Earnings Quality, Accruals and Subjective Goodwill Accounting

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Preface

A symposium was held in the Michio Morishima Room at STICERD in March 2007. This paper by Yuko Katsuo is based on one of the two papers presented at this sumposium, and we are grateful to Professor Katsuo for allowing the paper to appear as a discussion paper.
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Abstract

This paper analyses accounting accruals that may relate to earnings quality and its information content. The characteristics specifying earning quality are discussed according to research surveys of earnings quality. These are compared with the characteristics of accounting income specified by the concept of 'released from risks' in ASBJ (2006). In this context, the conversion process of subjective goodwill, which is related to the allocation problem in accounting income and its relation to earnings quality, is focussed upon. The allocation problem is examined by clarifying the conversion process of subjective goodwill, and by highlighting the portion of the allocation error that reflects managerial discretion.

Keywords: accounting accruals, earnings quality, subjective goodwill, income measurement, allocation problem, value relevance, managerial discretion.

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1. Survey of earnings quality

Although the concept of earnings quality has been discussed widely, there is still no agreement about its definition and measurement (Revsine et al., 2001, Penman and Zhang, 2002), making it an elusive concept (Siegel, 1982). In Siegel (1991) five elements, such as the degree to which the economic reality of the firm is reflected, are mentioned as characteristics that raise the quality of profits, and eleven other items, including estimated discretion, are mentioned as characteristics which lower quality. Francis et al. (2004) argue that there are seven attributes of earnings, such as accruals quality, persistence, predictability, smoothness, value relevance, timeliness, and conservatism, and examine their relationship with the cost of equity capital. Kothari (2001) mentions corporate evaluation by investors, and discretional management as relevant factors, and categorises arguments on earnings quality. Schipper and Vincent (2003) present the value relevance viewpoint, and an economics-based concept of income, examining attributes which specify earnings quality, such as time series properties of earnings, including persistence, predictive ability and variability, the qualitative characteristics of a conceptual framework, the relationships between income, cash, and accruals, and the implementation of decisions.

As the literature does not agree on either the definition or the measurement of earnings quality, providing a classification can become a subject in itself. In addition, characteristics such as persistence, predictive ability, smoothness, and conservatism, are not necessarily separable theoretically. How are the common elements contained in earnings quality theorised by various researchers? This poses a problem in itself and each attribute is connected with what is called earnings management. Moreover, what is not related to value relevance is contained within the framework of earnings management. Although various views could exist with regard to the classification method itself in such a situation, this paper uses the classification of Shipper and Vincent (2003) described previously as a base[1].

1-1. Time series properties of earnings
(1) Persistence

Earnings quality is often discussed from the perspective of value relevance or its usefulness for decision-making, and measurement is examined in connection with capital markets. For example, Scott (2003) suggests that earnings quality and ERC (earnings response coefficients) have a positive correlation, and defines earnings quality by the predictive ability of the price return. If earnings quality is theorised in this way, the concept of persistence would be the factor first mentioned[2].

According to Lipe (1990), persistence of earnings is defined as the autocorrelation of earnings[3]. Revsine et al. (2001), Bernstein and Wild (2000), and Penman and Zhang (2002) consider persistence to be one of the characteristics which constitute earnings quality from the perspective of value relevance. It has been often argued that persistence of earnings and ERC have a positive correlation, after Kormendi and Lipe (1987). In Lipe (1990), it is verified that earnings with a higher predictive ability of future earnings have a higher ERC. Penman (2003) also mentions that it is high quality earnings that will become a better index of future earnings. Several studies discuss persistence of earnings in relation to the fundamentals. In Lev and Thiagarajan (1993), it is considered that persistence is an index which measures the grade in which earnings reflect fundamentals.

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[1] This paper does not consider the relations with audit or corporate governance. Warfield et al. (1995) examine the influence of governance structures on the disclosure incentive and accruals. Lee et al. (2007) reports that a high-level governance structure reduces earnings management.

[2] Although predictive ability is also mentioned as one of the time series properties in Shipper and Vincent (2003), since it is related to persistence and accruals, it is not described independently in this paper, but included within these characteristics.

[3] Sustainability and persistence are considered to be interchangeable. (Schipper and Vincent, 2003).

However, there are several unresolved problems regarding the relationship between persistence and value relevance. Sloan (1996) mentions that information on the relationship between future earnings and each constituent factor of reported earnings, accruals and cash flow, is not rationally reflected in a capital market. Sloan highlights an 'accruals anomaly' – that is, that accruals have a higher correlation with stock returns even though persistence of accruals is lower than operating cash flow. The same result is reported in quarterly data by Collins and Hrivar (2000). Lev and Nissim (2006) also report that the accruals anomaly still exists. Regarding these results, Xie (2001) argues that the persistence of operating cash flow is higher when compared with normal accruals or abnormal accruals; however, abnormal accruals which has the lowest persistence, is overestimated in capital market. Xie also showed that the accruals anomaly originates in abnormal accruals. Moreover, Ali et al. (2000) suggest that the accruals anomaly does not originate with the existence of naive investors,

Persistence of earnings might be theorised in relation to the reliability of accruals. Richardson et al. (2005) classify accruals comprehensively (not only operating accruals) and report that lower reliable accruals bring about lower persistence of earnings. In Drake et al. (2007) which verifies the relation between persistence and information disclosure, it is shown that persistence of cash flow and accruals are reflected in stock return in situations where the information disclosure is of high quality.

(2) Variability
① Smoothness
According to Schipper and Vincent (2003) and Subramanyam(1996), since smoothed earnings are persistent and their predictive ability is high, it might be said that smoothness raises the quality of earnings. However, there is also a view that managers have smoothed earnings because managers believe that lower variable earnings are preferred by investors (Levitt, 1998). Leuz et al. (2003) examine systematic differences in earnings management across 31 countries, and propose an explanation for these differences based on the notion that insiders use earnings management to conceal the actual performance of firms from outsiders. Leuz et al. argue that the explanatory capability of smoothed earnings is inferior compared to that of stock return, and mention that the reason for this is the noise added by managerial discretion. Bao and Bao (2004) argue that lower variability of earnings does not guarantee that income smoothers will have higher firm values. They point out that quality earnings smoothers have the highest price-earnings multiple while non-quality non-smoothers have the lowest price-earnings multiple.

② Conservativeness

Conservativeness is often discussed as one of the characteristics of specifying earnings quality. However, it is not necessarily agreed whether or not it is a factor which raises the quality of profits. In Hawkins and Campbell (1978) and Bernstein et al. (1998), more conservative earnings are seen as higher quality. On the other hand, Schipper (1989) indicates that early recognition of fair value change of financial assets, impairment loss, etc. bring measurement errors into financial reporting, not only because of errors in managerial predictions and judgments but also because they can potentially be caused by simplified assumptions in incomplete contracts.

Similarly, Penman and Zhang (2002) mention that since the predictive ability of current earnings for future earnings is lower when the connection between conservativeness and investment action makes earnings more variable in the short term, the quality (persistence) of earnings is lower. Beaver and Engel (1996) examine the capital market pricing of discretionary and nondiscretionary components of the allowance for loan losses. They verify that the capital market perceives the allowance to be comprised of two components, a nondiscretionary component which is negatively priced and a discretionary component whose incremental pricing coefficient is positive. Sen (2005) proposes that managers of a growing firm could choose to report conservative but lower quality (in terms of predictability of future cash flow) earnings or to undo the effects of conservatism by a less conservative current-period cost estimate to improve the quality of reported earnings. Sen (2005) points out that an incentive for higher quality earnings might be associated with an incentive to reduce investments in some firms. In addition, Ball and Shivakumar (2005, 2006), Basu (1997) and Schipper and Vincent (2003) mention that the timeliness of loss recognition is the key characteristic for specifying earnings quality, and may reduce it[4].

1-2. Earnings, Cash flow, and Accruals

Other arguments which are not covered in the preceding sections are discussed below. There are quite a few arguments that accruals and its constituent factors might be the characteristics that reduce earnings quality (Schipper and Vincent, 2003). With regard to managerial discretion, its relationship with earnings quality is mentioned by Bernstein and Siegel (1979). In Teets (2002), earnings quality and earnings management are mutually related concepts. Healy and Wahlen (1999) state that earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead

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[4] Regarding the relation between early revenue recognition and earnings quality, see Altamuro (2005).

some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on the reported accounting numbers. They also mention that many different incentives for earnings management need to be examined, including capital market expectations and valuation, contracts written in terms of accounting numbers, and antitrust or other government regulation.

Capital market studies are easily connected with frameworks that look at earnings quality from the perspective of value relevance. In particular, abnormal accruals where the predictions and judgments of a manager are included lower the quality of earnings in many cases. Jones (1991) and extended by Dechow et al.(1995) posit accounting fundamentals that drive normal or nondiscretionary accruals and presume that the residuals or prediction errors from a regression of total accruals on accounting fundamentals capture earnings management. The residuals or prediction errors are viewed as an inverse measure of earnings quality (Schipper and Vincent, 2003). However, this model has attracted much criticism (Bernard and Skinner, 1996, Young, 1999)[5].

In Dechow and Dichev (2002), the identification problem of accounting fundamentals that is not manipulated could be avoided by a model which estimates the measurement errors of total accruals directly from cash flow. They point out that the estimated residuals are viewed as inverse measures of accruals and earnings quality, and the accruals quality and the persistence of earnings are in positive correlation. Scholer (2004) verifies the relationship between accruals and cash flow, as well as the relationship between accruals and earnings quality. In Francis et al. (2005), it is pointed out that lower quality of accruals, measured by residuals, relates to the increase in cost of capital and debt. The consistent result is reported in Chan et al. (2006).

With regard to the predictive ability of future cash flow and earnings quality, Dechow et al. (1998) investigate the role of accruals in predicting future cash flow. They report that earnings better predict future cash flow than current operating cash flow. This study is extended by Barth et al. (2001), who show that cash flow and the accrual components of current earnings have substantially more predictive ability for future cash flow than aggregate earnings. This result implies that each accruals component reflects different information relating to future cash flow. Nikkinen and Sahlström (2004) investigates the impact of an accounting environment on the performance of the cash flow prediction models by Barth et al. (2001). The result suggests that the model could be used in different kinds of accounting environments, such as market-oriented countries with high quality of accruals, and with low quality ones.

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[5] DeAngelo (1986) presents an approach which measures earnings quality through the change in total accruals.

Regarding predictive ability, the difficulty of future prediction by analysts might be inserted into the index of earnings quality. In Imhoff and Gerald (1992), the effect of uncertainty in analysts' earnings forecasts on the relation between unexpected returns and unexpected earnings is examined. The results indicate the systematic relation between ex ante uncertainty for which the variance in analysts' earnings forecasts prior to the firm's annual earnings announcement is employed as a proxy, and the information content of earnings. Crabtree and Maher (2005) examine the relation between earnings predictability, which is measured by the difference between the actual earnings and analysts' forecast, and the cost of debt capital measured by its influence on bond rating. The results indicate that the degree of predictability of earnings is positively associated with a firm's bond rating, and is negatively associated with the offering yield. However, managerial behaviour to meet analysts' forecasts might decrease the earnings quality (Schipper and Vincent, 2003).

The view that the quality of earnings, approximated to cash flow, is high (Palepu et al., 2000) is often discussed as well. It might be supposed that cash flow is objective and non-discretionary, as exemplified by the comment 'Cash is King' (Copeland et al., 1990). Ou and Penman(1989) mention that financial statement analysis is useful in determining investment position, and Penman(2001) describes that the purpose of accounting quality analysis is to distinguish the hard amount resulting from cash flow, from the soft amount resulting from accruals accounting. However, cash flow is not necessarily clear on how 'hard' the amount is. Research which divides earnings into cash flow and accruals in order to investigate the relationship with earnings quality would encounter the problem of how each of these are defined and measured (Schipper and Vincent, 2003).

In the context of the value relevance related to a capital market, it is often supposed that earnings management and earnings quality are in negative correlation. However, discretional alternative gives managers, who have more information about a company than any other person concerned, the means to disclose information, so that earnings quality might be raised by it (Schipper,1989; Palepu et al.,2000). Subramanyam, (1996) points out that managerial discretion is the side that raises the predictive ability of earnings. Similarly, Arya et al. (2003) verify that both the size and the time series of earnings are informative when managers who have incentives to disclose the rational information use discretions for the measurement of persistent earnings[6].

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[6] With regard to earnings management based on incentives related to contract and earnings quality, the early research of Healy (1985) highlights the relation between accruals and payment on the contract, and demonstrates earnings management. For recent studies, see also Brown (2001), Barua et al. (2006), Christensen et al. (2005).

2. The concept of 'Released from Risks' in ASBJ

The Accounting Standards Board of Japan (ASBJ) is an independent, private sector body whose aim is to develop accounting standards in Japan. The ASBJ itself is a core committee within the Financial Accounting Standards Foundation (FASF), which was established in July 2001 to contribute to the development of financial practices, capital markets, and the development and improvement of the international accounting system, by studying, researching, and developing generally accepted accounting standards, and by studying and researching disclosure systems and various other practices pertinent to business finance systems[7].

FASF is composed of four organizations, namely the Board of Directors which is responsible for the overall operation of FASF, Trustees which monitor business operations and play an advisory role, the Theme Advisory Council which makes recommendations on themes to be deliberated and prioritizes them, and the ASBJ which is a core organization within FASF, directly responsible for the development and deliberation of accounting standards. As a core organization of FASF, ASBJ has several tasks; a) to investigate and develop the generally accepted accounting standards in Japan, b) to investigate practices concerning corporate finance and disclosure in order to make pertinent recommendations, and c) to contribute to the development of high-quality, internationally accepted accounting standards. ASBJ is made up of several special committees such as the financial instruments technical committee, some of which have working groups, and some projects such as the ASBJ/IASB convergence project. This paper discusses the conceptual framework for the financial reporting system jointly developed by a technical committee consisting of the ASBJ and other committees and projects.

In 2003, a working group on fundamental concepts was organized to develop an essential supporting structure – a conceptual framework for the financial reporting system. The ASBJ Discussion Paper, *Conceptual Framework of Financial Accounting*, was released in 2004 (ASBJ, 2004). In 2006, the technical committee on fundamental concepts organised after the publication of ASBJ (2004) released a revised version, ASBJ (2006). The paper covers the objective of financial reporting, the qualitative characteristics of accounting information, the elements of financial statements, and recognition and measurement in financial statements. It begins from the objective of financial reporting, and defines net assets and comprehensive income directly from the definitions of assets and liabilities. Its approach and contents seem to be similar to the conceptual frameworks of IASB and FASB. However, ASBJ (2006) attaches importance to a layered structure, which begins

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[7] http://www.asb.or.jp

from the objective of financial reporting, and to the concept of net income, thus differing from the conceptual frameworks of IASB and FASB.

In ASBJ (2006) the objective of financial reporting is to measure and disclose the position of the entity's investments and the results of those investments as part of the disclosure system that assists investors in making decisions, so that it is the disclosure of the financial situation of the entity that assists investors in predicting the performance of the entity and in estimating its value[8]. Investors decide what funds to invest in entities at their own will, with the expectation of obtaining uncertain future cash flow[9]. Those who predict the performance of the entity and estimate its value are investors and the decisions they make are own.

However, there is a disparity between investors and managers regarding the opportunity to obtain pertinent information in many cases. It is necessary to promote the disclosure of private information held by managers in order to relieve asymmetry of information and to resolve the malfunction of a capital market caused by such asymmetry, which is the *raison d'etre* of the disclosure system. Managers are basically required to disclose information on the results of the investments actually achieved by those investments[10]. Among the information that financial reporting provides, profit (or income) information is commonly used in predicting future cash flow, even though it is basically the results achieved in the past[11]. Such information represents the results of the entity's investments, and provides the basis for estimating the value of the entity for investors. In particular, net income information has been widely used by investors for some time and its usefulness has been supported by empirical evidences. Therefore, net income should continue to be positioned as an independent and separate element of financial statements[12].

Net income is defined as a portion of the changes in net assets during a certain period (excluding changes resulting from direct transactions with shareholders, etc.) that represents the results of investments that are released from business risks during a certain period and are attributable to the owners of the reporting entity[13]. On the other hand, comprehensive income is defined as the changes in net assets during a certain period resulting from transactions or events other than direct transactions with shareholders, etc.[14] Net income differs from comprehensive income in respect of the timing and the range of entities. The term 'released from risks of investments'

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[8] ASBJ (2006), Chap.1, Introduction, para.2

[9] Ibid., Chap.1, para.2

[10] Ibid., Chap.1, paras.1,2

[11] Ibid., Chap.1, para.3

[12] Ibid., Chap.3, para.21

[13] Ibid., Chap.3, para.9

[14] Ibid., Chap.3, para.8

is used in defining net income in ASBJ (2006). Since the expectation of investment results are characterised by uncertainty, the results are released from risks when they become facts[15]. The results of the investments that are released from business risks are generally determined based on whether or not the facts (which can be compared with expectations regarding the investment made by the entity) have occurred. The concept of 'released from risks' is a perspective in which greater importance is attached not to the appearance of assets but to the aims of investments and the intentions of managers. The need for a concept of 'release from a risk' lies in the very objective of financial reporting. As mentioned previously, the objective is to disclose useful information to assist investors in making decisions. What investors need is information on actual earned results as opposed to expected results[16].

What are the expected result and the facts in each investment? For business investments, whether the results of investments have been released from risks is generally determined based on whether assets that are not subject to business risks have been obtained in exchange for assets that are subject to business risks[17]. When present investment activity continues as it is, the assets are measured at historical cost (original acquisition cost) or depreciated cost. In this case, changes in the quoted market prices of the assets are not recognized as income. On the other hand, financial investments (trading securities are typical examples) are not restricted by business activities and held for favourable results from liquidation. Therefore, changes in the market prices of these investments are considered to be the results of the investments, and the amount of income is measured by increases in market prices during the period[18]. Although investments are classified into business investments and financial investments by their objective, business assets and financial assets classified by appearances are not necessarily in agreement. For example, fixed assets, such as a factory, are business investments, and their appearance is also business assets. However, regarding available-for-sale securities and investments in subsidiaries, such appearances are financial assets, but their objectives are business investments to the last, as they are restricted by business activities.

Differences in the objectives of investments affect income measurement because the concept of released from risks is influenced by them. In the case where the objective of the investment is for business, it is measured by historical cost or depreciated cost and changes in market price are not recognised as income. On the other hand, in the case where the objective of the investment is for finance, changes

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[15] Ibid., Chap.3, para.23

[16] Ibid., Chap.3, para.23

[17] Ibid., Chap.4, paras.44, 57

[18] Ibid., Chap.4, paras,45, 57

in market price are considered as income. Income measurement relates to the difference in the objective, not to the appearance of assets.

Since the concept of released from risks specifies the income concept, its relation with the concepts of realization or the realizable may be discussed. Conventionally, realization is used to refer to sales of cash or claims to cash, and it means the process of converting non-cash resources and rights into cash[19]. On the other hand, regarding what is realizable, revenues and gains are realizable when related assets received or held are readily convertible to known amounts of cash or claims to cash. Readily convertible assets contain interchangeable units and quoted prices are available in an active market[20]. The realizable concept is often applied to trading securities and the application of this concept refers to income measurement in market prices.

How are the concepts of realization and the realizable connected with the concept of release from risks in ASBJ (2006)? Since that which fulfils the criteria of realization goes through a point-of-sale, it also must be released from risk. However, that which fulfils the concept of the realizable is not necessarily released from risks. For example, regarding trading securities, the mark-to-market difference is realizable and also released from risks. On the other hand, regarding available-for-sale securities and investments in subsidiaries, their mark-to-market differences are realizable but not released from risks. Since these investments are still constrained by business activities and assets that are not subject to business risks have not been obtained, they are not released from risks.

Therefore, realized results are considered to be results released from the risks of investments, while realizable results are not always results released from risks[21]. The difference between the concept of released from risks and the realized-realizable concept has an important implication for income measurement. That is, the concept of released from risks offers a standard to distinguish whether it is an element contained in net income, while the realized-realizable concept does not offer such a standard.

As discussed above, although the mark-to-market difference of trading securities and available-for-sale securities are both realizable, the difference of trading securities is an element contained in earnings, while the difference of available-for-sale securities is not contained in earnings. What is not contained in earnings, even if it fulfils a realizable concept, still exists. This means that the realized-realizable concept cannot offer a standard to distinguish an element contained in earnings. In contrast, what is released from risks must be included in

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[19] SFAC, No.6, para.143

[20] SFAC, No.5, para.83a

[21] ASBJ (2006), Chap.4, para.58

net income. Therefore, the concept of released from risks makes it possible to offer a standard to distinguish whether it is an element contained in net income. This is the important difference between the concept of released from the risks and the conventional concept of the realized-realizable.

3. Allocation error in income measurement

This section discusses the earnings quality specified by the concept of released from risks, which is one of the core concepts in ASBJ (2006). In this context, decision usefulness becomes the fundamental characteristic and is supported by relevance and reliability, as the qualitative characteristics of accounting information [22]. These qualitative characteristics are required for accounting information to achieve the objective of financial reporting. Income, as specified by the concept of released from risks, is assumed to fulfil these characteristics. However, arguing that these qualitative characteristics are fulfilled is not sufficient to theorise the concrete characteristics that constitute earnings quality. Thus, attention is paid to the theory of accruals, one of the characteristics of specifying earnings quality, and the allocation problem related to managerial discretion (earnings management).

Regarding the allocation problem, as Thomas (1969, 1974) pointed out, a fundamental problem arises in that an optimal method cannot be uniquely decided upon within the period in which allocation and joint cost allocation occurs. As mentioned in surveys of earnings quality, there is also a view that the ambiguity of allocation, including the judgment of managers, reduces earnings quality. However, empirical studies support the finding that the value relevance of accruals is higher than cash flow. Since the content of the private information held by managers could be reflected in accruals, there is also an argument to be made that the usefulness of earnings is increased by accruals.

Supposing, as ASBJ (2006) assume, that earnings are useful for investors because certain information in the future are reflected, the key might exist in the accounting accruals which are composed elements of earnings. In order to verify this argument, it is necessary to clarify the relationship between the structure of income measurement and manipulation in allocation. While the issue of depreciation is often central to analyses of the allocation problem, this paper focuses on subjective goodwill because the relationship between the allocation problem and earnings quality can be discussed more comprehensively. The conversion of subjective goodwill so that it is recognised as earnings in each period when it converts into

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[22] Ibid., Chap.2, paras.1-8

cash flow, relates to the measurement of income specified by the concept of released from risks.

Subjective goodwill is assumed to be the difference of the value in use and the market price. Value in use is a present value of the future cash flow expected from the best use of the asset, discounted by the discount rate as of the measurement date, while a market price represents a price quoted in the distribution market for an asset. Value in use reflects the subjective value estimated by the reporting entity, and it consists of a market price and intangible (subjective) goodwill, which is defined as the excess of value in use over the market price[23]. In the present system subjective goodwill is excluded from financial reporting, and this exclusion is supported by many researchers[24]. However, it is necessary to examine the "common sense" that subjective goodwill should not be recognized. Arguments outlining what the exclusion of subjective goodwill means, and to what extent it should be eliminated from accounting earnings and the financial reporting system are not entirely verified.

With regards to income measurement and subjective goodwill, there have been many studies, including Edwards and Bell (1961) (referred to from now on as E&B) Lee (1975) and Solomon (1961). E&B define subjective goodwill G_t as the difference of the subjective value (value in use) of the asset V_t, and market price of the asset P_t. V_t is the present value of future cash flow C_i earned between time t+1 and time n at time t, expressed as follows.

$$V_t = \sum_{i=t+1}^{n} \frac{C_i}{(1+r)^{i-t}} \tag{1}$$

Subjective goodwill is decreased by the portion where the results of investments have been realized into the fact as cash flow, and increased by the time value. It is also decreased or increased by a change in market price. The amount of change or the conversion amount of subjective goodwill is expressed generally, not by numerical example as in E&B, in the following equation (2).

$$
\begin{aligned}
G_{t-1} - G_t &= (V_{t-1} - P_{t-1}) - (V_t - P_t) \\
&= \left[\sum_{i=t}^{n} \frac{C_i}{(1+r)^{i-t+1}} - P_{t-1} \right] - \left[\sum_{i=t+1}^{n} \frac{C_i}{(1+r)^{i-t}} - P_t \right] \\
&= \left[\sum_{i=t}^{n} \frac{C_i}{(1+r)^{i-t+1}} - P_{t-1} \right] - \left[(1+r) \left\{ \sum_{i=t}^{n} \frac{C_i}{(1+r)^{i-t+1}} - \frac{C_t}{(1+r)^{t-t+1}} \right\} - P_t \right] \\
&= C_t - r \sum_{i=t}^{n} \frac{C_i}{(1+r)^{i-t+1}} - (P_{t-1} - P_t) \\
&= C_t - rV_{t-1} - (P_{t-1} - P_t) \tag{2}
\end{aligned}
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[23] Ibid., Chap.4, paras.11,20,21

[24] Yang (1927), Coughman (1924), Alexander (1977), etc.

In E&B, subjective profit (economic income) Y_t is defined as the amount that could be paid out as dividends in any period without impairing subjective value at the beginning of a period. It is expressed in this equation (3).

$$\begin{aligned} Y_t &= (C_t + V_t) - V_{t-1} \\ &= C_t - (V_{t-1} - V_t) \\ &= rV_{t-1} \end{aligned} \tag{3}$$

Similarly, realisable profit I_t is defined as the size of the dividend a firm could plan to pay at the end of a period without impairing the market value of its assets. It is expressed in this equation (4).

$$\begin{aligned} I_t &= (C_t + P_t) - P_{t-1} \\ &= C_t - (P_{t-1} - P_t) \end{aligned} \tag{4}$$

The difference between subjective profit and realisable profit is equivalent to the amount of the change or conversion of subjective goodwill. This is explained only by numerical examples in E&B as well. The following equations (5) show this relation; the coincidence of the difference of subjective profit and realisable profit and the conversion amount of subjective goodwill is obvious as long as they are defined in this way. This means that this relation is a necessary conclusion, not a unique implication, under these definitions.

$$\begin{aligned} I_t - Y_t &= C_t - (P_{t-1} - P_t) - \left\{ C_t - (V_{t-1} - V_t) \right\} \\ &= (V_{t-1} - P_{t-1}) - (V_t - P_t) \\ &= G_{t-1} - G_t \\ I_t &= Y_t + (G_{t-1} - G_t) \end{aligned} \tag{5}$$

In E&B, although the conversion process of subjective goodwill is clarified by comparing subjective profit with realisable profit, the process drawn from the relation between subjective profit and accounting income is not necessarily clarified. This paper examines the latter and clarifies the conversion process of subjective goodwill in accounting income, specified by the concept of released from risks. As mentioned previously, since the concept of income, based on the concept of released from risks in ASBJ (2006), is not significantly different from income in conventional accounting, this paper considers that both are theoretically similar.

Accounting income E_t is defined as follows, following E&B, where B_t is book value at time t. The equation (6) shows that C_t is divided into accounting income E_t and accounting depletion $(B_{t-1} - B_t)$.

$$\begin{aligned} E_t &= C_t - (B_{t-1} - B_t) \\ C_t - E_t &= (B_{t-1} - B_t) \end{aligned} \tag{6}$$

First, the simple case of $t=1$, $B_1=P_1$ is examined. Since this is a case where book value at time 1 corresponds with a market price, accounting income E_1 is equivalent to realisable profit I_1 (because of $B_1=P_1$, $B_0=P_0$). Realisable profit I_1 is transformed as follows using equation (5). These equation show that the total amount of conversion of subjective goodwill $(G_0 - G_1)$ is included in accounting income E_1, since $\{Y_1 + (G_0 - G_1)\}$ is equivalent to realisable profit I_1 as well as accounting income E_1; so $(G_0 - G_1)$ is included in accounting income E_1, as equation (7). In the case that a dividend is equivalent to accounting income E_1, $B_0 - B_1 (= P_0 - P_1)$, that is carried out to financial investment which brings about the rate of target interest, is maintained as capital..

$$I_1 = C_1 - (P_0 - P_1)$$
$$C_1 - \{Y_1 + (G_0 - G_1)\} = (P_0 - P_1) \tag{7}$$

Secondly, the case of $t=1$, $B_1 \neq P_1$ is examined. In this case the relation between accounting income I_1, realisable profit E_1, and subjective profit Y_1 is expressed in this way, $E_1 = I_1 - (P_1 - B_1) = Y_1 + (G_0 - G_1) - (P_1 - B_1)$. Using this equation with the definition of realisable profit I_1, equation (5), transformed equations are expressed as the following, equation (8). This shows that the total amount of conversion of subjective goodwill $(G_0 - G_1)$ is not necessarily included in accounting income E_1, but $(G_0 - G_1) - (P_1 - B_1)$ is included. In this case when a dividend is equivalent to accounting income E_1, $B_0 - B_1$ is maintained as capital.

$$I_1 = C_1 - (P_0 - P_1)$$
$$C_1 - \{Y_1 + (G_0 - G_1)\} = (P_0 - P_1)$$
$$C_1 - \left[\{Y_1 + (G_0 - G_1)\} - (P_1 - B_1)\right] = (P_1 - B_1) + (P_0 - P_1) \tag{8}$$

In the case of $B_1 < P_1$, since $(P_1 - B_1) > 0$, the conversion amount of subjective goodwill $(G_0 - G_1)$ less $(P_1 - B_1)$ is included in accounting income E_1 in the current period. This means that $(P_1 - B_1)$ of accounting income is not recognised in the current period, but will be recognised in the future instead. That is, a part of current income is deferred. On the other hand, in the case of $B_1 > P_1$, since $(P_1 - B_1) < 0$, the conversion amount of subjective goodwill $(G_0 - G_1)$ plus $(P_1 - B_1)$ is included in accounting income E_1 in the current period. This means that $(P_1 - B_1)$ of accounting income will not be recognised in future, but is recognised in the current period instead. That is, a part of future income is advanced.

Finally, the general case at time t is examined. In this case, the relation between accounting income I_1, realisable profit E_1, and subjective profit Y_1 is expressed in this way, $E_t = I_t - \{(B_{t-1} - B_t) - (P_{t-1} - P_t)\} = Y_t + (G_{t-1} - G_t) - \{(B_{t-1} - B_t) - (P_{t-1} - P_t)\}$. Using this equation with the definition of realisable profit I_1, equation (5), transformed equations are expressed as the following equation (9). This shows that the total conversion amount of subjective goodwill $(G_{t-1} - G_t)$ is not necessarily

included in accounting income E_1 in the current period as in the previous case. The amount of $(G_{t-1} - G_t) - \{(B_{t-1} - B_t) - (P_{t-1} - P_t)\}$ is included in it. In this case, when a dividend is equivalent to accounting income E_t, $(B_{t-1} - B_t)$ is maintained as capital.

$$I_t = C_t - (P_{t-1} - P_t)$$

$$C_t - \{Y_t + (G_{t-1} - G_t)\} = (P_{t-1} - P_t)$$

$$C_t - [Y_t + (G_{t-1} - G_t) - \{(B_{t-1} - B_t) - (P_{t-1} - P_t)\}] = (B_{t-1} - B_t) - (P_{t-1} - P_t) + (P_{t-1} - P_t) \quad (9)$$

This conclusion also could be confirmed from the context of residual income, which is defined as the difference of accounting income and the multiplied book value at the beginning of the period by the discount rate. E&B point out that the present value of residual income based on realisable profit, which is defined as the difference of realisable profit and the multiplied market price at the beginning of the period by the discount rate, is equivalent to the subjective goodwill at time 0. They also mention that the present value of an anticipated stream of excess realisable profits equals subjective goodwill, and any one pattern of expected market values may yield the same subjective goodwill[25].

However, the coincidence of present value of residual income based on accounting income and subjective goodwill at time 0 is not necessarily examined in E&B, which is verified as follows.

$$PV_0[RI(E_t)] = \sum_{i=1}^{n} \frac{(C_i + B_i) - (1+r)B_{i-1}}{(1+r)^i}$$

$$= \sum_{i=1}^{n} \frac{C_i}{(1+r)^i} - \frac{B_0}{(1+r)^0} + \sum_{i=1}^{n} \frac{B_i}{(1+r)^i} - \sum_{i=2}^{n} \frac{B_{i-1}}{(1+r)^{i-1}}$$

The third and fourth terms are transformed as follows.
As $i' = i - 1$, $i = 2 \Leftrightarrow i' = 1$, $i = n \Leftrightarrow i' = n - 1$.

$$\sum_{i=2}^{n} \frac{B_{i-1}}{(1+r)^{i-1}} = \sum_{i'=1}^{n-1} \frac{B_{i'}}{(1+r)^{i'}}$$

$$\therefore \sum_{i=1}^{n} \frac{B_i}{(1+r)^i} - \sum_{i'=1}^{n-1} \frac{B_{i'}}{(1+r)^{i'}} = \frac{B_n}{(1+r)^n}$$

By substitution,

$$PV_0[RI(E_t)] = \sum_{i=1}^{n} \frac{C_i}{(1+r)^i} - B_0 + \frac{B_n}{(1+r)^n}$$

$$= V_0 - B_0$$

$$= V_0 - P_0$$

$$= G_0 \quad (10)$$

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[25] Edwards and Bell (1961), p.69

On the other hand, the present value of residual income based on accounting income is not equivalent to the subjective goodwill at time t; the coincidence only exists at time 0. This means that the total amount of subjective goodwill conversion is not entirely included in accounting income. By contrast, the present value of residual income based on realisable profit equals subjective goodwill at time t, not only at time 0.

$$PV_t[RI(E_t)] = \sum_{i=t+1}^{n} \frac{(C_i + B_i) - (1+r)B_{i-1}}{(1+r)^{i-t}}$$

$$= \sum_{i=t+1}^{n} \frac{C_i}{(1+r)^{i-t}} - \frac{(1+r)B_{t+1-1}}{(1+r)^{t+1-t}} + \sum_{i=t+1}^{n} \frac{B_i}{(1+r)^{i-t}} - \sum_{i=t+2}^{n} \frac{B_{i-1}}{(1+r)^{i-t-1}}$$

The third and fourth terms are transformed as follows.

As $i' = i-1$, $i = t+2 \Leftrightarrow i' = t+1$, $i = n \Leftrightarrow i' = n-1$.

$$\sum_{i=t+2}^{n} \frac{B_{i-1}}{(1+r)^{i-t-1}} = \sum_{i'=t+1}^{n-1} \frac{B_{i'}}{(1+r)^{i'-t}}$$

$$\therefore \sum_{i=t+1}^{n} \frac{B_i}{(1+r)^{i-t}} - \sum_{i'=t+1}^{n-1} \frac{B_{i'}}{(1+r)^{i'-t}} = \frac{B_n}{(1+r)^{n-t}}$$

By substitution,

$$PV_t[RI(E_t)] = \sum_{i=t+1}^{n} \frac{C_i}{(1+r)^{i-t}} - B_t + \frac{B_n}{(1+r)^{n-t}}$$

$$= V_t - B_t$$

$$\neq V_t - P_t$$

$$\neq G_t \qquad\qquad (11)$$

This means that the present system of financial reporting (income measurement) is not an obvious mechanism in which the total amount of converted subjective goodwill is included in current accounting income. Since subjective profit is not included in the firm's income but included in stockholders' income at time 0, subjective goodwill is excluded from the accounting income of the firm. However, a part of non-converted subjective goodwill is included in accounting income in the subsequent year. That is, in the present system the structure of income measurement does not exclude the non-converted subjective goodwill entirely but rather, it is assumed.

As long as the depreciation cost that corresponds to annual cash flow is calculated by a systematic depreciation method, this is an inevitable result. If one needs to recognise the total amount of converted subjective goodwill (to exclude the non-converted amount from current income, and not to defer the converted amount to future income), it is necessary to calculate depreciation cost by the change in market price in each period. It is obvious that depreciation based on market price change is necessary in order to exclude the non-converted subjective goodwill from

accounting income, as long as subjective goodwill is defined as $V_t - P_t$. However, it is not necessarily clear to what extent the converted amount of subjective goodwill is included in accounting income on the basis of a systematic depreciation. This paper distinguishes the amount of converted and non-converted subjective goodwill included in current income, and thus verifies the income measurement mechanism from the context of the allocation problem of subjective goodwill.

What are the implications for a theory of earnings quality that clarifies the income measurement structure? Supposing managerial discretion may increase the usefulness of accounting income information, how is it considered in the allocation problem of subjective goodwill? The argument that the non-converted portion of subjective goodwill is not completely excluded from accounting income in each year means that it is possible for managerial discretion to be included in the measurement structure of accounting income. As clarified by the analysis above, the portion which is not reflected in current accounting income within the converted amount of subjective goodwill is expressed with $(B_{t-1} - B_t) - (P_{t-1} - P_t)$. This amount is considered to be an error in the allocation of subjective goodwill, and to be the portion in which managerial discretion is reflected. Supposing managerial discretion in measurement operation serves as a means to transmit private information that managers themselves hold, and that the usefulness of accounting income is increased by such information, it is also possible that a certain additional informational content about the future is included in the portion, $(B_{t-1} - B_t) - (P_{t-1} - P_t)$. This means there is a possibility that information contents are included in the allocation error itself in which managerial discretion or judgment is included.

As mentioned above, the facts on investment results are thought to be an important element in accounting income based on the concept of released from (business) risks. However, although there are restrictions that it be accepted only below the acquisition cost, managerial subjective judgments are included in the cost allocation method and also in the matching concept of income measurement. Examining the allocation problem of subjective goodwill entails the exploration of the meaning of the matching concept as well.

5. Conclusion

An argument on quality of earnings is related to the basic concept in financial reporting, and is also closely related to the disclosure system in a capital market. However, despite its importance, there is still no commonly accepted agreement in the definition or measurement of quality of earnings. The various classification methods are intermingled and lack a common perspective on the influence that various characteristics have on the quality of earnings. Since theories of earnings quality often are discussed within the context of value relevance, in this paper,

particular attention is paid to the allocation problem in accruals. Thus, quality of net income, specified using the concept of released from business risks, is examined from the viewpoint of the allocation problem of subjective goodwill. This paper clarifies the amount of the allocation error included in accounting income by generalizing the conversion process of subjective goodwill. It is posited that this is a portion of managerial discretion in income measurement, and includes certain informational content that increases the usefulness of accounting income.

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