

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

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## Executive Summary

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

## 1. Introduction

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

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

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

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

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

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

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

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

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

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

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

## **2. Literature review**

### **2.1 Institutional factors**

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

#### **Political influence in standard setting**

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

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

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

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

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

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

### **Corporate governance and ownership**

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

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

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

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

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

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

### **Orientation of financial systems**

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

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

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

### **Conformity of tax with financial accounting rules**

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

### **The quality of accounting standards**

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

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

## **2.2. The link between real economic activity and earnings management**

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

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

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

## **3. Hypothesis development and research design**

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

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

## Hypothesis 1

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

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

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

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

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

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

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

### *(i) Income smoothing decisions*

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

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

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

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

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

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

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

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

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

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

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

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

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

#### *(v) Aggregate Measure*

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

#### **Hypothesis 2 and 3**

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

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

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

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

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

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

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

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

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

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

### **Sample selection**

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

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

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

## **4. Results and analysis**

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

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

Table 1: Descriptive statistics of sample firms and countries

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

**Model 1**

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

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

Table 2: Individual and aggregate earnings management scores

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## Model 2

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

Table 4: Descriptive analysis EM1 to EM4 by year

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## 5. Summary and conclusions

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

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

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

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

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

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

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

## References

- Ball, R., S.P. Kothari, and A. Robin. 2000. The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics* 29: 1-51.
- Ball, R., A. Robin, and J.S. Wu. 2003. Incentives versus standards: Properties of accounting income in four East Asian countries, *Journal of Accounting and Economics* 36: 235-270.
- Berglof, E. 1990. *Capital structure as a mechanism of control: A comparison of financial systems*, London: Sage.

Burgstahler, D., and I. Dichev. 1997. Earnings management to avoid earnings decreases and losses, *Journal of Accounting & Economics* 24: 99-126.

Burgstahler, D.C., L. Hail, and C. Leuz. 2006. The importance of reporting incentives: Earnings management in European private and public firms, *The Accounting Review*, 81(5): 983-1016.

Clayton, G., and M. Giesbrecht. 1997. *A guide to everyday economic statistics*, New York: McGraw-Hill.

Choi, F., C. Frost, and G. Meek. 1999. *International accounting*, Upper Saddle River, New York: Prentice Hall.

Coppens, L., and E. Peek. 2003. An analysis of earnings management by European private firms, Working paper, University of Maastricht, June.

Dechow, P., R. Sloan, and A. Sweeney. 1995. Detecting earnings management, *The Accounting Review* 70(2): 193-225.

DeGeorge, F., J. Patel, and R. Reckhauser. 1999. Earnings management to exceed thresholds, *The Journal of Business* 72 (January): 1-33.

Dietl, H. 1998. Capital markets and corporate governance in Japan, Germany and the United States, London: Routledge.

Dye, R.A. 1988. Earnings management in an overlapping generations model, *Journal of Accounting Research* 26(2): 195-235.

Glaum, M., K. Lichtblau, and J. Lindemann. 2004. The extent of earnings management in the U.S. and Germany, *Journal of international Accounting Research* 3(2): 45-77.

Graham, J.R., R.H. Campbell, and R. Shiva. 2005. The economic implications of corporate financial reporting, *Journal of Accounting and Economics* 40: 3-73.

Guenther, D.A.; and D. Young. 2000. The association between financial accounting measures and real economic activity: A multinational study, *Journal of Accounting and Economics* 29: 53-72.

Hayn, C. 1995. The information content of losses, *Journal of Accounting and Economics* 20(2): 125-153.

Healy, P.M., and J.M. Wahlen. 1999. A review of the earnings management literature and its implications for standard setting, *Accounting Horizons* 13(4): 365-383.

La Porta, R., F. Lopez-De-Silanes, A. Shleifer, and R.W. Vishny. 2000. Investor protection and corporate governance, *Journal of Financial Economics* 58: 3-27.

Leuz, C., D. Nanda, and P.D. Wysocki. 2003. Earnings management and investor protection: An international comparison, *Journal of Financial Economics* 69: 505-527.

Lev, B. 2003. Corporate earnings: Fact and fiction, *Journal of Economic Perspectives* 17(2): 27-50.

Nenova, T. 2003. The value of corporate votes and control benefits: A cross-country analysis, *Journal of Financial Economics* 68: 325-351.

Noreen, E. 1989. *Computer-intensive methods for testing hypothesis: An introduction*. New York: Wiley.

Shleifer, A., and R.M. Vishny. 1997. A survey of corporate governance, *The Journal of Finance* 52(2): 737-783.

Skinner, D.J., and L.A. Myers. 1999. Earnings momentum and earnings management, Working paper, University of Michigan, April.

Trueman, B., and S. Titman. 1988. An explanation for accounting income soothing, *Journal of Accounting Research* 26(3): 127-139.

### **Internet Resources**

Jin, Q. 2005. Business Cycle, Accounting Behaviour and Earnings management, [http://lbxml.ust.hk/th\\_imgo/b921742.pdf](http://lbxml.ust.hk/th_imgo/b921742.pdf), last access: 03/03/2008.