008	0.003				0.414	3.388	0.001	0.264	2.139	0.033							
LOCALGAAP	0.462	1.992	0.047				0.004	0.025	0.980	-0.006	-0.039	0.969							
Control Variables																			
SIZE1	0.134	0.902	0.368	0.132	0.883	0.378	0.141	0.938	0.349	0.177	1.211	0.227	0.159	1.050	0.295	0.169	1.157	0.248	
SIZE2	0.703	4.499	0.000	0.704	4.499	0.000	0.629	4.031	0.000	0.567	3.774	0.000	0.671	4.262	0.000	0.586	3.895	0.000	
SIZE3	0.848	5.444	0.000	0.893	5.694	0.000	0.815	5.220	0.000	0.698	4.658	0.000	0.886	5.689	0.000	0.729	4.894	0.000	
SIZE4	1.389	9.268	0.000	1.439	9.557	0.000	1.357	8.992	0.000	1.212	8.322	0.000	1.461	9.789	0.000	1.270	8.873	0.000	
EBIT/AVAs	0.764	1.542	0.124	0.934	1.876	0.061	0.919	1.845	0.066	2.463	3.959	0.000	1.138	2.275	0.023	2.701	4.390	0.000	
IntExp/EBIT	0.005	0.825	0.410	0.005	0.736	0.462	0.006	0.877	0.381	0.010	1.464	0.144	0.005	0.724	0.469	0.010	1.512	0.131	
DEBT/BCap	-0.719	-7.795	0.000	-0.773	-8.481	0.000	-0.664	-7.589	0.000	-1.298	-10.241	0.000	-0.685	-7.762	0.000	-1.331	-10.549	0.000	
CVNI	-0.003	-2.615	0.009	-0.003	-2.243	0.025	-0.004	-2.679	0.008	-0.005	-0.307	0.759	-0.003	-2.211	0.028	-0.017	-1.020	0.308	
NegOpPROF	-1.124	-6.673	0.000	-1.082	-6.383	0.000	-0.987	-6.085	0.000	-0.655	-3.727	0.000	-0.980	-5.998	0.000	-0.650	-3.693	0.000	
GROUP	-1.049	-6.915	0.000	-0.954	-6.341	0.000	-1.076	-7.032	0.000	-1.040	-7.016	0.000	-0.980	-6.573	0.000	-0.985	-6.871	0.000	
PUBLIC	0.143	1.297	0.195	0.161	1.452	0.147	0.133	1.202	0.230	0.197	1.843	0.066	0.156	1.398	0.163	0.217	2.036	0.042	

APPENDIX 13 (Continued)
 Association between Financial Statement Adjustments and Credit Ratings (Rating Model Estimated with Scale 1-8)

Variable	Model 1 with GAAPs		Model 1 without GAAPs		Model 0 (Reported)		Model 0 (Adjusted)		Model 0 without GAAPs (Reported)		Model 0 without GAAPs (Adjusted)							
	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value						
ARGENTINA	-1.674	-3.897	0.000	-1.410	-3.695	0.000	-1.421	-3.559	0.000	-1.595	-4.109	0.000	-1.510	-3.959	0.000	-1.653	-4.495	0.000
BRAZIL	0.090	0.347	0.729	0.085	0.328	0.743	-0.013	-0.053	0.958	-0.097	-0.394	0.694	-0.172	-0.749	0.454	-0.209	-0.950	0.343
CHILE	0.799	2.535	0.012	0.799	2.603	0.010	0.808	2.625	0.009	0.625	2.060	0.040	0.703	2.295	0.022	0.567	1.895	0.059
HONGKONG	-0.094	-0.289	0.773	0.021	0.063	0.950	-0.126	-0.382	0.703	-0.331	-1.023	0.307	0.127	0.391	0.696	-0.198	-0.620	0.536
INDONESIA	-0.971	-3.533	0.000	-0.801	-3.441	0.001	-0.838	-3.209	0.001	-1.275	-4.840	0.000	-0.963	-4.224	0.000	-1.379	-5.990	0.000
JAPAN	0.635	2.788	0.006	0.603	2.751	0.006	0.687	3.032	0.003	0.612	2.765	0.006	0.506	2.299	0.022	0.496	2.326	0.021
KOREA	-0.006	-0.021	0.983	-0.035	-0.112	0.911	-0.213	-0.721	0.471	-0.443	-1.587	0.113	-0.344	-1.279	0.201	-0.536	-2.151	0.032
LUXEMBOURG	-1.315	-4.302	0.000	-1.234	-4.009	0.000	-1.228	-4.091	0.000	-1.093	-3.731	0.000	-0.916	-3.156	0.002	-0.897	-3.200	0.001
MEXICO	-0.535	-2.162	0.031	-0.424	-1.896	0.059	-0.483	-1.968	0.050	-0.593	-2.490	0.013	-0.624	-2.915	0.004	-0.698	-3.401	0.001
NETHERLANDS	-1.220	-3.719	0.000	-1.033	-3.183	0.002	-1.245	-3.755	0.000	-1.012	-2.991	0.003	-0.932	-2.883	0.004	-0.758	-2.373	0.018
PHILIPPINES	-0.626	-2.019	0.044	-0.455	-1.476	0.141	-0.631	-2.015	0.045	-0.761	-2.494	0.013	-0.358	-1.168	0.244	-0.598	-2.013	0.045
RUSSIA	-0.986	-5.405	0.000	-1.105	-6.113	0.000	-1.054	-5.771	0.000	-1.345	-6.873	0.000	-1.140	-6.242	0.000	-1.450	-7.633	0.000
THAILAND	-0.413	-1.091	0.276	-0.172	-0.509	0.611	-0.203	-0.571	0.568	-0.233	-0.617	0.537	-0.296	-0.876	0.381	-0.299	-0.833	0.406
UNITEDKINGDOM	-0.508	-1.770	0.077	-0.539	-1.861	0.063	-0.372	-1.466	0.143	-0.571	-2.415	0.016	-0.065	-0.270	0.787	-0.371	-1.690	0.092
YEAR2005	-0.028	-0.250	0.803	-0.041	-0.365	0.715	-0.033	-0.296	0.768	-0.034	-0.312	0.755	-0.025	-0.221	0.825	-0.031	-0.283	0.777
YEAR2006	-0.069	-0.630	0.529	-0.072	-0.644	0.520	-0.064	-0.573	0.567	-0.038	-0.352	0.725	-0.059	-0.521	0.602	-0.034	-0.315	0.753
YEAR2007	-0.110	-0.985	0.325	-0.110	-0.976	0.330	-0.100	-0.886	0.376	-0.093	-0.854	0.393	-0.087	-0.767	0.443	-0.085	-0.782	0.435
Adjusted R-Squared	0.615			0.607			0.607			0.633			0.597			0.630		
Durbin-Watson Statistic	1.884			1.866			1.926			1.858			1.859			1.829		
Model F-Value	22.445			23.054			23.783			26.484			24.428			27.995		
Significance F-Value	0.000			0.000			0.000			0.000			0.000			0.000		
N	444			444			444			445			444			445		
CI	17.262			16.334			15.044			16.301			14.170			15.490		

APPENDIX 14

Statistical Significance between Explanatory Powers

PANEL A: Rating Models Estimated with GAAPs

	Adjusted Data		Reported Data	
	Sum of Squares	df	Sum of Squares	df
Residual	256.615	414	272.306	413
Residual Variance	0.620		0.659	
F-Value	1.064			
Significance F-Value	0.265			

PANEL B: Rating Models Estimated without GAAPs

	Adjusted Data		Reported Data	
	Sum of Squares	df	Sum of Squares	df
Residual	259.713	416	280.467	415
Residual Variance	0.624		0.676	
F-Value	1.083			
Significance F-Value	0.210			

APPENDIX 15

Association between Financial Statement Adjustments and Credit Ratings (Sign of Adjustments Included)

Variable	Model 2			Model 3			Model 4		
	Coef.	t-value	Prob.	Coef.	t-value	Prob.	Coef.	t-value	Prob.
Intercept	12.445	19.385	0.000	12.145	18.107	0.000	11.904	17.089	0.000
Test Variables									
DifToPpROF%TA	10.072	2.496	0.013						
IFRS*DifToPpROF%TA	-9.426	-0.767	0.443						
LOCALGAAP*DifToPpROF%TA	-14.623	-0.373	0.709						
DifInEXp%TA				52.454	2.005	0.046			
IFRS*DifInEXp%TA				4.348	0.086	0.932			
LOCALGAAP*DifInEXp%TA				-181.242	-2.650	0.008			
DifToDDEBT%TA							6.464	2.640	0.009
IFRS*DifToDDEBT%TA							-1.978	-0.510	0.611
LOCALGAAP*DifToDDEBT%TA							-16.540	-2.980	0.003
NegADJOpPROF	0.874	1.672	0.095						
NegADJOpPROF*DifToPpROF%TA	-62.384	-0.725	0.469						
IFRS*NegADJOpPROF*DifToPpROF%TA	41.363	0.473	0.637						
LOCALGAAP*NegADJOpPROF*DifToPpROF%TA	43.812	0.441	0.660						
NegADJInEXp				-0.453	-0.387	0.699			
NegADJInEXp*DifInEXp%TA				588.224	1.006	0.315			
IFRS*NegADJInEXp*DifInEXp%TA				-3689.968	-1.037	0.300			
LOCALGAAP*NegADJInEXp*DifInEXp%TA				-462.739	-0.811	0.418			
NegADJTtoDDEBT							1.664	0.882	0.379
NegADJTtoDDEBT*DifToDDEBT%TA							-9.077	-0.163	0.870
IFRS*NegADJTtoDDEBT*DifToDDEBT%TA							-1232.590	-0.695	0.488
IFRS	1.461	3.269	0.001	1.504	2.833	0.005	1.671	2.971	0.003
LOCALGAAP	0.210	0.345	0.730	1.169	1.758	0.080	1.867	2.331	0.020

APPENDIX 15 (Continued)
 Association between Financial Statement Adjustments and Credit Ratings (Sign of Adjustments Included)

Variable	Model 2			Model 3			Model 4		
	Coef.	t-value	Prob.	Coef.	t-value	Prob.	Coef.	t-value	Prob.
Control Variables									
SIZE1	0.360	0.696	0.487	0.353	0.684	0.494	0.251	0.490	0.625
SIZE2	1.741	3.200	0.001	2.146	3.970	0.000	2.081	3.862	0.000
SIZE3	2.465	4.533	0.000	2.594	4.718	0.000	2.569	4.711	0.000
SIZE4	3.995	7.647	0.000	4.243	8.160	0.000	4.247	8.179	0.000
EBITDA/VAS	4.044	2.232	0.026	2.651	1.542	0.124	2.396	1.406	0.160
IntEXP/EBIT	0.014	0.618	0.537	0.012	0.536	0.592	0.013	0.553	0.581
DEBT/BCap	-1.222	-6.002	0.000	-1.306	-5.800	0.000	-1.332	-5.844	0.000
CVNI	-0.009	-2.017	0.044	-0.007	-1.447	0.149	-0.009	-1.887	0.060
NegOpPROF	-3.422	-5.980	0.000	-3.412	-5.973	0.000	-3.477	-6.128	0.000
GROUP	-3.872	-7.236	0.000	-3.803	-7.220	0.000	-3.818	-7.269	0.000
PUBLIC	0.487	1.254	0.211	0.686	1.758	0.079	0.632	1.642	0.101
ARGENTINA	-3.512	-2.477	0.014	-4.000	-2.617	0.009	-4.603	-3.111	0.002
BRAZIL	0.594	0.673	0.501	0.629	0.564	0.573	0.866	0.973	0.331
CHILE	2.374	1.989	0.047	2.106	1.941	0.053	2.083	1.874	0.062
HONGKONG	0.143	0.125	0.901	-0.050	-0.044	0.965	0.046	0.041	0.967
INDONESIA	-2.960	-3.224	0.001	-3.072	-3.381	0.001	-3.518	-3.654	0.000
JAPAN	1.999	2.527	0.012	1.682	2.154	0.032	1.398	1.761	0.079
KOREA	-0.479	-0.463	0.643	0.181	0.164	0.870	-0.231	-0.223	0.824
LUXEMBOURG	-4.014	-3.854	0.000	-4.279	-4.124	0.000	-4.330	-4.119	0.000
MEXICO	-0.679	-0.790	0.430	-0.938	-1.102	0.271	-1.180	-1.350	0.178
NETHERLANDS	-4.520	-3.942	0.000	-4.521	-3.972	0.000	-4.405	-3.658	0.000
PHILIPPINES	-1.963	-1.800	0.073	-2.216	-2.056	0.040	-1.969	-1.837	0.067
RUSSIA	-2.484	-3.911	0.000	-2.545	-3.964	0.000	-2.258	-3.572	0.000
THAILAND	-0.701	-0.560	0.576	-1.163	-0.921	0.358	-1.443	-1.102	0.271
UNITEDKINGDOM	-0.544	-0.526	0.599	-1.219	-1.294	0.196	-1.259	-1.322	0.187
YEAR2005	-0.367	-0.945	0.345	-0.361	-0.942	0.347	-0.323	-0.851	0.395
YEAR2006	-0.412	-1.064	0.288	-0.367	-0.965	0.335	-0.331	-0.872	0.384
YEAR2007	-0.540	-1.392	0.165	-0.552	-1.427	0.154	-0.474	-1.235	0.218
Adjusted R-Squared	0.534			0.538			0.540		
Durbin-Watson Statistic	2.009			1.998			1.998		
Model F-Value	14.778			14.978			15.539		
Significance F-Value	0.000			0.000			0.000		
N	446			446			446		
CI	15.601			91.422			17.151		

APPENDIX 16

Association between Financial Statement Adjustments and Credit Ratings (Separately for Different Reporting Standards)

Variable	US GAAP			IFRS			LOCAL		
	<i>Coef.</i>	<i>t-value</i>	<i>Prob.</i>	<i>Coef.</i>	<i>t-value</i>	<i>Prob.</i>	<i>Coef.</i>	<i>t-value</i>	<i>Prob.</i>
Intercept	15.674	17.913	0.000	8.270	4.581	0.000	13.188	7.247	0.000
Test Variable									
SumADJ%TA	0.595	2.516	0.013	0.015	0.049	0.961	-2.076	-4.046	0.000
Control Variables									
SIZE1	-0.379	-0.643	0.521	0.561	0.364	0.716	2.412	2.276	0.025
SIZE2	0.952	1.433	0.153	0.588	0.413	0.681	2.224	2.052	0.043
SIZE3	1.148	1.675	0.096	0.895	0.633	0.528	2.591	2.229	0.028
SIZE4	1.262	1.661	0.098	2.886	2.219	0.029	4.337	3.774	0.000
EBITA/AvAs	-6.371	-2.677	0.008	11.750	2.697	0.008	3.684	1.022	0.310
IntEXP/EBIT	-0.241	-2.073	0.040	0.022	0.082	0.935	0.015	0.757	0.451
DEBT/BCap	-3.356	-7.067	0.000	-0.870	-3.047	0.003	-0.785	-0.439	0.661
CVNI	0.017	0.135	0.893	-0.003	-0.737	0.463	-0.335	-4.580	0.000
NegOpPROF	-4.371	-5.150	0.000	-2.136	-1.800	0.075	-0.118	-0.070	0.944
GROUP	-4.407	-6.630	0.000	0.166	0.109	0.913	-0.448	-0.343	0.733
PUBLIC	0.655	1.140	0.256	1.916	2.034	0.044	-0.144	-0.264	0.792
ARGENTINA							-8.394	-5.580	0.000
BRAZIL							-0.109	-0.147	0.883
CHILE	1.848	1.195	0.234				-1.983	-1.300	0.197
HONGKONG				-0.737	-0.641	0.523			
INDONESIA							-5.158	-5.052	0.000
JAPAN	5.508	4.922	0.000				-3.197	-3.371	0.001
KOREA							-0.155	-0.179	0.859
LUXEMBOURG				-4.019	-3.507	0.001			
MEXICO				-2.814	-2.333	0.022	-2.050	-2.703	0.008
NETHERLANDS									
PHILIPPINES				-3.039	-2.846	0.005			
RUSSIA	-1.575	-2.112	0.036	-3.690	-2.366	0.020	-3.856	-2.052	0.043
THAILAND							-5.622	-3.880	0.000
UNITEDKINGDOM				-0.523	-0.567	0.572			
YEAR2005	-0.683	-1.289	0.199	0.230	0.349	0.728	0.389	0.690	0.492
YEAR2006	0.021	0.038	0.969	-0.028	-0.043	0.966	-0.712	-1.277	0.205
YEAR2007	-0.182	-0.332	0.740	-0.438	-0.671	0.503	-1.188	-2.093	0.039
Adjusted R-Squared	0.641			0.614			0.684		
Durbin-Watson Statistic	2.163			2.267			1.775		
Model F-Value	21.126			10.628			11.209		
Significance F-Value	0.000			0.000			0.000		
N	204			128			114		
CI	13.490			25.907			30.291		