

THE ROLE OF MANAGEMENT AS A USER OF ACCOUNTING INFORMATION: IMPLICATIONS FOR STANDARD SETTING

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ABSTRACT

The aim of this paper is to analyze the question of whether the sole focus of standard setters developing accounting standards that are useful to external users for making decisions about providing resources to the entity result in useful accounting information. To answer this question, we analyzed the relationship between the stewardship function of financial accounting and the demand for information useful in making economic decisions on resource allocation (decision-making demand; decision-useful information) by external investors. We first analyse information within an efficiency-based framework of financial economics abstracting from agency conflicts. We demonstrate that decisions on resource allocation not only require forward-looking, but also backward-looking performance measures which indicate the necessity as well as the direction of corrective action. Next, we introduce information asymmetries and incentive problems. In this setting, the stewardship function of accounting gains relevance. External users now need not only information for their investment decisions but also information to use in assessing management performance and to gain insight into how management used the entity's resources. Since however, managers anticipate the way they are evaluated, any accounting information used to control management has an incentive effect and alters management's internal decision-making. Therefore, standard setters cannot ignore the incentive effect (stewardship function) of financial accounting information and the consequence it has for decision-

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making. If standard setters consider decision-usefulness and stewardship as compatible functions of accounting, accounting rules need to serve both functions simultaneously, that is, provide information that is useful for investors for making economic decisions and at the same time provide incentives for managers to act in the owners' best interests. Or, if in fact the two functions are considered distinct and incompatible, then they must be separated and considered explicitly. That is, managers should then not be held accountable for their actions based on accounting information.

🔑 *Decision-Usefulness, Qualitative Characteristics, Stewardship, Standard Setting*

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INTRODUCTION

Why do we measure speed when driving a car? We do not need the speedometer once we have reached our destination. We can determine the time it took us to drive a certain distance by looking at the clock. However, we do need the speedometer while driving, in order to control our driving, not to lose control of the car in a curve or exceed a speed-limit. We also want to evaluate the progress of our journey and compare the distance travelled to our expectations. We derive estimates of the arrival time from the progress we have made so far by taking into account road conditions and other factors. This information is helpful in making driving decisions. For example decisions relating to accelerating or slowing down, overtaking, taking an alternative route or turning back. In essence, we continuously measure current performance which we evaluate against the background of our experiences and expectations in order to derive corrective actions. When designing the information systems in a car, neglecting the drivers' information needs would be detrimental to road safety. Research focusing on these needs has resulted in important innovations such as the GPS presenting the estimated arrival time. It is not evident, however, whether the same information would also be useful for the information needs of other stakeholders (e.g. police, other road users). This is particularly true if the driver serves as an agent (e.g. forwarder, taxi) for another party and has conflicting interests. The principal may want to install an information system that keeps him informed about the performance of the agent and which makes the agent act in the best interest of the principal. Can this be done with the same instruments? Assume the principal wants to provide incentives for not speeding. He could adjust the speedometer to show a speed 20% higher than accurate. The driver reads 120 when actually driving 100 km/h and drives slower, as was intended. But is this biased measure still useful for his decision-making?

In this paper, we analyze the relationship between the stewardship function of accounting and the decision-usefulness objective. We argue that, in practice, the accounting information used for management purposes is largely based on financial accounting. Firstly, most firms avoid keeping separate accounts for managerial and financial accounting due to the costs involved. For example only 5% of German companies deviate from the rules for accounting of internally generated intangible assets for purposes of managerial accounting (Rütte & Hoenes, 1995). Accordingly, a major argument in favour of the voluntary adoption of international accounting standards from the perspective of the preparers of accounting information has been its usefulness for managerial purposes (Wagenhofer, 2008). Secondly, even more importantly, external investors use accounting information to assess management's performance. Decisions by shareholders in the general assembly about exonerating management of their responsibilities for the past financial year are based on financial reporting. A manager's success and reputation are largely based on the firm's performance as measured by financial reporting. Considering externally reported performance measures for internal purposes is finally the consequence of a rigorous shareholder value focus (Coenenberg, 1995; Haller, 1997; Wagenhofer, 2006; Hemmer & Labro, 2008). In addition, managers' variable remuneration is often based on performance as measured by financial accounting. Since managers anticipate the way they are evaluated, their decision-making is oriented towards achieving optimal performance as measured by the figures for which they are held accountable, as suggested by the famous line "What you measure is what you get!". Hence, any accounting information used to assess and control management has an incentive effect and will be considered by management in its internal decision-making. Therefore, using accounting information to assess management's stewardship will have an impact on management's decisions.

However, the incentive effect of financial accounting and its implications for information that is useful for economic decision-making by external investors has not yet been given special consideration by accounting standard setters. Both, the IASB and FASB regard in their frameworks the stewardship function of accounting to be part of the overall objective of providing information that is useful in making decisions to devote resources to the entity (IASB, 2010: F-BC1.27; FASB, 2010: BC1.27). Accordingly, both boards consider the stewardship function and economic decision-making to be compatible accounting objectives, but do not give the incentive effects of accounting special consideration.

In this paper we discuss the role of accounting information for managerial users. We first analyze the information requirements of managers for their decision-making in the absence of agency conflicts. This approach takes into account that "... with few exceptions, the information important to management in managing the business is the same information that is important to investors in assessing performance and future prospects" (IASB, 2006b: note 48; similar Guttentag, 2004:

169-172). Hence, the information management has available for its internal purposes may be highly relevant for external financial statement users as well. As suggested by the purported management approach (e.g. in IFRS 8 or ASC 280) "... an ability to see an enterprise "through the eyes of management" enhances a user's ability to predict actions or reactions of management that can significantly affect the enterprise's prospects for future cash flows" (FASB, 1997: Appendix A, note 60). Even though the IASB and FASB to date do not explicitly consider management's information requirements in its standard setting (IASB, 2010: OB9; FASB, 2010: SFAC 8, OB9), in later phases of the framework project the IASB will consider whether management's perspective or intentions should influence recognition and measurement of financial statement elements or whether information in financial reports should be presented in a way that is consistent with management views of the business (IASB, 2008: BC1.34).

We argue that, in the absence of agency conflicts, accounting largely serves the information needs of managerial owners. This perspective allows us to concentrate on two central qualitative characteristics of useful accounting information: predictive ability and feedback value. Our analysis shows that the usefulness of accounting information in this setting is largely derived from the feedback value of information. Performance is measured on an ongoing basis in order to provide timely information for management as the basis for corrective action. We then introduce information asymmetries and incentive problems. First, we consider internal agency conflicts and second, we discuss the separation of ownership and control as a factor of influence on the characteristics of information. The literature on principal-agent conflicts provides rigorous findings on the characteristics of incentive compatible accounting standards (e.g. Dutta & Reichelstein, 2005) as well as decision-useful accounting rules (Rogerson, 2008; Rajan & Reichelstein, 2009). Both sets of accounting rules are different from each other and different from the properties defined by the IASB and FASB for decision-useful accounting information.

Accordingly, information that is useful for economic decision-making may not necessarily be useful for stewardship purposes in a way that it simultaneously sets the right incentives for management to act in the best interest of the owners and *vice versa*. Consequently, standard setters need to be clear on the objectives of financial accounting. Both decision-usefulness and stewardship are regarded as compatible functions of accounting. Consequently, accounting rules need to serve both functions simultaneously: provide information that is useful for investors for making economic decisions and at the same time provide incentives for managers to act in the best interest of owners. If however, the two functions are distinct and incompatible, then they must be separated and considered independently. That is, managers should then not be held accountable for their actions based on accounting information and accountability would need to be assured by other means than accounting in order to avoid detrimental incentive impact.

The paper is organized as follows: Section 1 provides a literature review on the usefulness of accounting information. The following section analyses the IASB's and FASB's conceptual frameworks with respect to stated accounting objectives and the users of financial information. In section 3, we discuss the different functions of accounting from a theoretical point of view to derive the resulting properties of useful information. We present a three-step-approach to analyzing accounting information within a framework based on financial economics and agency theory. The last section provides a summary of the findings and conclusions are drawn for use in standard setting.

1. THE USEFULNESS OF ACCOUNTING INFORMATION: REVIEW OF THE LITERATURE

Even though general agreement exists among accounting theorists that the central purpose of financial accounting is the systematic provision of economic data about reporting entities, a single, comprehensive, universally accepted accounting theory does not exist at the present time (AAA, 1977: 1; Riahi-Belkaoui, 2004: 83). Due to differences in the way theorists specify users as well as the preparer-user environments, a variety of theories of external reporting have been developed (AAA, 1977: 1). With respect to the decision-usefulness theory, generally two principal theoretical approaches are of major relevance: (1) the classical 'true income' approach and (2) the informational perspective explicitly recognizing the usefulness objective.

1.1. Classical 'True Income' approach

Based on economic theory of the firm, 'true income' accounting theorists attempted to determine 'economic income' which is defined as the change in the wealth of the firm over a certain period of time (Beaver, 1989: 4; Riahi-Belkaoui, 2004: 101). Under conditions of perfect and complete markets, economic income not only reflects the effects of management's decisions in the current year, but also incorporates future effects into this year's measure of performance (Beaver, 1989: 4). This has appealing properties from a stewardship perspective.

These theorists attempt to formulate generally acceptable policy recommendations assuming similar needs for all types of users (AAA, 1977: 8; Sterling, 1970: 154) or, respectively, general properties related to every course of action (Chambers, 1966: 155). In most cases current (market) values are considered to be the most adequate measures of economic wealth/income among these economic income theorists (Chambers, 1966: 150; Edwards & Bell, 1967: 90-109; Sterling, 1970: 189).

1.2. Informational perspective

In the late 1960s theoretical approaches shifted from measuring economic income to an 'informational' perspective emphasizing that financial statements should provide decision-useful information (Beaver, 1989: 4-5). Nowadays decision-usefulness is the well established, central objective of financial accounting, in theory as well as in standard setting (Beaver *et al.*, 1968: 678; Staubus, 2004; Staubus, 2000: 331) and is the subject of many research studies.

1.3. Normative qualities of useful accounting information

Normative qualities necessary for accounting information to be useful are a central issue in the academic literature on decision-usefulness. Even before the decision-usefulness objective was officially adopted by the FASB or IASB, and before it was explicitly recognized by accounting theorists, several normative qualities of financial information were discussed in the literature (see for example AAA, 1955; Moonitz, 1961; Sanders *et al.*, 1938; Sprouse & Moonitz, 1962; Vatter, 1963: 188-194). Discussions on the criteria of useful information achieved prominence in accounting theory in the mid-1960s (see for example Ijiri & Jaedicke, 1966; Snaveley, 1967) when a committee of the American Accounting Association started to work on a statement of basic accounting theory (AAA, 1977: 15). Various factors that presumably generate good accounting information have been identified, for example: timeliness, accuracy, relevance, reliability (verifiability), materiality, understandability, significance, practicality, comparability etc. (see for example AAA, 1955; Hampton & Karadbil, 1968: 20-23; Ijiri & Jaedicke 1966: 475; Snaveley, 1967). Some authors tried to develop a hierarchy of qualities (as for example Snaveley, 1967), an approach also finally taken by the FASB and the IASB when developing their (conceptual) frameworks.

According to the IASB's and FASB's frameworks useful financial information is made up of two primary qualitative characteristics: relevance and faithful representation (IASB, 2010: F-QC5; FASB, 2010: SFAC 8, QC5). Thus, according to the FASB's and IASB's present frameworks one primary qualitative characteristic of information needed to be decision-useful is relevance. From an economic perspective, an information system is useful if it affects the economic decisions of users (Staubus, 1970: 107, Wagenhofer & Ewert, 2003: 56). This is also the definition applied by the IASB and the FASB: "Relevant financial information is capable of making a difference in the decisions made by users" (IASB, 2010: F-QC6-7; FASB, 2010: SFAC 8, QC6-7). Therefore financial information is considered to make a difference in decisions if it has predictive value, confirmatory value, or both (IASB, 2010: F-QC6-7; FASB, 2010: SFAC 8, QC6-7). Thus, the definition indicates the predictive and confirmatory role (i.e. predictive and/or feedback value) of relevant accounting information. According to the IASB and FASB the predictive and confirmatory value of accounting

information are interrelated since retrospective information can be used to derive forecasts and to correct and improve the forecast process (IASB, 2010: F-QC10; FASB, 2010: SFAC 8, QC10). The predictive role of accounting information is also stressed by *Beaver et al.* (1968) who recommended the use of 'predictive ability' as a criterion for evaluating alternative accounting methods.

According to the IASB's and FASB's frameworks, relevance is only one criteria for decision-usefulness. Useful information also requires a faithful representation of the phenomena that it purports to represent (IASB, 2010: F-QC12; FASB, 2010: SFAC 8, QC12). According to the IASB and the FASB information is faithfully represented if it is complete, neutral and free from error (IASB, 2010: F-QC12; FASB, 2010: SFAC 8, QC12). The verifiability of information is not explicitly required for a faithful representation, since many forward-looking estimates are often not directly verifiable but are nevertheless regarded as very useful (IASB, 2010: BC3.36; FASB, 2010: BC3.36). Therefore, the standard setters define verifiability only as an enhancing qualitative characteristic in their frameworks (IASB, 2010: F-QC26; FASB, 2010: SFAC 8, QC26).

Faithful representation and relevance often impinge on each other and therefore can have contradictory effects on the usefulness of information. The IASB and the FASB therefore suggest following a decision process for applying the fundamental qualitative characteristics: First, identify a relevant economic phenomenon that is regarded as useful for the users of the entity's financial information. Second, identify the type of information that is considered as most relevant and third, specify whether this information is available and can be faithfully represented. If the information is not available and/or cannot be represented faithfully the process needs to be reproduced with the next most relevant type of information (IASB, 2010: F-QC18; FASB, 2010: SFAC 8, QC18).

As various constituencies have different decision-making contexts and utility functions regarding the relevance and faithful representation of accounting information, the benefits from reported accounting information will differ for different users (Holthausen & Watts, 2001: 26). From an information economics perspective it is therefore generally not possible to set normative accounting standards, i.e. to establish an accounting system that is regarded as optimal by all individuals or parties affected (Demski, 1973). Thus, any evaluation of accounting alternatives is not possible without specifying the decision-settings and the decision maker's preferences (Liang, 2001: 231; Ohlson, 1975: 267). Consequently, choices between financial reporting methods usually involve value judgements and are therefore quite often political (Beaver, 1989: 53). The IASB and FASB therefore limit their focus on decisions about providing resources to the entity, including decisions to buy, sell or hold equity and debt instruments and granting or settling loans and other forms of credit (IASB, 2010: F-OB2; FASB, 2010: SFAC 8, OB2). Existing and potential investors, lenders, and other creditors are regarded as primary users of general purpose financial statements (IASB, 2010: F-OB5 and F-

BC1.16; FASB, 2010: SFAC 8, OB5 and BC1.16). However, because investors, lenders and other creditors are not a homogenous group with identical decision-making settings and preferences, it is impossible to derive an optimal accounting system. Therefore, it is necessary to make restrictive assumptions on decision-settings and user's preferences in order to be able to assert different financial accounting alternatives with respect to their decision-usefulness. Both boards therefore, continue explaining that in developing financial reporting standards they will attempt to provide the information set that will meet the requirements of the maximum number of existing and potential investors, lenders, and other creditors taking cost and benefits into account (IASB, 2010: F-OB8 and F-BC1.18; FASB, 2010: SFAC 8, OB8 and BC1.18).

A large portion of empirical research devoted to identifying the type of accounting information that fulfills the decision-usefulness criterion investigates the association between capital market figures and financial accounting data. The literature on contracting theory and accounting also applies agency theory to accounting issues. It deals primarily with two issues. The use of accounting based performance measures in compensation contracts (e.g. Bushman *et al.*, 2006; Bushman & Indjejikian, 1993; Indjejikian, 1999; Lambert, 2001: 41-47; Lambert & Larcker, 1987; Merchant, 2006; Paul, 1992) and necessary modifications of accounting standards from an incentive perspective. In this context, accounting rules are set to provide incentives for management to act in the best interests of the owners. For example, depreciation schedules, inventory accounting and construction contracts, have been studied to identify rules producing performance measures that will induce management to make investment decisions that create shareholder value (Dutta & Reichelstein, 2005; Rogerson, 1997, Reichelstein, 1997, 2000; Wagenhofer, 2003). It is not clear, however, if such (so-called goal-congruent) accounting rules with 'stewardship value' are useful for other purposes of accounting as well, i.e. whether they provide equally relevant information for decision purposes of external users. Gjesdal (1981), for example, demonstrates that information required for decision purposes may not be compatible with information required for stewardship purposes.

The literature primarily takes a number of different perspectives in examining the usefulness of accounting information: the usefulness of accounting information for economic decision purposes with papers analyzing the normative qualities of decision-useful information, empirical papers investigating the relation between market figures and accounting figures and the usefulness of accounting information from an incentive perspective explicitly taking into account principal-agent conflicts. By focusing mainly on qualitative characteristics of decision-useful information on capital markets on the one hand and agency conflicts on the other, the connection between the two has been largely neglected in research. In the following discussion we consider the interrelationship of the two functions and the implications for standard setting.

2. OBJECTIVES OF FINANCIAL REPORTING IN THE IASB'S AND FASB'S FRAMEWORK AND IMPLICATIONS FOR THE ACCOUNTING SYSTEM

2.1. The uses and users of financial accounting information

According to the IASB's and FASB's framework the major objective of financial reporting is to provide information "that is useful to existing and potential investors, lenders, and other creditors in making decisions about providing resources to the entity" (IASB, 2010: F-OB2; FASB, 2010: SFAC 8, OB2). By defining the objectives of financial reporting, the FASB and IASB stress that financial reporting should assist users in evaluating the amounts, timing, and certainty of future cash flows (IASB, 2010: F-OB3; FASB, 2010: SFAC 8, OB3). For that purpose users need information about an enterprise's economic resources, claims, and information on how the management and governing board have fulfilled their responsibilities to efficiently and effectively use the entity's resources (IASB, 2010: F-OB4; FASB, 2010: SFAC 8, OB4). Thus, the boards acknowledge that decisions on providing resources to an entity encompass decisions on resource allocation as well as on management's stewardship (IASB, 2010: F-OB4 and F-BC1.27-28; FASB, 2010: SFAC 8, OB4 and BC1.27-28). However, due to translation problems resulting from differing views on the meaning and implications of stewardship the boards decided not to refer to the term stewardship in their frameworks and instead describe what stewardship embraces according to their view (IASB, 2010: F-BC1.28; FASB, 2010: BC1.28). From the responses received in the due process it became clear that differing views exist on the stewardship function of accounting information. While some constituencies argued that information required to evaluate how management has discharged its stewardship responsibilities is not necessarily useful for economic decision-making others considered the stewardship objective to be part of the decision-usefulness objective (IASB, 2006a: BC1.32-BC1.35). The IASB and FASB finally agreed in their discussion paper (IASB, 2006a: BC1.36) with the latter view regarding the stewardship objective to be included in the overall objective of providing useful information for resource allocation decisions. However, in this regard the boards also clarified that financial reporting is neither conceived to directly provide information about the performance of the management nor to provide information that is specifically designed to be useful for contractual agreements (IASB, 2006a: BC1.37-1.41). It seems from the discussion above that the IASB and FASB generally consider decision-making and stewardship as compatible objectives.

By defining investors, lenders and other creditors as the primary user group the FASB and IASB follow a stakeholder perspective regarding not only investors but also employees, lenders, suppliers and other trade creditors as major users of financial information (IASB, 2010: F-BC1.10; FASB, 2010: SFAC 8, BC1.10). Although the boards also recognize management's general interest in using

information provided by financial accounting (IASB, 2010: F-OB9; FASB, 2010: SFAC 8, OB9) they conclude that financial reporting is likely to only partly meet management's requirements (IASB, 2010: F-BC1.19; FASB, 2010: SFAC 8, BC1.19). In addition, since managers are able to obtain the financial information they need internally, general purpose financial reporting need not explicitly be directed to management's requirements (IASB, 2010: F-BC1.19; FASB, 2010: SFAC 8, BC1.19). Hence, the IASB and FASB do not specifically address the incentive effects resulting from the stewardship function of accounting on internal decision-making and its implications for decision-useful accounting standards.

As can be seen from the analysis above, the IASB and FASB (1) regard information for assessing management's stewardship to be part of the overall objective of providing decision-useful information, and (2) do not give special consideration to how the stewardship function of accounting may result in incentive effects for management to alter management's internal decision-making and the resultant consequences on what constitutes decision-useful information for external investors. This has far reaching consequences. The stewardship objective and the decision objective might not be compatible and hence imply different requirements. By focusing only on external users and their information requirements the developed accounting standards lose their relevance for internal management purposes. As a consequence, financial reporting has diverged from management accounting, even though both systems generally derive their information from the same database – the organization's bookkeeping system (Hansen & Mowen, 1994: 5) – and management accounting is in practice largely based on financial accounting. In addition, by ignoring management's information needs as a starting point for developing accounting standards, the IASB and FASB disregard the fact that information considered useful for management decisions may be highly relevant for external financial statements users to assess future cash flows.

2.2. The divergence of accounting from a historical perspective

The beginnings of basic modern management accounting can be traced back to the 14th and 15th centuries when in Italy the double-entry bookkeeping emerged (Hampton & Karadbil, 1968: 2). With the growth in national and international business activities and diversification, cash management proved ineffective and merchant traders (as for example the *Fugger* in Germany) experienced an increasing demand for a more elaborate accounting system providing accounting information on their economic affairs. Thus, in the beginning, accounting was exclusively developed for the internal needs of the management and the sole function for keeping accounts was to generate financial information on the financial performance of the business for the owner-manager (Hampton & Karadbil, 1968: 3; Coenenberg, 1995: 2077; Vhen, 1929: 169; Littleton &

Zimmerman, 1962: 49-50) to assist internal decision-making and control (performance evaluation).¹

However, as businesses developed from family-owned enterprises to large and complex corporate entities with outside investors, the role of accounting changed. The development of vertically integrated and diversified businesses, often with foreign branches, resulted in internal principal-agent conflicts which created a demand for planning and evaluating the performance on different organizational levels respectively for different branches (Kaplan, 1984: 391-392; Littleton & Zimmerman, 1962: 51-52). A similar process occurred at the boundaries of the firm: owners were increasingly removed from management activities and professional managers were appointed instead (Hampton & Karadbil, 1968: 3). Since management and owners became separate groups, principal-agent conflicts emerged and the function of reporting accounting information to outside investors was added to that of recording and reporting data for the owner-manager use (Paton & Littleton, 1967: 1).² Finally, financial accounting (reporting) regulation evolved to protect outside investors such as shareholders and creditors (as well as other stakeholders) (Hampton & Karadbil, 1968: 3). With the increasing development of financial reporting regulation directed towards the protection of outsiders, financial reporting and management accounting evolved to become two separate systems due to assumed differences in the users and uses of financial accounting information. Major arguments for distinguishing between financial reporting and management accounting as illustrated in the literature are summarized below.

A central difference between the two accounting systems of financial and managerial accounting relate to verifiability. The usefulness of information to users outside the business will be increased if the information is verifiable. Therefore, an enhancing qualitative characteristic of financial accounting information is verifiability (IASB, 2010: F-QC26; FASB, 2010: SFAC 8, QC26; for further discussion see e.g. Benston *et al.*, 2006: 20-22). Verifiability helps to ensure that financial information faithfully represents what it purports to depict (IASB, 2010: F-QC26; FASB, 2010: SFAC 8, QC26). Accordingly, information is verifiable if different knowledgeable and independent persons can reach consensus that a specific depiction is a faithful representation. For internal management purposes, in contrast, it is assumed that a lower degree of verifiability is sufficient and that accounting information can therefore be more subjective and judgmental (Atkinson *et al.*, 2004: 5). This argument however neglects internal agency conflicts e.g. between top management and divisional managers resulting from decentralization. For example, for planning and control purposes top management is reliant on the information reported by its divisional managers.

Further differences are assumed to exist regarding the timeliness of the provided information. Depending on the legislation in place, financial statements are

provided annually, half yearly or quarterly. Therefore, results are generally reported with a delay (Atkinson *et al.*, 2004: 5; Hansen & Mowen, 1994: 5). To be useful as a tool for effective decision-making, accounting data must be timely. This does not however preclude financial and management accounting being based on the same accounting system and data reported less often to outsiders. A further disadvantage of financial accounting information is that it is in most instances historical.³ Managerial accounting information in contrast must be future orientated rather than merely measuring past performance (Atkinson *et al.*, 2004: 5; Hampton & Karadbil, 1968: 364; Hansen & Mowen, 1994: 5). However, the same scenario holds for external users of accounting information. As shown by the research, external users find forward-looking information, especially forecasted financial and operating data, equally relevant for making economic decisions (AICPA, 1994: 29-30). Reporting such forward-looking information does however raise concerns regarding its verifiability (AICPA, 1994: 30; AICPA, 1973: 46). Thus, the focus of financial reporting on historical information seems primarily to be a question of verifiability rather than of relevance.

Additional differences purportedly exist with respect to the nature of the information required. For internal planning and controlling purposes frequently non-financial, physical measurements are used in addition to financial information. External financial reporting in contrast is primarily based on financial measures (Atkinson *et al.*, 2004: 5). Ijiri (1995: 61) distinguishes between resource managers, having the task of ensuring efficient operations and maximizing individual project returns, and capital managers, who have the responsibility of raising capital and deciding on capital allocation among projects to maximize total return. Different information requirements are assumed as capital is abstract, aggregated and homogenous, while resources are concrete, disaggregated, and heterogeneous (Ijiri, 1995: 61). However, since the double-entry bookkeeping system records resources and capital in tandem, it is able to provide information for both capital managers and resource managers (Ijiri, 1995: 61). Additionally, current developments indicate that non-financial information is also regarded highly relevant for external users (AICPA, 1994: 26-27; Rees & Sutcliffe, 1994; Lev & Zambon, 2003; for contradicting results see Riley *et al.*, 2003).

Finally, the scope of the generated information is different between management accounting and financial reporting. External users are interested in evaluating the organization's management performance as a whole for purposes of decision-making. The information provided in financial reports therefore is highly aggregated (Hansen & Mowen, 1994: 5; Atkinson *et al.*, 2004: 5). For management purposes these aggregated data are not sufficient. The subject of managerial decisions, planning and control processes does not only relate to the entire organization, but also smaller units such as products, product lines, customers, departments, or divisions. Therefore, more detailed accounting data are generally required for managerial accounting purposes (Ijiri, 1995: 62). In addition, internal

decision-making and analysis of cause-and-effect relationships can require very specific models and accounting information. It can be useful (especially in the short run) to distinguish between fixed and variable costs and also take opportunity costs into account, to make sure that all relevant effects are adequately captured (Coenenberg, 1995: 2079-2080). For internal decision-making purposes therefore, financial accounting information is regarded as not being adequate. However, when comparing the information needs of board members and top executives with outside investors similar requirements can be assumed since both are considered as capital managers interested in a firm's total return (Guttentag, 2004: 176; Ijiri, 1995: 61).

Therefore, the extent to which management accounting differs from financial accounting *inter alia*, strongly depends on the financial reporting regulation in force. More specifically, the underlying assumptions of the objectives and users of financial accounting information influence significantly the content of standards and thus the compatibility with internal information needs. The objectives of financial reporting as well as the principal users that are defined in accounting regulation, impact the development of accounting principles and hence the usefulness of the generated financial accounting information for internal decision-making and control purposes.

In Germany, for example, financial accounting serves not only information purposes but is also used as a basis for determining dividend payments and taxable profits. To ensure creditor protection, accounting regulation puts significant emphasis on the prudence principle, resulting in accounting information that does not always adequately reflect economic reality. This strongly impairs the usefulness of financial reporting information for management accounting purposes. In Germany, management accounting has therefore, evolved to become somewhat separate from financial reporting. In the USA in contrast, where financial reporting has traditionally had the purpose of providing decision-useful information for the investors, financial accounting is more compliant with management accounting requirements (Haller, 1997: 272-273). In Germany, the application of US-GAAP and IFRS is therefore regarded as an opportunity to reduce the separation between management and financial accounting and reach convergence between the two accounting systems (see e.g. Haller, 1997).

In addition, the extent to which management accounting differs from financial accounting is not only subject to the regulations in force but is also subject to questions relating to cost-benefit factors. It can be costly to maintain two different accounting systems. For this reason, smaller entities in particular frequently use financial accounting information, produced for external users as required by legislation, for internal managerial purposes (Barker & Noonan, 1996: 19; Carsberg, *et al.*, 1985: 6; Collis & Jarvis, 2000: 56-62).

In summarizing we conclude that the IASB as well as the FASB largely ignore managerial information requirements in the process of standard setting. This may lead to financial accounting information that is of minor relevance for management purposes. The consequence is that managerial and financial accounting become and remain separate systems, as history has already shown. The question thus arises, whether this separation between management accounting and financial accounting is inevitable, or whether it is the result of an inappropriate standard setting focus. Is it possible to achieve convergence between management accounting and financial reporting by giving management's information requirements greater consideration in the standard setting process? Will this lead to accounting information that is also useful for externals? To address these questions, we discuss the usefulness of accounting information for both external users and an enterprise's management.

3. QUALITATIVE CHARACTERISTICS OF USEFUL INFORMATION

To be able to provide useful information, it is necessary to determine the meaning of "useful" in this context. In general, information can only be considered useful if it serves its intended purpose. In the following discussion we examine the functions of accounting and the resulting properties of useful information. We present a three-step-approach to analyzing accounting information within a framework based on financial economics and agency theory.

3.1. Objectives of accounting

As discussed in section 2.1 of this paper, according to the FASB's and IASB's frameworks the primary purpose of external financial reporting is to provide information useful in making decisions about providing resources to an entity. This is achieved by providing information that assists users in evaluating the amount, timing, and uncertainty of the firm's future cash flows. To assess an entity's cash flow prospects users are assumed to need not only information about the resources and claims of an entity but also information on management's and the governing body's performance to use the entity's resources in an efficient and effective manner (stewardship function) (IASB, 2010: F-OB4; FASB, 2010: SFAC 8, OB4).

The discussion on the different functions of accounting and the use of financial accounting for management accounting purposes has a long tradition. Theoretical research has examined the stewardship versus valuation role of accounting information from the perspective of information economics. Particularly, the question analyzed is whether information needed for investors to value firms coincides with information required for performance measurement. Within an agency framework, Gjesdal (1981) shows that decision-usefulness and stewardship are distinct functions of accounting. Consequently, the literature is critical about

the use of information relevant for decision-making in performance measurement systems used for stewardship purposes (e.g. Lambert, 2001).

Although theoretical research recommends the use of distinct accounting information for different purposes, this result is not empirically valid in practise. Bushman *et al.* (2006) find that valuation earnings coefficients and compensation earnings coefficients are related empirically. That is, the information content of earnings from both a value relevance and a performance evaluation perspective is positively related. Additionally, based on the agency framework provided by Gjesdal (1981), Bushman *et al.* (2006) shows that simple adjustments to the model assumptions leads to a situation in which information requirements of shareholders and managers coincide. Hence, they conclude that accounting information used by investors to value the firm can also be optimal from the perspective of stewardship. Consequently, researchers have started to analyze the links of financial reporting regimes with the informational properties of optimal managerial accounting systems (Hemmer & Labro, 2008; Scholze & Wielenberg, 2007).

Whether information is of value for decision-making purposes depends on the presumption of how the users of the information make these decisions. From what we know about this process, accounting information is used as an input to decision models. In financial economics valuation models are often used for this purpose, yielding the “intrinsic” value of an asset. Ideally, capital allocation decisions are taken by comparing the asset’s intrinsic value with its current market price (Stowe *et al.* 2002). Applying valuation models requires the derivation of forecasts from accounting data which is done based on its past performance. The firm’s past ability to achieve its economic objectives is analyzed and is used to draw conclusions about its future. As such, the analysis is both retrospective and prospective, in that it uses past experience to derive forecasts. At a later point in time, after the investment, decisions to retain the investment are based on the expectations of future performance which are influenced by later actual realizations of the expected figures. Therefore, forecasts need to be compared with the actual figures and be analyzed for deviations in order to draw conclusions on the further development. Control therefore is an important element in decision-making. Keeping this in mind, accounting figures are not only used in the derivation of forecasts but are also needed in order to review earlier predictions. At the same time they are a necessary basis for further predictions.

The stewardship demand for accounting information results from delegating decision-making to managers (Gjesdal, 1981: 208). In such delegation settings, information asymmetry and conflicts of interest lead to principal-agent conflicts. Since the actions of the agent are not directly observable, the principal cannot expect the agent to act in the principal’s best interest. This creates a demand for information to help in evaluating management’s economic behavior. From a stewardship perspective, therefore, accounting information is primarily regarded as

a control and contracting device (O'Connell, 2007: 218). As such, the reporting of information can directly eliminate information asymmetries by removing the superior information position of management and thus alleviating agency conflicts (Beaver, 1989: 39). Reporting all relevant information to the principal would thus allow him to exert perfect control, ultimately enabling him to take all relevant decisions by himself by prescribing to management which decisions to take and controlling his actions thereafter. This, however, ignores the reasons why the decision was delegated in the first place. In addition, considering conflicts of interest, it cannot be assured that the agent will report truthfully. As financial reports are expected to reflect management's performance reporting requirements and will influence managements' decisions (Bruns, 1968: 473-475), they may provide incentives to manipulate financial accounting data that needs to be reported (Zeff, 1978: 62; Pfaff & Bärtl, 1998). This establishes e.g. requirements for an audit, which in turn may lead to further principal-agent conflicts (Gjesdal, 1981: 218).

Therefore, another response to principal-agent conflict is to align management's interests to those of the owners via an incentive contract. In this setting accounting measures are used to provide performance measures that are incentive useful, motivating the management to act in the best interest of owners. If the agent is to maximize his own utility, he will anticipate the consequences of his decisions on these measures and will make his decision accordingly. If the measures are set in accordance with the owners' interest, the agent will take the decisions that are in line with the principals. Hence, from this contracting perspective, the usefulness of accounting information depends on its incentive qualities. Whether a managerial performance measure is considered to be incentive compatible depends in turn on its estimation properties with respect to the actual actions of the management. Thus performance measures need to provide incentives to make management act in the best interests of the principals. At the same time, the performance of management needs to be observable. The reporting of certain information is necessary in order for the agent to know in advance, at the time of making the decision that he will be evaluated based on the outcome. From the point of view of an external shareholder, the reporting of certain information may not be relevant in the sense that it influences future predictions of performance, but in the sense that its reporting is necessary to prevent the agent from taking detrimental decisions.

For example, extraordinary items, may not necessarily have direct implications for future performance – the position however tells a story on management's abilities and failures. On similar lines one may argue that the individualized disclosure of management bonuses is not relevant information, as it has not influenced the firm's future earnings. However this information may seem important from the stewardship perspective, especially in order to prevent managerial consumption (Jensen & Meckling, 1976). Another example is unethical business practice which may lead to improved future performance but may not be acceptable to the owners.

Such behavior may not influence the investor's decisions regarding holding the investment, but instead influence the decision on reappointment of management.

Another important quality of performance measures to be incentive useful, is their accuracy. If the agent is evaluated based on his reported performance he has an incentive to report the message which gives him the highest reward (Prakash & Rappaport, 1975: 731; Prakash & Rappaport, 1977:29). Lacking verifiability, the information is useless for solving the stewardship problem (Gjesdal, 1981: 218). Therefore, the stewardship objective establishes the demand for performance measures that allow reliable conclusions to be made on management's actions.

It follows from the discussion above that the stewardship function of accounting takes a different perspective than the decision-making objective. While the decision-making role of financial reporting requires accounting standards to provide relevant information for use in the decisions of external stakeholders (external decision-makers) the stewardship function requires accounting rules that ensure management (the internal decision-maker) act in the best interest of owners by providing the correct incentives. Thus, from this perspective the stewardship function does not focus on decision-making of externals but on the economic behavior of management explicitly recognizing incentive problems. Accordingly, from a stewardship perspective accounting serves as a basis for motivating agents to act in the interest of the principals. To provide the correct incentives and to make management act in the interest of owners, the concept of stewardship establishes the need for information reported on expected performance as well as measures of progress along the initially defined path. Therefore prospective as well as retrospective information is required. Prospective information is necessary for principals to form expectations about management's performance while retrospective information is necessary to control/evaluate management's decisions later on. Anticipating the economic consequences of its decisions on the performance measures to be reported, management receives incentives to take its decisions accordingly. To ensure, however, that the correct incentives will be provided, it is crucial that the performance measures reported allow reliable conclusions on management's behavior. One way to reduce 'distortions', for example, is to require an audit, leading however to additional principal-agent problems (Gjesdal, 1981: 218).

Managerial accounting can be described as the process of ensuring that resources are obtained and used efficiently and effectively to achieve the business's objectives (Anthony, 1965). In this process, accounting systems serve both the purposes of decision-making and stewardship due to internal principal-agent conflicts (Pfaff, 1995; Prakash & Rappaport, 1975: 726-729; Zimmerman, 2000, 2001). In the last ten years the focus of managerial accounting has expanded to include planning and control systems that "encompass a more strategic emphasis on the creation of firm value through the identification, measurement, and management of the drivers of customer value, organizational innovation, and

shareholder returns” (Ittner & Larcker, 2001: 352). It is now well established that the central business objective is the creation of shareholder value. Modern performance measurement techniques intend to measure the value generated in a particular accounting period (O’Hanlon & Peasnell, 1998, 2002). This is intended to give incentives for management to take actions that generate value (Wagenhofer, 2003).

Decisions within the firm, be they strategic or operating in nature, shall be taken in order to increase shareholder wealth, i.e. the present value of cash flows. Investment decisions are made based on the net present value rule. Any decision will have its implications for future cash flows and needs to take these into consideration. The decision cannot be made based on past cost information (Brealey & Meyers, 2004). An R&D-project, say, cannot be abandoned based on past costs, not even based on future cost projections, but only based on the expected excess of future cash inflows over outflows (Hauschildt, 2004: 528). Once the project has been initiated, cash flows of the past are sunk and do not influence decisions. There is thus no immediate relevance of profit or cost information for decision-making. One explanation for the usefulness of accrual accounting information is that it provides a better basis for deriving forecasts. Another is that it serves as an indicator for the project’s, product’s or business unit’s past ability to meet its objectives, that is, for purposes of control. Through the use of performance figures based on accrual accounting, accrual accounting achieves an influence on decision-making via the incentives it provides to managers (Reichelstein, 2000). Retrospective information from a stewardship perspective contributes indirectly to decision-making by providing the basis for forecasts and through the anticipation of the criteria applied in the later evaluation of performance, similar to the decision-making perspective (Pfaff, 2004: 19, 22).

In summarizing we conclude that both managerial and financial accounting have two main functions: decision-making and stewardship. As such their perspectives are both retrospective and prospective (see Table 1). Accounting information is prospectively used as the basis for deriving expectations and is retrospectively used to evaluate the progress made relative to expectations in order to make decisions for corrective actions. The difference lies mainly in the user group. Under the decision-making perspective, the focus is on the person who makes the decision. Under the stewardship perspective, the focus is on influencing other people’s decisions.

Accrual accounting is designed to fulfill both functions, the retrospective and the prospective role of accounting. Payments made with the intention to create future returns are matched with those returns. The charges derived from payments deferred to other periods, such as depreciation and amortization charges, serve both purposes. Their retrospective function is cost allocation, i.e. matching the initial investment outlay with the receipts derived from it, which shows the difference as

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profit. Their prospective function is to show the reinvestment necessary for replenishing the firm's capital stock (capital maintenance) in order to maintain the current earnings in the future. As such they provide an estimate of future cash outflows.

Table 1. Functions of accounting

	Decision-Making		Stewardship (influencing decision-making of agents)
Retrospective	control	control	control
Prospective	planning/ forecasting	planning/ forecasting	planning/forecasting
User group	management	owners and other stakeholders	Shareholders to control managers; Central management to control divisional managers

The accounting for goodwill is a suitable example to highlight the difference between these two perspectives: The amortization charge to acquired goodwill is different from other amortization charges in that it only fulfills the retrospective function, not the prospective. Copeland *et al.* (2000: 176) find that unlike other assets goodwill is not replaced. No reinvestments in goodwill can be derived from goodwill amortization and it is therefore considered irrelevant for valuation purposes. Most analysts eliminate goodwill charges from their analysis of future earnings (White *et al.*, 2003: 528). This was one of the main reasons why the FASB decided to change the rules for the accounting of goodwill, introducing the impairment-only-approach (FAS 142.B77). However, while charges to goodwill seem to have no prospective function, they do have a control function (Schultze, 2005): if management paid premia in acquiring other firms, the profits acquired are not the same as the profits generated from the original businesses. A dollar of additional profit that was acquired at a price of a dollar is no profit at all. Goodwill amortization therefore is an important aspect of cost allocation and in the measurement and evaluation of past performance, i.e. for management control. In recent years, the IASB has largely denied the accrual principle and focused on the balance sheet approach and the use of fair values (Dichev, 2008). By so doing it largely neglects the role of the control function of accounting information.

In an ideal world, all managers would act as if they were themselves the owners. If accounting intends to serve the objective to make managers act as if they were the owners, the first step in the process of defining accounting rules needs to be the definition of the type of information which an owner-manager would need for wealth maximization. A framework for the analysis of such information is provided by financial economics. Other, non-financial objectives which an owner might also pursue, such as the sense of prestige, power etc. can be considered as constraints of

the overall objective of maximizing wealth and are thus neglected in most analyses. Only in a second step the question arises, what additional aspects to consider in the context of agency relationships? In the following discussion we consider these two steps.

3.2. Characteristics of accounting for managerial owners without agency relationships

In the following discussion we analyze the role of control information for decision-making of managerial owners, abstracting from agency relationships. The objective of accounting then is to provide information for the effective and efficient allocation of resources. The framework used is found in financial economics. For the following analysis, we make assumptions similar to a “perfect” market, i.e. a perfectly competitive capital market. We assume a firm, where the owner is in possession of 100% of the shares and is the only decision-maker. The owner is assumed to behave rationally and to maximize utility. He can borrow and lend money with no restrictions in a perfect capital market. Under these assumptions, maximization of utility, i.e. welfare, is identical to wealth maximization (Fisher, 1930; Miller & Modigliani, 1961) and investment decisions can be taken independently of other decisions, such as financing or dividend policy. There is no internal information asymmetry, as the owner is able to oversee all internal processes. The firm has no debt and owes no taxes, requiring no external users to be considered when setting accounting rules. The firm is assumed to have a finite time horizon denoted by T .

Even in such a setting, the owner-manager will need an accounting system, even if no externally imposed reporting requirements exist. Within such a framework, information is needed to allow efficient decisions about resource allocation. Thus, without any agency conflicts the only purpose of accounting is to assist in economic decision-making. This requires forward-looking information as well as control information (Pfaff, 1995: 439). Decisions need to be re-evaluated periodically. The decision-maker wants to decide whether to continue without changes or whether to abandon or alter the course of action in question. For this purpose “performance” in the sense of the progress along the lines of the original plans needs to be determined. Decisions are based on a comparison of projections as well as with the alternatives.

The owner’s decisions will be based on cash flow projections, and he will accept all projects that have a positive net present value. At the outset, he holds funds in the amount of F_0 . The initial investment requires payments in the amount of I_0 . The investment yields uncertain future cash outflows (COF_t) and inflows (CIF_t). The time subscript t is used to denote timing of future values. The symbol k represents the opportunity cost of equity capital which is assumed to be identical for all

maturities and to remain constant over time. After the investment decision, his wealth (W) is given by (where “E” denotes the expected value):

$$W_0 = F_0 - I_0 + \sum_{t=1}^T \frac{E[\text{CIF}_t] - E[\text{COF}_t]}{(1+k)^t}. \quad (1.)$$

His change in wealth and thus the decision rule can be stated in terms of the NPV-rule:

$$\Delta W_0 = -I_0 + \sum_{t=1}^T \frac{E[\text{CIF}_t] - E[\text{COF}_t]}{(1+k)^t} \geq 0. \quad (2.)$$

In period 1 he will have earned ($\text{CIF}_1 - \text{COF}_1$). The funds that were not invested in the project were invested in financial assets to earn the rate k . So his wealth now is:

$$W_1 = (F_0 - I_0)(1+k) + \text{CIF}_1 - \text{COF}_1 + \sum_{t=2}^T \frac{E[\text{CIF}_t] - E[\text{COF}_t]}{(1+k)^{t-1}}. \quad (3.)$$

The same is true for the subsequent periods.

$$W_t = (F_0 - I_0)(1+k)^t + \sum_{j=1}^t (\text{CIF}_j - \text{COF}_j)(1+k)^{t-j} + \sum_{i=t+1}^T \frac{E[\text{CIF}_i] - E[\text{COF}_i]}{(1+k)^{i-t}}. \quad (4.)$$

In the final period T he will have accumulated:

$$W_T = (F_0 - I_0)(1+k)^T + \sum_{j=1}^T (\text{CIF}_j - \text{COF}_j)(1+k)^{T-j}. \quad (5.)$$

The investment is beneficial, if W_T exceeds the amount of wealth he could have accumulated if he had invested F_0 at the rate k :

$$\begin{aligned} (F_0 - I_0)(1+k)^T + \sum_{j=1}^T (\text{CIF}_j - \text{COF}_j)(1+k)^{T-j} &> F_0(1+k)^T \\ \Leftrightarrow I_0(1+k)^T &< \sum_{j=1}^T (\text{CIF}_j - \text{COF}_j)(1+k)^{T-j}. \end{aligned} \quad (6.)$$

The total surplus from the transaction can only be determined at the very end of the life of the project. To control the project and change its course in case expectations cannot be met, we need to evaluate its progress. To do so we compare the initial projections with actual performance. In period 1 the owner compares W_1 with the wealth he had initially expected to have in period 1 ($E_0[W_1]$):

$$E_0[W_1] = (F_0 - I_0)(1+k) + E_0[\text{CIF}] - E_0[\text{COF}] + \sum_{t=2}^T \frac{E_0[\text{CIF}] - E_0[\text{COF}]}{(1+k)^{t-1}}. \quad (7.)$$

In the following we take into account that as time passes, we learn about the outcomes and can alter expectations. Let $D_1[\text{CF}_t]$ denote the difference between expectations of cash flows (CF) in period 1 ($E_1[\text{CF}_t]$) and expectations in period 0 ($E_0[\text{CF}_t]$), i. e. $D_1[\text{CF}_t] = E_1[\text{CF}_t] - E_0[\text{CF}_t]$, we can write the total deviation as follows:

$$W_1 - E_0[W_1] = CIF_1 - E_0[CIF_1] - COF_1 - E_0[COF_1] + \sum_{t=2}^T \frac{D_1[CIF_t] - D_1[COF_t]}{(1+k)^{t-1}} \quad (8.)$$

Differences between actual and expected values are denoted by e : $E_0[CF_1] = CF_1 + e_1$. With $CF = CIF - COF$ this yields a total deviation of:

$$W_1 - E_0[W_1] = e_1 + \sum_{t=2}^T \frac{D_1[CF_t]}{(1+k)^{t-1}} \quad (9.)$$

The total deviation is a combination of differences in performance of the period (e) and changes in expectations, between these an obvious tradeoff exists. It is therefore impossible to evaluate interim performance without a simultaneous evaluation of future performance. Corrective action will only be necessary, if the total deviation is negative and can be altered. An equivalent evaluation of the corrective action is therefore necessary, for which we determine the amount of wealth (W^C) which results from taking the corrective action (e.g. abandoning the project, making additional investments, reorganizing processes) at an immediate outlay of C :

$$W_1^C = (F_0 - I_0)(1+k) + CIF_1 - COF_1 - C_1 + \sum_{t=2}^T \frac{E_1[CIF_t^C] - E_1[COF_t^C]}{(1+k)^{t-1}} \quad (10.)$$

Corrective action is advisable only, if $W^C > W$, i.e.

$$W_1^C - W_1 > 0$$

or

$$-C_1 + \sum_{t=2}^T \frac{E_1[CIF_t^C] - E_1[COF_t^C]}{(1+k)^{t-1}} - \sum_{t=2}^T \frac{E_1[CIF_t] - E_1[COF_t]}{(1+k)^{t-1}} > 0 \quad (11.)$$

Any decision about taking corrective action can only be based on the net present value of the incremental cash flows resulting from this action:

$$W_1^C - W_1 = -C_1 + \sum_{t=2}^T \frac{D_1^C[CF_t]}{(1+k)^{t-1}} \quad (12.)$$

The total deviation for period 2 as compared to the initial plan in $t = 0$ is:

$$W_2 - E_0[W_2] = (CF_1 - E_0[CF_1])(1+k)^1 + (CF_2 - E_0[CF_2]) + \sum_{t=3}^T \frac{D_2[CF_t]}{(1+k)^{t-2}} \quad (13.)$$

With $E_0[CF_t] = CF_t + e_t$ we have:

$$W_2 - E_0[W_2] = e_1(1+k)^1 + e_2 + \sum_{t=3}^T \frac{D_2[CF_t]}{(1+k)^{t-2}} \quad (14.)$$

Continuing this process until time T we get:

$$W_T - E_0[W_T] = \sum_{j=1}^T e_j(1+k)^{T-j} \quad (15.)$$

Using contemporaneous accounting information, we intend to influence these deviations such that the cumulative difference is positive:

$$W_T - E_0[W_T] = \sum_{j=1}^T e_j(1+k)^{T-j} > 0. \quad (16.)$$

We therefore want to analyze the information at period 1, in order to derive forecasts for further developments. The expected wealth of period 2, taking the information of period 1 into consideration is:

$$E_1[W_2] = (F_0 - I_0)(1+k)^2 + (E_1[CF_1])(1+k)^1 + (E_1[CF_2]) + \sum_{t=3}^T \frac{E_1[CF_t]}{(1+k)^{t-2}} \quad (17.)$$

The total deviation for period 2 as compared to the prospects in $t = 1$ is:

$$W_2 - E_1[W_2] = (CF_1 - E_1[CF_1])(1+k)^1 + (CF_2 - E_1[CF_2]) + \sum_{t=3}^T \frac{D_2[CF_t]}{(1+k)^{t-2}} \quad (18.)$$

With the change in expectations being: $D_1[CF_t] = E_1[CF_t] - E_0[CF_t]$ we get:

$$E_1[W_2] - E_0[W_2] = D_1[CF_1](1+k)^1 + D_1[CF_2]. \quad (19.)$$

Therefore:

$$\begin{aligned} W_2 - E_0[W_2] &= (W_2 - E_1[W_2]) + (E_1[W_2] - E_0[W_2]) \\ &= (CF_1 - E_1[CF_1])(1+k)^1 + (CF_2 - E_1[CF_2]) + \sum_{t=3}^T \frac{D_2[CF_t]}{(1+k)^{t-2}} \\ &\quad + D_1[CF_1](1+k)^1 + D_1[CF_2]. \end{aligned} \quad (20.)$$

Taking into account that $E_0[CF_t] = CF_t + e_t$ we have:

$$W_2 - E_0[W_2] = e_1(1+k)^1 + e_2 + \sum_{t=3}^T \frac{D_2[CF_t]}{(1+k)^{t-2}}. \quad (21.)$$

Let $CF_t - E_{t-1}[CF_t] = \varepsilon_t$. We receive:

$$W_2 - E_0[W_2] = \varepsilon_1(1+k)^1 + \varepsilon_2 + D_1[CF_1](1+k)^1 + D_1[CF_2] + \sum_{t=3}^T \frac{D_2[CF_t]}{(1+k)^{t-2}}. \quad (22.)$$

Continuing this process for all periods until time T we can write:

$$\begin{aligned} W_T - E_0[W_T] &= (W_T - E_{T-1}[W_T]) + (E_{T-1}[W_T] - E_{T-2}[W_T]) + \dots \\ &\quad + (E_1[W_T] - E_0[W_T]) \\ &= \sum_{j=1}^T e_j(1+k)^{T-j} = \sum_{j=1}^T \varepsilon_j(1+k)^{T-j} + \sum_{j=1}^{T-1} \sum_{i=1}^{j+1} D_j[CF_i](1+k)^{T-j}. \end{aligned} \quad (23.)$$

The total deviation from initial projections can thus be divided in two parts: the actual deviations from adjusted expectations and the corrections of expectations from period to period. Using the accounting information to improve estimates implies that

$$CF_t - E_{t-1}[CF_t] < CF_t - E_{t-2}[CF_t]. \quad (24.)$$

This in turn implies

$$CF_t - E_{t-2}[CF_t] = CF_t - E_{t-1}[CF_t] + E_{t-1}[CF_t] - E_{t-2}[CF_t]$$

$$CF_t - E_{t-1}[CF_t] < CF_t - E_{t-1}[CF_t] + E_{t-1}[CF_t] - E_{t-2}[CF_t]$$

$$0 < E_{t-1}[CF_t] - E_{t-2}[CF_t], \text{ i. e.}$$

$$D_t[CF_t] = E_t[CF_t] - E_{t-1}[CF_t] > 0. \quad (25.)$$

We receive:

$$\left| \sum_{j=1}^T \varepsilon_j (1+k)^{T-j} \right| < \left| \sum_{j=1}^{T-1} \sum_{i=1}^{j+1} D_j[CF_i] (1+k)^{T-j} \right| \quad (26.)$$

The results show that by actively controlling the project and analyzing deviations from period to period, a better performance can be achieved compared to only observing the final result. The results also reveal the information necessary for this process.

In accrual accounting, profit is used as an indicator of performance. We control for the question of whether the project is moving satisfactorily towards the specified target. In economic theory, economic income or profit (EP) is defined as the change in wealth from period to period, which can be written as:⁴

$$\begin{aligned} \Delta W_1 &= W_1 - W_0 \\ &= k(F_0 - I_0) + CIF_1 - COF_1 + \sum_{t=2}^T \frac{E_1[CIF_t] - E_1[COF_t]}{(1+k)^{t-1}} - \sum_{t=1}^T \frac{E_0[CIF_t] - E_0[COF_t]}{(1+k)^t} \\ &= k(F_0 - I_0) + CF_1 - \frac{E_0[CF_1]}{1+k} + \sum_{t=2}^T \frac{D_1[CF_t]}{(1+k)^{t-1}} + \left(\frac{k}{1+k} \right) \sum_{t=2}^T \frac{E_0[CF_t]}{(1+k)^{t-1}}. \quad (27.) \end{aligned}$$

With $CIF - COF = CF$, and $E[CF] = CF + e$ we can write:

$$EP_1 = k(F_0 - I_0) + CF_1 \left(\frac{k}{1+k} \right) - \frac{e_1}{1+k} + \sum_{t=2}^T \frac{D_1[CF_t]}{(1+k)^{t-1}} + \left(\frac{k}{1+k} \right) \sum_{t=2}^T \frac{E_0[CF_t]}{(1+k)^{t-1}}. \quad (28.)$$

In general, EP can be defined as:

$$\begin{aligned} \Delta W_t &= W_t - W_{t-1} \\ &= (F_0 - I_0)[(1+k)^t - (1+k)^{t-1}] + \sum_{j=1}^t CF_j [(1+k)^{t-j} - (1+k)^{t-j-1}] \\ &\quad + \frac{CF_t k}{(1+k)^t} + \frac{\varepsilon_t}{(1+k)^t} + \sum_{i=t+1}^T \frac{D_t[CF_i]}{(1+k)^t} + \left(\frac{k}{1+k} \right) \sum_{i=t+1}^T \frac{E_0[CF_i]}{(1+k)^{i-t}}. \quad (29.) \end{aligned}$$

Again, the performance measure EP contains the deviations from initial projections. The profit figure does not, however, tell the observer directly whether projections have been met. The deviation of the period is included in the figure and can be determined from it, as above, by the following component:

$$\frac{\varepsilon_t}{(1+k)^t} + \sum_{i=t+1}^T \frac{D_i[CF_t]}{(1+k)^t} \quad (30.)$$

In accrual accounting, the nature of cash flows is evaluated in order to measure performance for the period. Cash outflows are used to acquire benefits which may or may not yet have been used up in the business process. If the benefits are used, an expense is recognized, otherwise the remaining benefit can be turned back to cash. Cash inflows can be considered earned and thus create revenue or otherwise create a liability. Accrual accounting contributes to decision-making by integrating some of the future into the analysis of the present. To date, this process is, however, imperfect and could be improved by accounting theories and rules designed specifically for this purpose. So far, the profit of the period shows only to some degree, which portion of the expected total surplus has been earned. In other words, it partly shows the progress the firm has made during the period towards firm goals. As such, profit can be regarded as an indicator for the need for corrective action, when projections are not met, in the same vein as in the example of the speedometer used in the introduction. When designing accounting rules, it is therefore important to specify whether the resulting figure is intended to measure current performance (speed) or future performance (estimated arrival time). To be able to determine “periodic measures of progress towards enterprise goals” (AICPA, 1973) it is important that those reflect realized performance, not future performance (unrealized gains).

3.3. Accounting rules considering internal agency relationships

We now address the question of how the function of accounting is affected by internal agency conflicts. We discuss the consequences of an owner delegating decision rights to divisional managers. In this case, he will no longer be able to oversee all functions himself. While in the previous section the owner’s decisions were based on his own projections, he now needs to trust the projections that are made by the divisional managers. Assuming information asymmetries and conflicts of interest, the owner cannot assume that the divisional managers will act in the best interest of the owner.⁵ Therefore, after having delegated decisions to divisional managers, the main purpose of accounting from the perspective of the owner is no longer his own decision-making, but to provide a basis for managerial decision-making. Without agency conflicts, the information needs of managers would remain unchanged relative to the owner-manager. Introducing agency conflicts result in a need for introducing mechanisms that align managerial decision-making with the owners’ interests – the so-called stewardship function of management

accounting (Gjesdal, 1981; Pfaff, 1995: 449). Now, the incentive properties of different performance measures need to be taken into account (Otley, 2008: 235; Merchant, 2006: 893). Therefore, as discussed in 3.1., the stewardship demand may alter the informational properties of an accounting system (Pfaff, 1995).

A large amount of theoretical literature analyzes the incentives provided by different measures of performance as the basis for managerial compensation. One example of a conflict of interest between the principal and the agent are different time horizons. Managers are often criticized for acting myopically. The literature analyzes rules of accounting which result in performance measures that provide incentives to align managerial decisions with the principal's objectives. This literature surrounding the so-called "impatient" manager (Reichelstein, 1997; Rogerson, 1997) develops accounting rules which result in a positive residual income in any period for all projects with positive net present value. A manager who is evaluated and compensated based on such a (so-called strong goal congruent) performance measure will expect a positive bonus for all projects with positive net present value and has a strong incentive to accept these projects, in line with the principal's objectives. A special cost allocation schedule based on the expected cash flow profile ("*relative marginal benefit (RMB) allocation rule*") is necessary (Rogerson, 1997). Dutta & Reichelstein (2005) extend this analysis to various specific accounting cases, for example inventories, intangibles, and leasing. Specific rules for the intertemporal cost allocation are determined in order to provide strong goal congruence, which requires the matching of costs and revenues while considering the time value of money. For example, costs and revenues of projects extending over several periods are matched based on the *present value percentage of completion method*. Overall, these rules are very different from current accounting rules implying that current accounting standards fail to provide incentives for managers to act for the long-term health of the firm.

This literature does not however answer the question whether such information is also useful in the subsequent decision-making by managers. In particular, it is only concerned with the decision-making from an ex-ante perspective before the project is accepted. It is not concerned with information relevant to manage the project afterwards, as discussed in the previous subsection and illustrated in the introductory example of the speedometer being biased upward to induce the driver to slow down. Such information may provide the right incentives but not provide useful information.

In the third step we analyze information asymmetries arising from the separation of ownership and control.

3.4. Accounting rules considering external agency relationships

When the manager of an enterprise is himself the owner, he has immediate access to all information prepared internally to run the business. A shareholder in a public firm does not have access to such sources of information. Even if his information

needs are not as detailed as the owner-manager's, they are not different in nature (Staubus, 2004: 277). Compared to internal projections of cash flows, he may not need the same degree of detail (Ijiri, 1995: 62), but the level of aggregation will be dependent on the inherent diversity of risks and rewards to enable him to make separate evaluations. Therefore, the level of useful aggregation ultimately depends on assumptions made regarding the user's individual decision-settings and preferences. We can, hence, conclude that in the absence of agency conflicts, aggregated internal projections and information on past performance enabling external investors to improve decision-making would provide the best basis for his decision-making purposes.⁶

When managers act as agents, their objectives may not be the same as those of shareholders. When they have an information advantage over shareholders, agency conflicts may arise. Accounting is used to provide information about managements' stewardship. However, the behaviour of management is influenced by the information they are required to report and the information they expect to be used by the recipients for evaluating their performance (Prakash & Rappaport, 1975: 731; Prakash & Rappaport, 1977: 29; Dopuch & Sundner, 1980: 15). To align managers' behaviour with shareholders' interests, the literature proposes adjusting the accounting rules which determine performance measures used to evaluate and compensate managers, as discussed in the previous section. This literature does not, however, answer the question of whether such information is also useful for decision-making of investors. In fact, the considerations for decision-making from the perspectives of internal managers and shareholders differ. The manager maximizes his utility based on the stream of variable remuneration received. Incentive systems can be put in place which induce the manager to act in the owner's best interest and make use of his private information to the benefit of the firm. An investor can base his decision-making only on the information he receives from management. In addition, while the manager needs ongoing control information to keep track of the operations, the shareholder needs ongoing information to value his share in the firm to make decisions about selling, holding or buying on the capital market. While the rules for strong goal congruent accounting are sufficient to induce managers to accept projects with positive net present value, this approach does not provide the information necessary for the subsequent valuation problem for investors. In making the decision to accept a project, strong goal congruence results in the performance measure being positive for every period if the project is expected to have positive net present value. As such, from an *ex ante* perspective, the sign of the performance measure immediately indicates that new value is generated and could thus also be informative for investors. This provides the right incentives for managers as they can expect to receive a positive bonus whenever a project with positive NPV is generated. In the special case of robust goal congruence (Mohnen & Bareket 2007), the measure will be an annuity of the expected value creation, thus yielding an immediate estimate of the expected value creation. However, investors receive this information in subsequent periods only, when the project has already started. In

addition, the performance measure only then captures the actual realizations and not the original projections. To provide a solution to the valuation problem of investors, the performance measure would need to indicate the necessity or direction of corrective action. The literature has to date not provided results for this.

If shareholders had the same detail of information as management, they could develop their own estimates of future performance. As stated above, this will not usually be the case. Hence, the question arises how can aggregated information provide a basis for investors' decision-making. As accounting information is typically designed to report on one single period, the question arises of how decisions can be made based on a periodic measure of performance. Consequently the literature analyzes static decision rules such as "Price = Marginal Costs" from microeconomic theory (Rogerson, 2008; Rajan & Reichelstein, 2009) in order to derive decision-useful information. This approach is based on a similar logic to the one discussed above to derive goal congruence. The literature derives a depreciation method that aligns historical with marginal costs, termed relative practical capacity (RPC) rule. The RPC-rule for cost allocation is used to derive a static performance measure that can be used to make investment decisions consistent with the NPV-rule by comparing price and marginal costs. The RPC-rule is similar to the RMB rule discussed above and can be used to analyze the decision-usefulness of accounting rules. It requires a special matching of all related expenses and revenues requiring consideration of the time value of money and resulting in a special depreciation schedule. Current accounting standards for depreciation and on recognition and measurement of the costs of acquisition of tangible assets, intangible assets and provisions do not comply with the requirements of the RPC rule. However, the RPC rule takes the perspective of a managerial owner, not an external shareholder. The accounting rules derived to serve the RPC rule are similar, but not identical to the RMB rule. More research in this area is required to further determine accounting rules which may serve both the decision-usefulness and the stewardship function.

Our results highlight the following caveat. If standard setters consider stewardship and decision-usefulness as compatible functions of accounting, then accounting rules need to serve both functions simultaneously i.e., they need to provide information that is useful for investors for making economic decisions and at the same time providing incentives for managers to act in the owners' best interest. However, if in fact the two functions are considered distinct and incompatible, then they must be separated and considered explicitly. That is, managers should not then be held accountable for their actions based on accounting information.

CONCLUSION

Standard setters neglect the information needs of management when setting accounting standards. In practice, the accounting information used for management accounting is largely based on financial accounting. Most firms avoid keeping separate accounts because of the costs involved. More importantly, firms intentionally use the same information set as they are evaluated against based on managerial decision-making. The rationale is that the numbers they are evaluated on provide the benchmark for their performance. Managers have incentives to maximize the performance measures they are held accountable for, very much in accordance with the saying “what you measure is what you get.” In addition, their variable remuneration often depends on accounting based measures of performance. If managers are evaluated and held accountable based on financial accounting figures, they will make decisions that maximize these numbers. The recent global financial crisis provides a useful example of the detrimental incentives provided by accounting standards focusing on fair values and resulting in performance measures involving unrealized short-term gains.

The literature provides a wealth of research into the rules of accounting that result in measures of performance that are incentive compatible, that is, provide managers with incentives to act in the best interest of the principals. These rules are, however, very different from current accounting standards. If standard setters intend to consider the stewardship demand for accounting information, they would need to thoroughly consider these results and the incentive properties of the standards they set. However, it is unclear whether such incentive compatible accounting rules result in information which is simultaneously useful for the decision-making of investors. Research into this question is scarce and highly desirable.

If on the other hand, standard setters consider stewardship and decision-usefulness as two separate and distinct functions, the two functions need to be completely separated. Managers who are evaluated and held accountable based on financial reporting will always have incentives to base their decision-making on the consequences of their actions on these numbers. If financial accounting is to only serve the purpose of decision-making of investors, managers could no longer be held accountable for the financial results. Providing financial accounting information is used to hold managers accountable, the rules of accounting provide incentives for managerial decision-making. The consequences of accounting rules for managerial decision-making, hence, need to be carefully considered.

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¹ This view is also taken by many 'economic income' theorists emphasising the management function of accounting (see for example Edwards & Bell, 1967: 4; Sterling, 1970: 133).

² Early decision-usefulness literature therefore often emphasizes both: the management function of accounting and the provision of information to external users (e.g. Paton, 1940: 2-4; Sprouse & Moonitz, 1962: note 1).

³ The IASB and the FASB state in their frameworks that information about the past performance can be used as basis for future predictions and comparisons with predicted values can help to correct and improve the processes that were used to derive forecasts (IASB, 2010: F-QC10; FASB, 2010: SFAC 8, QC10).

⁴ "Income earned [...] I.e. that income which a given capital can yield without alteration in its value" (Fisher, 1906: 333). "... we ought to define a man's income as the maximum amount which he can consume during a week, and still expect to be as well off at the end of the week as he was at the beginning" (Hicks, 1939: 172).

⁵ It should be noted that without any information asymmetries the owner has all relevant information and thus would be able to dictate the decisions to the managers and control their activities afterwards.

⁶ Seeing an enterprise "...through the eyes of management" enhances a user's ability to predict actions or reactions of management that can significantly affect the enterprise's prospects for future cash flows" (FASB, 1997: Appendix A, note 60).