Earnings Management: Empirical Evidence on value relevance and Income smoothing.
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CHAPTER 2: PREVIOUS RESEARCH

2.1 INTRODUCTION AND PLAN OF THE CHAPTER

Creative accounting, cooking the books, earnings management and accounting policy are all related concepts that are often associated in common speech with unethical behavior. When earnings management is the focus of an academic research project, it is important to free the concepts used from the associations they bare. A formal definition and a theoretical foundation of the mechanisms of interest are conditions without which precise discussion and reliable conclusions are precluded.

The existence of discretion in the reporting process creates a complex interaction between the suppliers and users of financial information. The suppliers will take the effects of certain accounting decisions into account when preparing the financial statements. Users of these statements will in turn try to assess the reliability of these statements and attempt to interpret them in the knowledge that the statements are open to management discretion.

There are three perspectives that can be taken on the interaction between incentives to manage earnings and discretionary accounting decisions. The first perspective, the contracting view is oriented towards factors that give rise to earnings management. The second view is the information perspective of earnings management that takes a more process-oriented view in which not the contracts but the flow of information is the central item. A third more general approach deals with the state of the firm as a driving force in the decision process whether and if so how to manage earnings.

It should be noted that the possibilities that management has to use their discretion for adjusting earnings are constrained by both the auditor’s judgment and the chances of being “caught” by investors. Both a qualified opinion and the loss of credibility would defeat the purpose of earnings management. In this context fraud is not excluded but merely regarded as a very costly option to manage earnings. Managers could manipulate earnings beyond the boundaries of what is allowed by law but this course of action carries a high risk and penalty.
Time is an additional complicating factor in the understanding of earnings management because there are single period motivations for interventions and on top of those the time series properties of reported earnings are important as well. For instance, in a year of excess earnings managers may want to lower their reported earnings to avoid overshooting this year’s market expectations while simultaneously smoothing their earnings in anticipation of future period’s lower earnings relative to the current year. Earnings management could very well be a balancing act between current year’s needs and the long-term goals. Sometimes these two needs yield identical incentives to adjust current years earnings and sometimes they do not. The nature of the accrual based reporting process is such that some interventions cause reversals in future periods and other interventions do not reverse.

**Plan of the chapter**

The next paragraph will start out with a definition of earnings management. Both a formal definition and the boundaries for what is and what is not meant by the term earnings management will be dealt with. In paragraph 2.3 the context in which earnings management seems plausible will be explored. Both the contracting and the informational view on earnings management will be discussed here. The third view will be discussed in Paragraph 2.4 that examines the likely actions resulting from these incentives. Paragraph 2.5 deals with income smoothing and paragraph 2.6 summarizes the chapter.

**2.2 DEFINING EARNINGS MANAGEMENT**

Before we can define earnings management, a few remarks on associated concepts are warranted. Earnings management is an interactive process between the firm, management of the firm and outside stakeholders. As noted by Foster (1986) there is a supply and demand for financial information. The demand for financial statement information arises from outside stakeholders that do not have access to all the privileged information of the firm. If a firm is fully self-serving and has no personnel, there would also be no need for external financial reporting because there
would be no party that would be (partially) dependent on the financial report as a source of information.

Earnings management arises as a result of the existence of interested parties that make use of the financial information of the firm for their decisions. Consequently, the outcomes of the financial reporting process impact all stakeholders involved. The economic consequences of the outcome create incentives for management to influence the reporting process. When management considers the consequences of these choices in the reporting process, we will speak of accounting policy. Freely translated the definition used by Hoogendoorn (1995) to describe accounting policy is:

\[
\text{Accounting policy occurs when management deliberately considers the consequences for the image that the annual report projects when deciding on which accounting alternative to implement. [Def 1.]} 
\]

In this definition, accounting policy is the use of a set of decision rules. Based on the assumed attitudes towards financial statement information, the accounting policy is the consideration of the effects of alternative accounting choices. When accounting policy is defined as the set of decision rules for accounting decisions, earnings management is the actual intervention in the reporting process. In this text the definition of earnings management introduced by Schipper (1989) will be used. She defines earnings management as:

\[
\text{Earnings management is really disclosure management in the sense of a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain, as opposed to merely facilitating the neutral operation of the process. [Def 2.]} 
\]

Earnings management is thus defined as a deliberate intervention of management in the financial reporting process to further a private gain of either management itself or the firm. As such earnings management becomes the implementation of the choice that follows from the accounting policy. Thus, earnings management becomes the
deliberate adjustment of financial accounting data to try to improve on the outcome of the reporting process.

The definition of earnings management [Def. 2] includes both the adjustments that are made to further the interests of the firm and those that are made to further the interests of management. The interests of management and the firm are not mutually exclusive.

A definition of earnings management should not, in the author’s opinion, be confined to the use of the latitude afforded by the financial reporting laws and guidelines. Fraud is regarded upon as a costly way to manage earnings. The risk of getting caught committing a crime times the penalty for committing a crime both in legal as well as in reputation and missed rewards makes fraud in external financial reporting an unattractive and costly option. Restricting earnings management to merely the set of options provided within laws and regulations ignores the fact that there is no clear distinction between being optimistic and being so optimistic that laws might be broken. Some interventions may be clearly fraudulent and some are well within the bounds of what is allowed. In between these extremes there is a region where it is up to the courts to decide whether a line is crossed. The possibility of management committing an economic crime complicates the issue of afforded latitude. Without regard for the laws, regulations, and credibility of management, one could simply make up any financial statement. However, this ignores that there are real penalties to committing fraud, both legal and in reputation and reward.

The definition of earnings management [Def. 2] furthermore only includes external reporting and is independent of any particular concept of earnings and it subsumes components of earnings. Therefore, it is more helpful to think of a continuum of possible interventions where the risk and hence the cost of legal and or reputation consequences increases. Similarly, there is no clear upper or lower bound to how big the intervention can be. Rather, the larger the (visible) intervention the more likely the risk of detection by investors and the loss of credibility. Beyond loss of credibility there comes a range where interventions may have legal consequences.

It would take a minor extension of the definition to encompass real earnings management, accomplished by timing investment or financing decisions to alter
reported earnings or some subset of it. The distinction between interventions in the reporting process and actual transactions mainly designed to influence earnings is often not that clear. Future references in this thesis to the concept earnings management include real earnings management.

Making the definition of earnings management operational poses some difficulties. There is no certainty when earnings are managed. Since management is not required to disclose whether and why it has adjusted earnings at its own discretion a researcher can only conclude that the reported numbers are in some instances consistent with hypothesized earnings management. For large samples of firms, an association between certain incentives and accounting decisions can be observed. This is not the same as stating that when a specific firm in a specific situation makes a discretionary adjustment this constitutes to earnings management. The strength of the association between the occurrence of incentives and discretionary accounting is the researchers' only guideline to the inference of earnings management. A different aspect that deserves attention is timing. Earnings management is defined as the intervention in the reporting process. It should be noted however, that interventions could have consequences for later periods. Certain interventions cause reversals of the intervention over one or more subsequent periods. Chapter 3 will pay more attention to the relation between regulations and accounting discretion. The actual mechanics of detecting earnings management with the help of proxies will be discussed in Chapter 4. Whether earnings management is ethical, is a question that will not be answered since it is the authors' opinion that the question is normative in nature. As such, it is based on convictions and (political) preferences and not on reason. However, increasing the understanding in the consequences of earnings management may help to facilitate judgments on the desirability of the practice. In the empirical analysis the designs are constructed in such a manner to correct for these difficulties when possible.
2.3 INCENTIVES TO MANAGE EARNINGS

Now that we have introduced earnings management, we can proceed with exploring the context in which earnings management is likely to arise. As noted in the first paragraph inferring earnings management is based on likelihood of occurrence. Theoretical constructs that help to identify situations with a higher likelihood of earnings management are useful because they improve the chances of correct measurement and detection. According to Schipper (1989) there are two perspectives on earnings management that can be taken:

A. The contracting perspective. Under this perspective earnings management purposefully distorts some number, such as economic income. There is another distortion as well: the rules of accrual accounting and GAAP lead to accounting numbers that measure true income with error. Managing earnings changes the properties of the noise (such as its amount, bias, or variance).

B. The informational perspective. Under this perspective earnings are one of many signals. In this view the absolute value of earnings is not relevant. Earnings are regarded as a signal on the state or changes in the state of the firm.

Both perspectives are used in the literature as a theoretical basis for empirical research. The economic income or contracting perspective is strongly based on positive accounting theory. It emphasizes the reaction to a given set of incentives. The informational perspective regards financial statements as part of an information system. In this context earnings management can be used to send extra signals on the state of the firm to outside parties. The informational perspective regards earnings management as a rational action by management and focuses on the reaction by the receivers of the signal. In the investigation of the effects of earnings management this perspective is more suited. Since the focus of the current section is the setting in which earnings management might arise both the economic income and the informational perspective will be discussed briefly.
2.3.1 Contracting or economic income perspective

The contracting perspective of earnings management originates from positive accounting theory. This view on accounting assumes that the contracting perspective is helpful in the explanation of the incentive structure of earnings management. Principal agent relationships are hypothesized between the owner/manager and other stakeholders of the firm. In order to mitigate the agency costs of monitoring the agent, the principal makes use of accounting contracts. There is an abundance of examples of the use of accounting in the firm's contracts. Both implicit and explicit contracts exist. Explicit contracts are those where the terms of the contract include a specified value for an accounting variable. An example of an explicit contract would be when the bank could demand that the tariff and conditions of a loan be renegotiated when the solvency of an enterprise falls below a pre-specified level. In the case of implicit contracts, the relation between the stakeholder and the firm is not directly based on accounting information. The outcome of the accounting process is however likely to be of influence on the relation of the firm with the stakeholder. An example of an implicit contract would be the negotiation of wages. Although there is seldom a direct link in the contracts for labor, it is likely that workers will accept a smaller increase in wages when the firm has sustained losses than in the case of increases in earnings.

Apart from the distinction between implicit and explicit contracts, another difference needs to be addressed. Although the formal task of management is to further the interests of the firm it should be noted here that management can have personal incentives that differ from those that the firm holds. To a certain extent the interests of the firm coincide with those of management. In the case of executive rewards and compensation or responsibility for the performance of the firm, the interests of management and the firm start to diverge. In the discussion of earnings management, it is therefore important to precisely specify the role of management and the firm to the external stakeholder. In other words, when discussing earnings management it is important to remember that there are three instead of two parties that determine the structure of incentives. Earnings management is not a situation in which inside
parties (management/the firm) try to influence outside parties (stakeholders). Rather there is the scenario where management tries to maximize its own benefits and the scenario where management acts to further the interests of the firm. These situations are not mutually exclusive; rather they are overlapping in nature.

*Explicit contracts examined in earnings management literature*

We will now continue with the discussion of previous research on explicit contracts and their effects on earnings management. The main studies on the subject will be highlighted by incentive. The four topics of research discussed below all have started a string of follow-up research or they have exposed a new incentive to manage earnings.

1) *Management compensation contracts*

Watts and Zimmerman (1986) pose that one of the contracts that produces incentives to manage earnings is the bonus scheme. They formulate the bonus scheme hypothesis as: Ceteris paribus, managers of firms with bonus plans are more likely to choose accounting procedures that shift reported earnings from future periods to current periods.

Healy (1985) tested this hypothesis for a sample of firms that had bonus schemes based on current earnings. For the discussion of the results of this, it is important to understand the structure of these contracts. Bonus schemes are similar to call-options. In figure 2.1 the pay-off structure for a typical bonus scheme is shown.

![Figure 2.1: Typical bonus scheme. Taken from Scott, (1996)](chart.png)
A minimum level of reported net income must be attained before the manager achieves a bonus. This minimum level is called the Bogey. From that level on, a percentage of net income is given to the manager as a bonus. Some schemes have a limit to the amount of bonus a manager can be awarded. The maximum level is called the Cap. From that level on increases in reported earnings do not result in an increase of the managers' bonus.

So, similar to call options, the bonus scheme has a strike price at the value of the Bogey. The expiration date is when the earnings are reported, and the payoff at the end is equal to the difference between the reported earnings and the Bogey. In the case of a Cap, the outcome is similar to a Cap construction in the case of options. The workings are identical to the unbounded bonus schemes with the difference that at the same time a call option is sold at the upper bound of the bonus. This results in a maximum value on the expiration date of the difference between the strike price of the bought option and the strike price of the sold option. Bonus schemes cannot be sold, in contradiction to normal options. Therefore, the value is only relevant for the receiving manager at the time of reporting the earnings.

According to Healy (1985), the following incentive structure results: If the reported earnings are below the value of the Bogey there is an incentive to further lower the reported earnings. Since no bonus is to be received this year the manager has an incentive to improve the likelihood that a bonus can be earned next year.

If the value of reported income is above the Cap there is an incentive to reduce income to the value of the Cap since earnings reported above the value of the cap do not result in extra bonus income for the manager. Within the bounds of the bonus scheme the manager has an incentive to increase reported income to the maximum value. Thus, Healy restricts the bonus scheme hypothesis to values between the Bogey and the Cap.

In the case of accruals, Healy finds support for earnings management by managers subject to bonus schemes. A different manner in which accounting policy can be implemented is voluntary accounting changes. As Healy noted, this category of discretionary accounting decisions is not as desirable an earnings management
vehicle as accruals. Reasons mentioned are that accounting changes have to be disclosed and that consistency requires that changes are not made too often. For the sample of accounting changes, Healy did not find any support for earnings management to increase the value of manager's bonuses.

Holthausen et al. (1995) reexamined the findings of Healy with the help of confidential data obtained from two human-resource consulting firms. Beside the use of more exact data on the bonus schemes Holthausen et al. used different methods of estimating discretionary accruals and also incorporate real transactions besides the management of working capital accruals. They find evidence that CEO's manage earnings when they are at the upper bound of the bonus scheme. They find no support that real investment decisions are influenced by the structure of the bonus scheme.

Gaver et al. (1995) also investigated the relation between bonus schemes and earnings management. They come to reasonably similar result as Healy. However, their argument is that there is an overlap between income smoothing and the targeting of the maximum value of the bonus plan.

2) Debt covenants
Debt covenants are intended to restrict managers from engaging in investment and financing decisions that reduce the value of debt holder claims. Debt covenants are frequently written in terms of accounting numbers. According to Watts and Zimmerman (1986) managers make accounting decisions to avoid the high costs of violating debt covenants. Due to the high cost of obtaining access to covenants researchers have usually resorted to the debt/equity ratio to proxy for covenants restrictions. As noted by Watts and Zimmerman (1986), researchers have in fact tested a debt equity hypothesis. They formulate the hypothesis as: Ceteris paribus, the larger a firm's debt/equity ratio the more likely the firm's manager is to select accounting procedures that shift reported earnings from future periods to current periods.

Defond and Jiambalvo (1994) used actual debt covenants violations to investigate the incidence of earnings management in the year before and the year of the violation.
Since their sample consists of firms that reported violations, there is a sample bias for the year of violation because the firms obviously were unsuccessful at achieving their goal if earnings were indeed managed. However, both in the year of the violation and the year prior to the violation Defond and Jiambalvo find support for the hypothesis that earnings are managed upwards supposedly in an attempt to meet the limits of the debt covenant.

3) Taxation

Boynton et al. (1992) test whether the alternative minimum tax (AMT) that was part of the Tax Reform Act of 1986 has any influence on the discretionary accounting decisions made over the period 1986-1988. The AMT creates an incentive to shift income from 1987 to 1986 at a decreased rate from 20% to a marginal rate of 10%. Boynton et al. (1992) find evidence on income decreasing accruals for the year 1987 using a discretionary accrual model.

For a sample of 388 firms in the year 1986, Guenther (1994) examines the relation between discretionary accruals and tax incentives. He states that the most likely candidate for accrual management for tax reasons is the group of working capital accruals since these can influence tax savings. The findings support the hypotheses of earnings management.

It should be noted that the studies mentioned here were performed in a US setting. Due to differences in financial and fiscal regulations, the results cannot be used to make inferences for the Netherlands. The separation between fiscal- and financial accounting is much stricter in the Netherlands and hence the incentive to manage earnings to minimize taxes is not as relevant. It could still be that in negotiations between tax authorities and firms, the financial accounting numbers are of influence on the outcome.

4) Regulations and political costs

Jones (1991) hypothesized that firms that are seeking an import relief would have an incentive to reduce current earnings. The argument is based on the idea that the
likelihood of a favorable decision to the firm. The granting of import relief increases as a reverse relationship with performance of the firm. Jones suggests that the party who loses wealth in the transfer (the consumer in the case of import relief) is less likely to monitor and correct for earnings management. The sample used to test this hypothesis is relatively small. It consists of 26 firms under investigation by the International Trade Commission (ITC). The results support the hypothesis that firms reduce income in order to improve the likelihood to receive a favorable decision by the ITC.

Hall and Stammerjohan (1997) investigated the relation between damage awards in the oil industry and earnings management. They argue that the size of the damage awards is a function of reported net income and net worth, and that this relationship provides management with an incentive to minimize earnings. Hall and Stammerjohan (1993) test two hypotheses. First, they hypothesize that firms make income-decreasing accruals during the periods that they are defendants. Second, they hypothesize those firms under investigation under-report new reserves. To investigate these hypotheses they investigated 20 firms over the period 1974-1992. Their findings support both hypotheses. Other discretionary accounting methods were not found to be of influence. Similar to the results of Healy (1985) in the case of bonus schemes they find only evidence for the case of earnings management where there is no obligation to disclose the adjustments that are made.

Implicit contracts tied to accounting numbers

Not all consequences of reporting earnings result from terms that are pre-specified in contracts. There are also situations where stakeholders react on the outcome of the reporting process. In these firm-years, reported earnings determine the relative negotiation position of the reporting firm. The relationship between earnings and the reaction to earnings is not specifically stated in a contract. The term 'implicit contracts' refers to a number of situations where earnings are of influence on the reaction by stakeholders without the presence of a contract that forces the firm to oblige the stakeholder. Six examples of implicit contracts will be discussed briefly below.
1) Labor union negotiations
Liberty and Zimmerman (1986) hypothesize that managers reduce earnings during labor union contract negotiations. They examine quarterly and annual earnings over the period 1968-1981 for various measures of income. In order to determine the effects of labor union contract negotiations on income reducing accounting choices they match the 85 sample firms with a sample of random firms. Using time-series expectation models, they find significantly lower earnings per share for the sample in contract negotiations. This leads Liberty and Zimmerman to conclude that management reduces income during negotiations to improve their bargaining position.

2) Executive changes
Elliot and Shaw (1988), and Strong et al. (1987) have performed research into the relation between earnings management and top executives. These studies document a strong association between large discretionary write-offs and executive turnover. Pourciau (1993) investigates the relationship between non-routine executive changes and earnings management. Using a sample of 73 firms, she finds weak evidence consistent with the hypothesis that incoming managers decrease earnings in the year of arrival and increase earnings in the following year. Contrary to expectation, departing managers record accruals and write-offs that decrease earnings during their last year. However, conclusions are limited because of extreme financial performance and econometric problems with the techniques used, such as collinearity and the possible mis-specification of expectation models.

3) Management buy-out offers and proxies
The reverse of going public, going private, also creates incentives to manage earnings. Going private is when a group of investors buys all shares of a publicly traded firm. When this group is made up, amongst others, of management this is called a management buy-out. When management is planning to buy the firm, it has an incentive to reduce performance. Since the price of the takeover will at least be partially related to the earnings-performance of the firm, lowering the performance would result in a lower takeover price. Another motivation could be that the risk of
an unfavorable outcome of litigation could be avoided by decreasing the reported performance of the firm prior to the buy-out offer. Claims of shareholders that management bought the firm for a price that was too low would have less of a chance in court. Similar to the first argument this second argument only holds if the earnings management is not detected.

DeAngelo (1986) investigates 64 firms over the period 1973-1982 that underwent a buy-out by management. Contrary to the hypothesis made by DeAngelo no significant earnings management before the buy-out offer, as measured by accrual manipulation, could be detected.

Perry and Williams (1994) examined the effects of management buy-outs on earnings management. Their critique on DeAngelo is twofold. First, the sample used by DeAngelo is not deemed representative. The relatively small size of 64 firms and the median ‘price to book’ ratio of below one suggest that the sample is probably not representative. Second, the method used for inferring earnings management is likely to be biased.

For a sample of 175 firms over the period 1981 to 1988 Perry and Williams find significant decreasing earnings management, which they attribute to the difference in sample and not to the difference in method used.

A related case to management buy-outs was investigated by DeAngelo (1988). In a proxy contest shareholders that disagree with managerial policies seek election on the board of directors. The findings of DeAngelo suggest that during an election, incumbent managers raise reported earnings. As a means for implementing the accounting objective DeAngelo uses accruals. There is a significant quantity of unexpected accruals during the contest and the years following the contest. The cash flow, however, stays at the same level as before the contest. If the contesting shareholders win the proxy contest managers use their discretion to first take a bath and in later years managers use their discretion to show an improvement over the performance before the management change.

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1 Accrual models will be discussed in Chapter 4. The model used by DeAngelo was later found to be highly inaccurate by Dechow et al. (1996).
4) **Dividends**

When a share is seen as a title that bears the right to an uncertain stream of income it is likely that decreasing the uncertainty of this stream increases the value of this share. Dividends are the reward for holding a share. There is a strong relation between earnings and dividends. Income first has to be earned before it can be distributed. Kasanen et al. (1996) argue that there is a relation between dividends and earnings management. On the one hand, they see a demand for a smooth dividend stream. While on the other they recognize that in Finland managing earnings in an upward direction is costly because of tax reasons. The Finnish institutional setting is very debt-oriented and the markets for equity have a low liquidity. Their sample consists of 37 firms over the period 1970-1989. Their findings support their hypothesis that firms manage earnings towards a dividend-based target.

DeAngelo, DeAngelo and Skinner (1994) examine a sample of firms with persistent losses that cut their dividends. The authors point out that “For troubled firms, i.e., those with persistent earnings problems, extant theories predict managers’ accounting choices will be systematically income increasing” (page 114). In contrast to their expectation, DeAngelo et al find evidence opposite to what would be predicted under contracting theories, i.e., firms with poor prior performance that cut their dividends tend to take income-decreasing accruals. They also find that there are no notable differences in negative accruals across firms with and without binding lending covenants, suggesting the irrelevance of contracting incentives in this setting.

5) **Financial analysts’ forecasts**

Apart from direct financing needs, a market-related party has an interest in the outcome of the accounting process. Financial analysts predict the outcome of the financial reports of firms in order to facilitate investment decisions. It is conceivable that if the expectations of the analysts are not met the effect on stock returns will be negative. Management may regard a decrease as unfavorable when they own stock options or for the effect on their reputation. Bannister and Newman (1996) hypothesize that discretionary accounting latitude is used to decrease the gap between the expectation of financial analysts and the neutral outcome of the
accounting process. Moreover, they hypothesize that a shortfall on expectations is regarded as more undesirable than an overshooting.

6) General stakeholders relationship

The specific situations discussed are not by definition mutually exclusive. That is, they can occur simultaneously. Zmijewski and Hagerman (1981) suggest that firms do not react to the individual incentives but decide on an overall income strategy. For large firms in concentrated industries they find support for this hypothesis. Based on a sample of 34 firms and four accounting decisions they conclude that firms aggregate their incentives and their possibilities to use their discretionary powers and use the range of possible interventions to implement an overall accounting policy.

Bowen et al. (1995) suggest that earnings management is induced by ongoing implicit claims between a firm and its customers, suppliers, employees and short-term creditors. A common conclusion in the literature on implicit contracts is that the terms of contracts depend on the reputation of the firm for fulfilling its implicit contracts. To proxy earnings management Bowen et al. use the inventory and depreciation method used by the firm. From these accounting choices they construct a composite index. As dependent variables they use proxies for the four groups of stakeholders. Furthermore they also include the variables leverage, bonus plans, size and taxes used in other studies to demonstrate the predictive qualities over the other contracting variables. To test their hypotheses they use a sample of 10844 firm-years. The findings of Bowen et al. (1995) are in support of their hypotheses that the extent to which firms are dependent on outside stakeholders influences accounting choice.

In this section we have seen that both implicit and explicit contracts give rise to earnings management. However, it is important to note that the evidence of earnings management as a consequence of explicit contracts is stronger than that for implicit earnings management.

The research discussed here is of an Anglo-Saxon nature. Consequently, it cannot directly be projected to the situation in the Netherlands. Due to differences in government intervention, tax-system and perception of the role of the firm in society

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2 Paragraph 2.4 will discuss interaction in between stakeholders and management
different motivational structures arise. According to Bernard and Skinner (1996) contracting approaches are used in a US context, because the power of earnings management is so low that cross-sectional samples without a prior inference of earnings management do not seem to be a valid approach. A specific contracting setting is needed to increase the likelihood of earnings management. In addition, the contracting setting implies a direction towards which earnings are managed.

2.3.2 An informational approach to earnings management

In the contracting or positive accounting view of earnings management the emphasis is on incentives. Investors, employees, financiers, auditors and others react on financial statement information. In order to influence the reaction of these stakeholders management intervenes in the financial reporting process to attempt to improve on the perception of these stakeholders. In other words, earnings management is a reaction on outside pressures.

The informational perspective takes an action instead of a reaction emphasis on earnings management. Annual reports can be regarded as one of the sources of information that influences stakeholders in general and investors in particular. When annual reports are regarded as signals it can be said that the outcome of the reporting process may be sub-optimal and that the signal could be improved on.

Before we can proceed with the case of earnings management as a signal in an information system, we first have to clarify some basic assumptions in the information economics framework.

In order to understand the reaction of receivers of information a decision model is used. Information is defined as anything that yields new knowledge. In information economics information only complies with the definition if it has impact on the decision process.

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3 For a more thorough treatment of the relation between accounting and information economics the reader is referred to Demske (1980) or for a more market oriented treatment: Bromwich (1992).
Information is decision-relevant knowledge that alters existing optimal conduct or decisions. [Def. 3]

The symbol for an information system is \( \eta \) and the symbol for a message from a system is \( y \). The term information structure is used because the available information system provides the structure of events within which the decision-maker seeks to optimize. An information function shows that an information system is a function of the states of the environment, which associates states with signals.

\[
\eta(s) = y \quad \text{eq. 2.1}
\]

where:
- \( \eta \) = information system
- \( s \) = state
- \( y \) = signal

Demski (1980) distinguishes between several different information systems. Perfect, imperfect and noisy systems are the three main categories into which these systems can be divided.

**Perfect information systems**

A perfect information system would associate a unique and precise signal on a 'one for one' with each and every state in the environment. A system that does not distinguish between states, which is called the null information system, would associate the same signal with all states.

**Imperfect information systems**

An imperfect information system would yield one signal for more than one state (1 for \( n \)). An information system with this characteristic is said to lack completeness, which requires that a unique and specific signal is associated with the occurrence of each and every state. Accounting information is a clear example of an imperfect information system. One signal search as earnings, in the presence of earnings management, could signal more than one state.
In a timeless setting an investor has to make a decision between alternatives based on the probabilities of future states of the object. The expected monetary value of an action, can be written more formally and more generally as:

$$E(MV_j) = \sum_{s_i} (\phi_i C(a_j, s_i))$$

Where:

- $E(MV_j)$ = Expected value of action $j$
- $\phi_i = $ probability of state $i$
- $C(a_j, s_i) = $ Monetary outcome of action $a_j$

This expected monetary value approach has been subject to criticism. Risk may be important for non-neutral investors. Put differently, decision-makers are not only interested in the expected value of an action but also in the variance and possible even higher order moments of the distribution of the expected value. The solution is to use utility functions for risk. Instead of maximizing the monetary value the target variable becomes $U$ (utility). Expressing the new relationship in symbols results in the following equation:

$$E(U|a^*) = \max_{a^*} \sum_{s_i} U(a_i, s_i) \phi_i$$

Where:

- $A$ = Set of mutually exclusive acts
- $a = $ member of $A$
- $a^* = $ Optimal act

The expected utility of the optimal action $a^*$ can be maximized by selecting that act $a_i$ that maximizes the outcome of the state/outcome combinations that involve the act. In a two-state economy the utility can be written as:

$$\overline{U} = \phi_1 U(x_1) + (1 - \phi_1) U(x_2)$$

Where:

- $x =$ state
The average utility of an investor is given by the chance on state 1 multiplied by the utility of state 1 plus the residual probability multiplied by the utility of state 2. The abstract decision rule using utility instead of wealth becomes:

\[ E(U|a^*) = \max_{a \in A} \sum_s U(a,s)\phi(s) \]

\[ \text{eq 2.5} \]

Where

\[ a^* = \text{optimal act.} \]

The expected utility of \( a^* \) is the maximum sum of the state / probability combinations. The decision-maker first calculates the probabilities of each act and then optimizes the remaining part of the right hand side of the equation.

The informational systems approach to accounting implies that reported information does not have to be exact as long as it improves on the decision ability. In this context earnings management becomes a tool to convey expectations of management on the future of the firm, or to influence the perceived optimal outcome. Note that in this setting a concept of ‘true income’ is not needed.

A clear example of conveying private information to investors is the ‘blocked communication’ concept introduced by Demski and Sappington (1990). They argue that a manager gains extra freedom to convey private information on the long-run expectations of future earnings by managing earnings. Scott (1996) gives the following example of blocked communication⁴. Suppose that the shareholders (the principal) want to encourage the manager (the agent) to communicate the firm’s long-run earnings potential. This is complex inside information of the manager. If the manager simply announced this information, the information would not likely be credible, since the shareholders would find it prohibitively costly to verify the information. Suppose, however, that the firm had just realized earnings of $200 million from the sale of a division. Rather than report a net income substantially higher than what is sustainable in the long run, the manager decides to record a

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⁴ The example used by Scott has been modified to use shareholders instead of board members to avoid confusion over the role of board members in the Netherlands versus the US.
provision for restructuring of, say, $180 million, thereby reducing current earnings to what the manager feels is sustainable.

By recording the provision the manager conveys his private information. If the amount for restructuring diverges substantially from the fair estimates the manager may incur auditor objections. A later article by Demski and Sappington (1990) further investigates the dual role of reporting. Both the information ‘unblocking’ and the conveying of value relevant information can coexist.

Dye (1988) introduced a framework that made it plausible that shareholders have a demand for earnings management. In the construction of this model, Dye differentiates between an internal and an external demand for earnings management. Internal demand arises from the budget and control cycle whereas the external demand is caused by the shareholders. Dye focuses on the external demand for earnings management that is induced by current managements’ attempts to alter prospective investors’ perceptions of the firm’s value. The model is set in an overlapping generations environment (see Samuelson [1958]).

Trueman and Titman (1988) constructed a theoretical model to explain income smoothing. In order to construct their model they make the following two assumptions: First, they assume that the amount that firms have to shift between periods in order to smooth their income depends on the nature of the firm and hence differs between firms. Second, they assume that claim holders cannot fully observe firms operations and are therefore unable to infer the full extend of the income that is smoothed. Given these assumptions they show that it is likely that smoothing increases the market value of a firm. The paper by Trueman and Titman is highly mathematical in nature and has been critiqued for the critical sensitivity to the assumptions made.

The three models discussed above by Dye, Sappington and Demski and Trueman and Titman are abstract models that hold their value not in the exact modeling of reality

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3 Recording a provision will decrease the bottom line. The signal here is that management thinks that the neutral outcome of the reporting process overstates current earnings, and thus decides to reallocate the excess earnings to future periods.

6 Income smoothing will be discussed in more detail in paragraph 2.5
but rather in exposing the critical assumptions and in showing that there is no need for regarding accounting numbers as absolute. Moreover, the shift from incentives causing reactions to an interaction between actors and reactors exchanging information is a useful advancement.

**Relative and incremental value relevance of earnings management**

In market based research it has been accepted since Ball and Brown (1968) that prices lead earnings. In a 'prices lead earnings' world prices reflect available information faster then accounting information. In such a world it is assumed that all available information is compounded in prices and that accounting information is a reflection of a sub-set of this information that arrives after most other information. Value relevance research focuses the ability of accounting information to convey information that is already reflected in prices.

This section will deal with the (changes in) value relevance of earnings associated with earnings management. Information as such has no metric form and will be proxied by the strength of the association of earnings and returns or similar measures that imply informational content. When the informational effects of earnings management are the topic of interest there are two manners in which this content can be split.

Schipper (1989) remarked that in an informational perspective, earnings management amounts to "changing the properties of the noise of the earnings signal". This statement implies that it cannot be predicted a priori that earnings management either increases or decreases the value relevance of earnings.

**Relative value relevance of earnings management**

To test the informational effects there are two possible designs. The first is relative value relevance. The null hypothesis under this approach becomes: Some accounting measures of performance before and after earnings management have the same relative value relevance. That is: Both contain equal amounts of information about some measure of performance such as returns or future value. To test this type of hypothesis two regressions are run:


\[ y = \alpha_1 + \phi_1 x_1 + \varepsilon \]
\[ y = \alpha_2 + \phi_2 x_2 + \varepsilon \]

Where:
- \( y \) = Some market measure of return
- \( \phi_1 \) = coefficient of \( x_1 \)
- \( \phi_2 \) = coefficient of \( x_2 \)
- \( x_1 \) = accounting based performance measure with earnings management
- \( x_2 \) = accounting based performance measure without earnings management

By comparing the adjusted \( R^2 \) measures and t-values of the coefficients of the two regression models, an indication of the descriptive qualities of the two measures of income for the prediction of stock returns is obtained. The model with the better fit is said to have a higher value relevance of \( x \). This design for testing the relative value relevance of different performance measures has been used in various contexts. Graphically the relationship between the different variables can be represented as shown in figure 2.2.

Figure 2.2: The relative value relevance of various accounting measures of performance.

The value relevance is the area of \( x \) that intersects with \( y \). The \( x \) with the largest intersecting area than becomes the variable with the highest relative value relevance.

Warfield, Wild and Wild (1995) examine the relationship between incentives to manage earnings and the value relevance of these earnings. The incentive used to identify the propensity to manage earnings is the degree of managerial ownership. Based on the theory of the firm the hypothesis posed is that the lower the degree of ownership by management, the stronger the incentive to engage in earnings management to adjust the numbers in a manner favorable to outside stakeholders.

Using the DeAngelo form of discretionary accruals (see Chapter 4 for a discussion of accrual models) Warfield et al. estimate the discretionary portion of total accruals. They find evidence that there is a positive relation between the degree of earnings
management as measured by this proxy and the level of ownership as measured by various measures of managerial ownership. Furthermore, they also find that as the degree of discretionary accruals increases the value relevance as measured by the $R^2$ of the earnings returns relationship decreases.

Subramanyam (1996) uses discretionary accruals as a proxy for earnings management. Various estimation methods are used to test the sensitivity of the Jones Model. Although the results seem to be reasonably robust, measurement error still cannot be excluded. Similar to the approach taken by Dechow (1994), Subramanyam uses levels of earnings and cash flows to examine the value relevance of accrual accounting. The results of univariate regressions show that net income is more value relevant than non-discretionary income, which in turn is more relevant than the cash flow from operations (CFO). Using significance levels and $R^2$ as measures of relevance shows that net income has more (relative) value relevance than just the non-discretionary component.

Wang, Swift and Lobo (1993), hereafter WSL, examine the effect of discretionary accruals on the informativeness of accounting information. The central hypothesis is that there is an inverse relationship between the informativeness of accrual adjustments and the magnitude of these adjustments. The argument for the hypothesis of WSL is that the accrual part of earnings is more open to earnings management and contains therefore less information. The larger the unexpected change in the accruals the smaller the reaction of the investor to the change in earnings. It should be noted here that the WSL design does not measure value relevance but rather the effect of new information by looking at the abnormal returns associated with the release of information.

WSL proceed with stating that informativeness can be measured in terms of price reaction. If the hypothesized effect indeed occurs, the cumulative abnormal return (CAR) measure should be smaller for enterprises with a larger accrual change. Using a market model to measure the performance over the 1975 to 1986 period they find that larger proportions of accruals lead to lower performance. Using the CAR measure as a dependent variable in the regression model they find a statistically
significant negative relationship between performance and discretionary accruals. That is the lower the accrual component the higher the abnormal return. The interpretation by WSL for this finding is that the larger the cash flow component the large the persistence of earnings. They expect investors to discount accruals due to the reverting nature of accruals.

**Incremental value relevance**

A second approach to the assessment of value relevance of performance measures is increment value relevance. Here, it is not a question of which performance measure contains the most information about returns but whether one measures of performance has information that is not included in the other measure. Instead of comparing several univariate models a multivariate model is estimated to assess the extra information that is contained in the additional variable. In equation form the relationship can be expressed as:

\[ y = \alpha + \phi_1 x_1 + \phi_2 x_2 + \ldots + \varepsilon \]  

\[ y = \text{Some market measure of return} \]
\[ \phi_1 = \text{coefficient of } x_1 \]
\[ \phi_2 = \text{coefficient of } x_2 \]
\[ x_1 = \text{earnings management} \]
\[ x_2 = \text{accounting based performance measure without earnings management} \]

Analogue to the relative value relevance the incremental value relevance can also be presented in a graphical manner as can be seen in figure 2.3. In figure 2.3 the variance of the market return measure is again the circle \( y \).

![Figure 2.3: The incremental value relevance of various accounting measures of performance.](image-url)
The intersecting area between x1 and y is the variance that is explained by the first regressor. There is however, some variance in x2 that overlaps with y and is not included in x1. In the regression model x2 would hence contribute to the prediction of y over and above the information contained in x1.

Subramanyam (1996) also investigated the incremental value relevance of discretionary accruals in a multivariate setting. The multivariate models show that discretionary accruals improve on the ability to predict returns. In other words: discretionary accruals help reflect the economic reality as it transpired over the period between two annual reports.

2.4 TARGETS RESULTING FROM THE INCENTIVE STRUCTURE

We have seen that there are incentives to manage earnings and that accounting affords latitude to implement accounting actions using this latitude. With the range of possible outcomes in mind and the aggregation of the incentives the preparers of financial statements can choose a certain direction for adjustment. If management decides to use its discretionary powers to try to improve on the neutral outcome of the accounting process it needs to determine a target towards which it will steer earnings.

Most earnings management research either uses extreme situations to specify the direction of expected earnings management or uses low power tests for cross-sectional analysis. Abarbanell (1999) specifies a model for a general direction for earnings management depending on the difference between a neutral outcome of the reporting process and a target for earnings motivated by expectations or forecasts. This model only assumes that firms have some target for earnings and it does not assume that this target is observable.

It is assumed that firms can manage earnings to meet equity market expectations and/or explicit and implicit contracts. In addition, it is also assumed that managers prefer more accounting slack to less in the current period. Managers may be sensitive
to multiple objectives when choosing the sign and magnitude of earnings management. Figure 2.4 depicts levels of pre-managed earnings for a firm. There is an unbiased target for earnings T. This target can be defined by forecasts, contracts such as bonus schemes, market expectations or other objectives.

![Figure 2.4: Incentives across the range of pre-adjusted earnings](image)

Any neutral outcome of the reporting process below T results in an incentive to increase earnings towards T.

T-k is the maximum of slack in the pre-adjusted earnings. Any point below T-k for the neutral outcome means that the slack is insufficient to reach the target. This combination of assumptions divides the space of neutral outcomes in three zones with different actions.

When pre-adjusted earnings fall below T-k the target T is unattainable and managers have an incentive to 'take a bath'. When earnings are between T-k and T the target can be attained and managers will attempt to adjust earnings upward until they reach T. All pre-adjusted outcomes above T will lead to reserving income to create slack for future periods. When earnings are consistently managed towards T for all periods income smoothing will result.

This combination of assumptions is a more general specification of the assumptions used by Healy (1985). In this paper T was assumed to be the maximum outcome of a bonus contract with an option structured as a collar. As a consequence of the assumed option structure T was the upper boundary of the range where managers would earn a maximum bonus. Due to the Cap on the bonus earnings above the maximum bonus did not yield additional rewards. Healy assumed that outcomes above the maximum bonus would result in reserving earnings for future periods. This
basic framework allows for 'big bath' accounting\(^7\), earnings inflation and 'cookie jar reserving'\(^8\). If the rules above are descriptive for earnings management decisions it follows that there are certain asymmetries in the distribution of earnings since there are different incentives across the distribution of pre-managed earnings.

DeGeorge et al. (1999) develop similar views when examining the distributions of earnings. They note that while (deflated) earnings are a continuous variable there are certain psychological bright lines for outsiders and insiders alike such as zero earnings, past earnings and analysts’ projections as meaningful thresholds for assessing firms’ performance.

DeGeorge et al. (1999) have shown that targets can be ranked according to their priority. Loss-avoidance is the first target management will try to meet, if things are going better for the firm they will also try to show an increase in earnings relative to the previous year. The highest target for management is to meet market or analysts’ expectations. They also find that firms that just meet a target will have lower subsequent performance.

The analysis presented here abstracts from the avoidance of losses as introduced by Burgstahler and Dichev (1997, 1998). The Burgstahler and Dichev work is based on very large samples, which are hard to obtain in the Netherlands for listed companies.

The nature of earnings management is such that there are reverting and non-reverting earnings management interventions. First, there are interventions that reverse in subsequent periods and second there are interventions that do not reverse. A good example of a discretionary accounting intervention that reverses in subsequent periods is the restructuring provision. The creation of the provision will decrease earnings and the earnings in subsequent periods will be increased when the provision is used. Extraordinary gains such as the realization of gains on book value add to earnings in the period that the gain is realized and has no impact on subsequent

\(^7\) ‘big bath’ accounting is often referred to in the literature as the act where management takes large discretionary losses to increase future slack in reporting. Here the term ‘big bath’ also refers to large discretionary losses to increase accounting slack when they are accompanied by offsetting non-reverting gains to mask the losses.

\(^8\) Reserving is used here as the creation of accounting slack and not as the accounting term adding to the line item reserves. The line item reserves are part of Equity in financial statements.
periods. Reverting interventions transfer earnings between periods by adding to the slack or using available slack depending on the position of pre-managed earnings relative to T in figure 2.4. Permanent changes can be used in a similar manner without reverting in subsequent periods. Although both permanent and reverting earnings management have an effect on the current period their effect on subsequent periods differs.

The combinations of different incentives for different positions relative to T and the availability of reverting and non-reverting discretionary accounting interventions are combined to formulate expectations for earnings management proxies, the informativeness of earnings and the effects of earnings management on the apparent persistence of reported income.

2.5 INCOME SMOOTHING

Scott (1996, p. 307) warns that various earnings management patterns can be in conflict. Over time, the pattern chosen by a firm may vary due to changes in contracts, changes in levels of profitability, changes in CEO, and changes in political visibility. Even at a given point in time, the firm may face conflicting needs to, say, increase reported net income to meet market expectations, but to smooth it for borrowing reasons. Then the particular pattern chosen by the firm would be difficult to predict. The concept of income smoothing is defined as:

*the deliberate dampening of fluctuations about some level of income that is currently considered to be normal for the firm (Barnea et al., 1976, p. 110; Albrecht and Richardson, 1990, p. 714).* [Def. 4]

The practice of income smoothing is conjectured to be a widespread phenomenon (Foster, 1986; Nobes and Parker, 1998 and Ashari et al. 1994).

Fudenberg and Tirole (1995) suggest that job security is the main motivation for engaging in income smoothing. The important assumptions in their theory are that poor performance increases the likelihood of management dismissal and good
performance in the current year will not compensate for poor performance in the future. Intuition from this theory suggests that managers have an incentive to smooth income in two related ways. They boost their earnings in bad times to lengthen their tenure. In good times, they are less concerned by their short-term prospects, and information decay gives them an incentive to save for future bad times in order to reduce the chance of dismissal. Empirical tests by Defond and Park (1997) find support for this theory.

Carlson and Bathala (1997) have investigated the consequences of agency costs, information asymmetry, and incentive motives on income smoothing behavior in firms. Their empirical evidence supports the notion that managers engage in income smoothing for more than one reason. It could be for their job security or increasing their compensation/personal wealth. Or, it could be for minimizing the possibility of shareholders unrest or for maintaining institutional interest in their firms' common stock. Carlson and Bathala (1997, p. 194) end their paper with the statement that "whatever the motive is, it appears that the firm's managers and stakeholders prefer smoother income streams to those that are erratic." The study of Carlson and Bathala (1997) is broader than the studies of Fudenberg and Tirole (1995) and Defond and Park (1997), as it includes both management and stakeholders.

Hunt et al. (1997) examine income smoothing in a market based context and find support for the hypothesis that smoothing adds a market premium. In sum, the literature suggests strong motivations for smoothing income, and indicates reasons for believing that this phenomenon is a real and common practice among managers.

2.6 SUMMARY AND DISCUSSION

The purpose of this chapter was to clarify the concepts used and to introduce the previous research. In this chapter earnings management was defined as:

Earnings management is really disclosure management in the sense of a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain, as opposed to merely facilitating the neutral operation of the process.
As a next step the context in which incentives for earnings management can arise was examined. Two different views of the incentive structure were discussed. Most of the discussed literature focused on contracting and principal agent relationships. Due to the focus of both implicit and explicit contracts on the outcome of the reporting process this outcome has economic consequences for the firm. Attempting to improve on the outcome and hence to obtain more favorable economic conditions for management or the firm is thought to be the main motivation for earnings management. The discussed literature suggests that explicit contracts give a stronger incentive to manage earnings. The alternative to the contracting view is the informational perspective. In this perspective management attempts to signal extra information by adjusting the neutral outcome of the reporting process.

Given an incentive structure, a firm has to decide whether and if so which adjustments to make. The framework introduced in paragraph 2.4 argues that a chosen target will be aimed for as long as it is within reach of the available latitude. Meeting or slightly exceeding market expectations is a clear example of this behavior. When the slack is insufficient to meet the target set by management the reward for meeting or slightly exceeding the desired value will not be present and thus the incentives change to creating slack for future periods. Since the target is not achieved there is no strong penalty for bringing out more bad news.

Similarly, when the pre-managed earnings exceed the target level substantially there is no additional reward in reporting extra earnings. Thus, the incentives to manage earnings are also downward in the case of very high pre-managed earnings. Targets towards which earnings are managed differ from firm to firm and can also differ from year to year. It is therefore that only on the tails of a distribution, where the extreme financial performance is located, that clear results should be expected.

Consistent with, or resulting from, a target based earnings management strategy is the smoothing of income. Income smoothing can either result from a stable target over time or it can be a target for earnings in its own right. Either way there seems to
be a strong relation between managing earnings towards a target in a given reporting period and the reduction of variance across periods.