Bridging the information and measurement perspectives – a counterfactual history of accounting thought

Abstract

The 2018 IASB *Conceptual Framework*'s approach to measurement begs the question: how does other comprehensive income increase the relevance of profit or loss? In search for a conceptual answer, we revisit Edwards and Bell (1961) and Beaver and Demski (1979) and find that the unexpected unrealised change in subjective goodwill included in other comprehensive income increases the relevance of historical cost profit or loss. If Edwards & Bell and Beaver & Demski had collaborated in 1980, how might the á priori literature seeking to bridge the measurement and information perspectives on decision-usefulness have evolved differently? We argue that there would have been clarity about the main types of reconciliation of the valuation and transactions approaches to income determination. The IASB would then have adopted one of these types instead of its current political compromise. This article is meant to inspire renewed interest in the history of accounting thought.

Introduction

Usually, historians investigate and construct narratives[1] about what happened rather than what did not happen. For example, Donleavy (2019, 2022) and Cardao-Pito (2020) provide different narratives about the historical origins of fair value thinking. This article first synthesises contributions to accounting thought on income measurement by Edwards and Bell (1961) and Beaver and Demski (1979) in search of a conceptual explanation for how information in other comprehensive income (OCI) increases the relevance of profit or loss (IASB 2018: 6.85). It then presents a narrative about what did not happen by exploring a counterfactual history of how the literature might have been different if Edwards[2] and Bell[3] (E&B) and Beaver[4] and Demski[5] (B&D) had collaborated on income measurement in 1980.

We argue that *á priori* research bridging the measurement and information perspectives inspired by Beaver and Demski (1979) might have progressed further if normative accounting research had not been 'branded as unscientific' (Mattessich 1992, p. 181). Since then, the accounting academy has fragmented[6], and ceded 'the care, feeding, and deepening of our

intellectual foundations' to standard setters (Demski 2007, p. 156). However, standard setters' conceptual frameworks are products of a political due process (Hines 1989, p. 81) that accommodates technical decision-making, but not academic accountability or epistemic justification (Van Mourik, 2014: p. 203).

Detzen (2016, p. 761) regards OCI as a 'political compromise' adopted because some IASB constituents 'fixated on net income'. By exception, the 2018 IASB CF allows the use of more than one measurement basis for an asset or liability (IASB 2018a: 6.83-6.86), but only when the remaining related income or expense included in OCI increases the relevance[7] of profit or loss or increases the faithful representation[8] of financial performance (IASB 2018a: 6.85 and 7.17). This raises the question: Under what conditions does OCI increase the relevance of profit or loss, and how does it do that? Detzen (2016, p. 777) argues that OCI was not the result of relevance considerations: relevance was used as an ex-post rationalization and has the potential of further convoluting the meaning of OCI. Barker (2004), Rees and Shane (2012), and Linsmeier[9] (2016) believe that OCI is conceptually flawed because the conceptual bases for distinguishing OCI from net income cannot be applied in a consistent manner. Some empirical studies provide support[10] for OCI, though.

In search for an answer, we revisit Edwards and Bell's (1961, Chapter 2) justification of measurement at current exit values and Beaver and Demski's (1979) argument against a measurement (or true income) perspective. Our first contribution is an illustration that, under uncertainty with imperfect and incomplete markets, it is the unexpected unrealised change in subjective goodwill in OCI that increases the relevance of historical cost profit or loss. Subjective goodwill is the present value of future abnormal realizable profits (Edwards and Bell 1961, p. 67). By its own definition of relevance, therefore, it would be logical for the 2018 IASB CF to adopt dual concepts of profit[11].

Beaver and Demski (1979, p. 45) challenged accounting theorists 'to address the primitive question of the propriety of the accrual concept of income'. Between 1980 and 2000, key *á priori* articles addressing B&D's challenge sought to bridge the measurement and information perspectives on decision-usefulness. For example, Demski and Sappington (1990), Ohlson (1987, 1990, 1991, 1995) and Feltham and Ohlson (1995, 1996). The creation of the IASB in 2001 was followed by proposals to reconcile the transactions and valuation approaches to the determination of profit (e.g., Barker 2004; ASBJ 2007; Nishikawa *et al.* 2016; IASB 2018, and Barker and Penman 2020).

Our counterfactual history of accounting thought explores how this literature might have developed differently if normative accounting theory had not been largely abandoned and a collaboration between E&B and B&D had taken place in 1980. Firstly, the development of the 'Edwards-Bell-Ohlson model' (Bernard 1994) illustrates the need for research into 'citation rituals' (Rose 1989, p. 2) in the accounting literature to better understand the consequences of different citation practices. Secondly, we argue that the literature might have led to the IASB adopting one of three types of articulated reconciliation of the valuation and transactions approaches to income determination instead of its current political compromise. Finally, we identify research opportunities related to the three articulated ways of reconciling the valuation and transactions approaches to the determination of profit.

The remainder of this article is structured as follows. The next two sections revisit Edwards and Bell (1961) and Beaver and Demski (1979), followed by a review of the *á priori* literature that responded to B&D's challenge to accounting theorists. The fifth section discusses the two research methods. The sixth section shows how OCI increases the relevance of profit or loss. The seventh section explores how key *á priori* articles that to sought bridge the measurement and information perspectives on decision-usefulness and the

2018 IASB CF might have been different if E&B and B&D had collaborated in 1980. The final section concludes the article.

Edwards and Bell (1961)

Edwards and Bell (1961) introduce the concept of 'subjective goodwill' to justify the measurement of assets and liabilities at current exit values to determine, what they call 'realizable profit'. Subjective goodwill equals the net present value of the future excess realizable profits an asset (or project or firm) is expected to generate. 'Subjective goodwill, the excess of subjective value over market value, exists because the market does not share the expectations on which the firm is operating' (Edwards and Bell, 1961: p. 48). In contrast, objective goodwill is the market's judgement of the excess earning power of the firm. Subjective goodwill will generally be positive (or the firm will go out of business) and exceed objective goodwill (or the firm will change ownership) (Edwards and Bell 1961, p. 37). If the decision maker's expectations are correct, the subjective goodwill will be reduced in each period as it is converted into market value. Realizable profit for the period includes the change in subjective goodwill for the period.

In Chapter 3, E&B adapt their theory for a going concern and advocate measurement at entry values to determine what they call 'business profit'. Chambers, an advocate of realizable profit, critiques E&B's argument that current exit values (opportunity costs) are primarily useful for short-run and asset liquidation decisions (Chambers 1965, pp. 734-736; Chambers 1982, p. 6, pp. 13-17). He also argues that E&B's treatment of current entry values in Chapter 3 represents a different theory from their treatment of current exit values in Chapter 2 (Chambers 1965, p. 734). Revsine (1981, p. 347) believes that E&B's 'conceptual justification of current value reporting rests on an assumed covariance between changes in market prices and changes in cash flow expectations.' This assumption chimes with the

FASB and IASB's belief that an 'observed market price encompasses the consensus view of all marketplace participants' (FASB 2021, para 26; IASB 2018, 6.32). Revsine, like Chambers, argues that, in principle, observable exit values can immediately be converted into cash, but in relation to current entry values E&B's conceptual justification is incomplete and may even be incorrect (Revsine 1981, p. 348).

Under uncertainty, information about the unexpected change in subjective goodwill is useful when evaluating expectations (Edwards and Bell 1961, pp. 51-54) so future decisions can be improved (Edwards 1980, p. 375). Nevertheless, Edwards and Bell's (1961, p. 48-49) illustration of the conversion of subjective goodwill into market value and Edwards and Bell's (1961, pp. 51-52) specification of the relation between economic income (subjective profit) and realizable profit assume that expectations are met (i.e., certainty). Furthermore, only seeking to justify measurement at current values, E&B do not show how the unexpected change in subjective goodwill is included in HC profit or loss. Hence, we will reconcile accrual accounting incomes based on HC and current exit values under uncertainty.

Beaver and Demski (1979)

Beaver and Demski (1979) (B&D) used their fundamental measurement concept to construct an argument against the measurement perspective on decision-usefulness. Fundamental measurement views income measurement 'as the representation of a preference ordering on a firm's production plans' (Beaver and Demski 1979, p. 38). Fundamental measurement requires market conditions in which the aggregated individual investor preferences (i.e., stock prices) indicate a unanimous preference for profit maximisation (Ohlson 1987, p. 1). The measurement perspective on decision-usefulness, however, focuses on 'proper' income measurement, whereby accounting 'income is often viewed as economic income plus error' (Demski and Sappington 1990, p. 363). This approach judges the accounting system by 'how

close its measures come to reflecting the "true" value of the entity. However, in the absence of perfect and complete markets, it is not clear what true value means' (Sundem 2007, p. 288).

B&D show that, under certainty with perfect and complete markets (and in the absence of externalities (Ohlson 1987, p. 1)), fundamental accounting measurement at current values is possible, but it is not needed. Beaver and Demski (1979: 41) argue that the 'existence of uncertainty in and of itself creates no problems with, or interest in, income measurement'. The assumption is that, in perfect and complete markets, uncertainty can be transformed into known and quantifiable risks that can be insured or traded away via futures markets and spot markets (Beaver, 1998: p. 39), short selling and the use of options. Under uncertainty with perfect and complete markets, economic income *ex ante* represents a unanimous ranking of production plans whereas economic income *ex post* represents a unanimous ranking of outcomes. The distinction between economic income *ex ante* and economic income *ex post* is trivial because both perspectives can easily be reconciled, but 'such a rich set of markets is incongruent with the existent economic structure' (Beaver and Demski 1979, p. 41).

B&D then advocate an information perspective on decision-usefulness where, income reporting 'derives its support from the information it conveys (at whatever cost) and not from such criteria as "more income is better than less."' (Beaver and Demski 1979, p. 43). The information perspective views income 'as an informative random variable that assists in deriving, say, an economic valuation of an entity' (Demski and Sappington 1990, p. 363). The 'information content perspective judges a system by what it reveals about states of the world and events affecting the entity. The concept is more vague and more difficult to apply because the underlying information to be disclosed by an accounting system is not a single measure of value but a multi-dimensional vector of states and events' (Sundem 2007, pp.

288-289). B&D then challenge accounting theorists 'to address the primitive question of the propriety of the accrual concept of income' (Beaver and Demski 1979, p. 45).

Literature on reconciling the measurement and information perspectives

The main *á priori* theoretical responses to B&D's challenge recognise the need to reconcile the measurement and information perspectives on decision-usefulness (e.g., Ohlson 1995; Demski and Sappington 1990). Ohlson (1987) responds to B&D's challenge that accrual accounting income measurement should not be abandoned because the (social) usefulness of information does not depend on stockholder unanimity, the optimality of income maximization, or the structure of markets. However, instead of *ex ante* shareholder unanimity, Ohlson (1987) focuses on aggregate welfare and economic efficiency. Demski and Sappington (1990) suggest treating income measurement as a process by which useful information is conveyed. It retains the language of income measurement but a 'key feature of the argument is that "accounting value" and "economic value" may diverge. Paradoxically, this divergence may be essential to conveying the information' (Demski and Sappington 1990, p. 364).

Residual income valuation model

Ohlson (1995) and Feltham-Ohlson (1995) build on clean surplus accounting, residual income valuation (RIV), the no-arbitrage assumption and linear information dynamics to provide a starting point for structuring the relation between accrual accounting data and firm value (Bernard 1995, p. 734). In the RIV model, goodwill equals the present value of abnormal profits. Ohlson's (1988, 1990) demonstration that the clean-surplus relation and accrual accounting recognize relationships between dividends and value that satisfy the Miller-Modigliani (1961) value conservation properties was expected to enable a return to fundamental analysis (Penman 1992, pp. 474-475).

Feltham and Ohlson (1995, 1996, 1999) structure the relation between accrual accounting data and firm value by including concepts for accounting conservatism and asset growth, the separation of financial and operating activities, and the distinction between persistent and transitory income. However, Macintosh et al (2000) argue that clean surplus models and the no-arbitrage assumption make accounting standard setters behave as if the distinction between income and capital is arbitrary and irrelevant. Lo and Lys (2000) confirm that the Ohlson model is a starting point and that, having been developed in the context of perfect capital markets, the model could be enhanced to incorporate market imperfections. Ultimately, if the financial statements articulate directly or indirectly (see Van Cauwenberge and De Beelde 2007), the RIV model is a mathematical 'skeleton to be fleshed out by specification of accounting principles' (Penman, 2001, p. 683).

Reconciling the valuation and transactions approaches to income determination

As neither the balance sheet nor the income statement can fully reflect all information that is relevant for valuing a company (Barth and Landsman 1995, p. 105), specification of the accounting principles depends on how one reconciles the valuation approach with the transactions approach to the determination of profit. The valuation (assets-liabilities) approach determines comprehensive income as the byproduct of the measurement of all recognised assets and liabilities. Current value measurement is more logical for the valuation approach. See Dichev (2008) for a critique. The transactions (revenues-expenses) approach determines current operating profit as the excess of recognised revenues over expenses. Historical cost measurement is more logical for the transactions approach. Sundem (2007, pp. 291-292) argues that the valuation approach to income determination is consistent with the measurement perspective on decision-usefulness and the transactions approach is consistent with the informational perspective.

In a world of uncertainty where book equity and earnings cannot both give estimates of equity value, Black (1993, p. 6) sees four choices. The first describes a valuation approach to income determination, the second a transactions approach to income determination, the third a compromise between the first two approaches, and the fourth means abandoning articulation altogether. Apart from non-articulated, Van Mourik and Katsuo Asami (2018, pp. 177-178) describe directly articulated and indirectly articulated financial statements. Three types of articulated reconciliation of the transactions and valuation approaches to the determination of profit will be discussed below.

- (Type 1) *Mixed measurement, comprehensive income, and directly articulated financial statements*. Barker (2004) seeks to disaggregate comprehensive income without attempting to define earnings or OCI and proposes presenting the impact of remeasurements (amounts resulting from revisions to the carrying amounts of assets and liabilities) on the income statement in a matrix format. Barker and Penman (2020) suggest disaggregating comprehensive income without attempting to define earnings or OCI, by providing information about five different types of matching in the comprehensive income statement to enable a better assessment of uncertainty.[12]

- (Type 2) *Mixed measurement, OCI, profit or loss, comprehensive income, indirectly articulated financial statements via recycling*. The Accounting Standards Board of Japan's (ASBJ) 'Conceptual Framework Discussion Paper' (ASBJ 2007) and Nishikawa *et al*. (2016) suggest both mixed and dual measurement whilst maintaining indirect articulation of the financial statements via OCI with recycling upon release from risk (ASBJ 2007) or irreversibility (Nishikawa *et al*. 2016). The main profit concept in ASBJ (2007) is released-from-risk[13] net income and the secondary income concept is 'objectively measurable' comprehensive income. Interestingly, FASB (2011: Par. 220-10-45-15) ASU 2011-05r Comprehensive Income (Topic 220),

requires recycling but the FASB Conceptual Framework does not yet provide the concepts. Those who support a Type 1 approach regard recycling in a Type 2 approach as double counting in comprehensive income (Detzen 2016, p. 773), but this assumes that comprehensive income is the main income concept in Type 2, which it isn't.

- (Type 3) *Full dual measurement and dual incomes disclosure, with articulation via current value equity*. ASOBAT proposes an articulated multi-columnar accounting system of full dual measurement of all assets and liabilities at HC and current cost and the disclosure of dual incomes. Articulation happens via one total residual amount for current cost stockholders' equity (AAA 1966, pp. 81-85). Ronen and Sorter (1972) and Ronen (2008) propose a dual HC and current exit value accounting system supplemented with expected cash flows discounted at a market discount rate.

The 2018 IASB CF's political compromise

Between 1980 and 2000, the FASB and the IASC[14] leaned towards the information perspective on decision-usefulness which emphasises additional disclosures. Financial statement users were assumed to be able to make sense of any information disclosed in the notes. Between 2000 and 2010, the IASB and FASB turned towards a measurement perspective on decision-usefulness, which implies increasing measurement of assets and liabilities at current values (Scott and O'Brien 2020, p. 190). The boards believed that measuring assets and liabilities at fair value likely enhances income's ability to predict future cash flows (Barth 2006, p. 273). Hence, they adopted the 'stated long-term objective to measure all financial assets and liabilities at fair value' (Barth 2007, p. 10). Subsequently, the tentative introduction of fair value for non-financial items took place (Hitz 2007, p. 329). See also Mora et al. (2019, pp. 238-239).

Enthusiasm for fair value within the international standard setting community started to wane after 2008 (Whittington 2015, p. 561). Still, the FASB and IASB assume that an 'observed market price encompasses the consensus view of all marketplace participants about an asset or liability's utility, future cash flows, the uncertainties surrounding those cash flows, and the amount that marketplace participants demand for bearing those uncertainties' (FASB 2021, para 26). See also IASB (2018, 6.32). The term 'consensus view' invokes the idea of informational efficiency and rational expectations in finance (e.g., Rubinstein 1975; Verrecchia 1980), which underpins observable exit prices in level 1 of the fair value hierarchy. See for critiques related to fair value levels 2 and 3 Hitz (2007, p. 340) and Barker and Schulte (2017, p. 56-57).

OCI in the 2018 IASB CF compromises between reconciliation Types 1 and 2. On the one hand, the 2018 IASB CF adopts mixed measurement, defines comprehensive income as a residual, and does not define profit or loss or OCI (Type 1). On the other hand, the 2018 IASB CF allows dual measurement when OCI increases the relevance of profit or loss or increases the faithful representation of financial performance (Type 2). Since the IASB does not define profit or loss and OCI or set out a principle for recycling as would be required for a Type 2 reconciliation, this political compromise between reconciliation Type 1 and Type 2 diminishes the conceptual integrity of the 2018 IASB CF's income determination model.

Research methods

This section introduces income concept reconciliation and counterfactual history of thought.

Reconciling the income concepts

Alexander (1950, p. 38) reconciled economic and accounting income concepts under conditions of certainty and showed that the main differences are the inclusion or exclusion of changes in going value (i.e., goodwill) and accrued but not yet realized gains or losses.

Edwards and Bell (1961, p. 49) used a table with a numerical example to reconcile subjective

profit with realizable profit to show the conversion of subjective goodwill into market under certainty. To reconcile accounting and economic incomes under uncertainty, we adapt the notation from Bromwich (1992, p. 55) rather than from Lee (1985, p. 13)[15].

Economic income under certainty versus under uncertainty
Under conditions of certainty, economic income $(Y) = C_t – (V_{t-1} – V_t)$, whereby C is the cashflow and V is the present value. Under uncertainty, windfalls arise because expected cash flows are not necessarily realized. Expectations must be compared with realized outcomes and updated. Economic income *ex ante* $(Y_{EA1}) = C(1,0) – \{V(0,0) – V(1,0)\}$. $C(1,0)$ is the cash inflow for period 1 as per the expectation at time t_0. The difference between the present value at the start of the period $V(0,0)$ and the present value at the end of the period $V(1,0)$ is as per the expectation at t_0. Windfall *ex ante* comprises the unexpected cashflow $\{C(1,1) – C(1,0)\}$ + the unexpected change in the present value $\{V(1,1) –V(1,0)\}$. In contrast, economic income *ex post* $(Y_{EP1}) = C(1,1) – \{V(0,1) – V(1,1)\}$ is based on expectations at time t_1. Windfall *ex post* comprises $V(0,1) – V(0,0)$. Our analysis is based on economic income *ex ante*.

Market prices in (im)perfect and (in)complete markets
In perfect and complete markets, the present value of an asset at time t equals the market price of the asset at time t $(V_t = P_t)$ (Revsine 1970, p. 515). Consequently, in perfect and complete markets, entry value, exit value, and value in use (i.e., present value) are equal. In imperfect and incomplete markets, the present value of an asset or a firm can no longer be established objectively (Whittington 2017, p. 38). The present value of a firm's net assets at a point in time (V_t) and the market value of the firm's net assets at that point in time (P_t) are not necessarily equal, i.e., $(V_t \neq P_t)$. Market prices may not be observable or markets do not exist.

E&B call the excess of the market value of a firm's shares (M_t) over the market value of its net assets (P_t) 'objective goodwill' (OG_t), that is, $[M_t - P_t = OG_t]$, which is the market's

judgement of the excess earning power of the firm. E&B call the excess of the subjective present value (V_t) over the total market value of the firm's net assets (P_t) 'subjective goodwill' (G_t), that is, $[V_t - P_t = G_t]$. Subjective goodwill equals the net present value of the future excess realizable profits that the decision-maker expects the asset (or project or firm) to generate (Edwards and Bell 1961, p. 37). Under certainty with perfect and incomplete markets, the change in subjective goodwill is $G_{t0} - G_{t1} = (V_{t0} - P_{t0}) - (V_{t1} - P_{t1})$. In conditions of uncertainty with imperfect and incomplete markets, the change in subjective goodwill is $G(0,0) - G(1,1) = \{V(0,0) - P(0,0)\} - \{V(1,1) - P(1,1)\}$. The expected change in subjective goodwill is $\{G(1,0) - G(0,0)\}$, but it is the unexpected change in subjective goodwill $\{G(1,1) - G(0,1)\}$ that is important for evaluating the correctness of expectations.

Counterfactual history of accounting thought

The inherently speculative nature of counterfactual histories may explain why, for a long time, they served as entertainment (Evans 2014, p. 5). The question what might have happened carries the danger of falling into the trap of wishful thinking (Ferguson 1997, p. 17) or lecturing 'the people of the past on how they should have done better' (Evans 2014, p. 29). In the late 1990s, books edited by Ferguson (1997) and Tetlock and Belkin (1996) sought to replace the idea of inevitability of the past with the idea of uncertainty and the contingent nature of events in history. In accounting history, Lee (2006) introduced counterfactual analysis to imagine a different institutional history of the accounting profession in the UK.

Colloquially, counterfactuals can be characterised as 'what if' statements. The narrative structure of counterfactual histories usually starts with a contingent point of departure (antecedent) and runs through a particular narrative before ending in an alternative result (consequent) (Dagg 2019, p. 21). Counterfactuals can be defined as 'subjective conditionals in which the antecedent is known to be false' (Lebow 2010, p. 30, note 14). As such, '*all* counterfactual reasoning entails the construction of fictional narratives' (DeMartino 2022, p.

132). Although such fictional narratives do not have an arguable epistemic status, they can be adequate to perform a relevant cognitive function. Depending on the context, their cognitive functions can be critical, affirmative, explanatory, heuristic, illustrative, or pedagogical (Albrecht and Danneberg 2011, pp. 13-16). Nolan (2013, pp. 320-323) suggests that, independent of their truth, counterfactuals may facilitate mind expanding, bringing out disagreement, increasing appreciation of historical contingency, and enabling a better appreciation of historical actors' situations.

In general and political history 'given a plausible antecedent, one can go on to imagine an outcome that differs dramatically from actual history, as long as the consequent of the counterfactual exhibits the appropriate kind of continuity with what we know about the world' (Tambolo 2020, p. 2113). For the sake of plausibility, in counterfactual histories of science, endpoints tend to converge with, or be close to, the corresponding actual developments. Therefore, the role of contingency in shaping the development of science will be weaker than in general or political history, which leads to constrained counterfactual worlds (Hesketh 2016). For example, Cushing's (1994) counterfactual history of physics holds that Bohmian mechanics was ignored because, by 1950, the Copenhagen interpretation had already become orthodoxy. Tambolo (2020, p. 2128) explains that Cushing (1994) sought to demonstrate that the path of scientific inquiry is decisively influenced by factors unrelated to evidence and the rules of reasoning. In biology, Hesket (2016, pp. 43-44) describes Bowler's (2013) *Darwin Deleted: Imagining a World Without Darwin* as a counterfactual study seeking 'to understand why a particular scientific theory gained favor while a competing theory did not.' Tambolo (2020, pp. 2125-6) discusses Jamieson and Radick (2013, 2017) which highlight the impact of the timing of discoveries and ideas on society at large via the way genetics is taught to students.

Although there is no consensus about what constitutes a good counterfactual, it is generally agreed that it is extraordinarily difficult to construct a robust one. That is, 'a counterfactual whose antecedent we can assert with confidence will result in the hypothesized consequent' (Lebow 2010, p. 49). Tetlock and Belkin (1996, pp. 16-31) were perhaps the first to set out criteria for evaluating a counterfactual proposition. These include: (1) clarity of the antecedent, consequent, and the chain of logic linking the two, (2) logical consistency or co-tenability of the antecedent and consequent, (3) historical consistency (the minimal-rewrite rule), (4) theoretical consistency with generally accepted theoretical knowledge claims, (5) statistical consistency with empirical generalizations, (6) projectability based on sound rules of inference.

In this article, the antecedent is a counterfactual collaboration between E&B and B&D in 1980. All four scholars were contemporaries in the US. E&B's measurement perspective and B&D's information perspective made collaboration unlikely, but not impossible. As our argument in the next section does not depend on the concept of OCI, they could have come to the same conclusion that dual measurement and dual incomes disclosure increase relevant information. The consequent is our conclusion that *á priori* accounting theory would have progressed further if normative accounting theory had not been largely abandoned and E&B and B&D's counterfactual collaboration had provided a starting point for bridging the measurement and information perspectives in 1980. To construct the narrative linking the antecedent to the consequent must be plausible, we trace ideas related to reconciling the information and measurement perspectives via references in key articles and the content of the discussions of those references. Synthesising ideas from related articles that were not referenced allows us to explore how this literature might have been different if the counterfactual collaboration had taken place in 1980.

How OCI increases the relevance of profit or loss

The matrix in Table 1 shows how the E&B and B&D studies are situated in different market conditions. We combine concepts from Edwards and Bell (1961) and Beaver and Demski (1979) in scenario Ⓓ to answer our first research question. Appendix A, Table 1 sets out the assumptions related to the four market conditions.

TABLE 1: Market conditions matrix

	Perfect and complete markets	**Imperfect and incomplete markets**
Certainty	Ⓐ *Certainty with perfectly competitive and complete markets*: • B&D (1979) Fundamental accrual income measure exists, but is not needed.	Ⓒ *Certainty with imperfect and incomplete markets*: • E&B (1961) justify current exit values because subjective goodwill is converted into market values as expected.
Uncertainty	Ⓑ *Uncertainty with perfectly competitive and complete markets*: • B&D (1979) Windfalls arise, but economic income *ex ante* and *ex post* can be reconciled. • Uncertainty is treated as risk.	Ⓓ *Uncertainty with imperfect and incomplete markets*: • E&B (1961) and B&D (1979) combined and extended. • OCI increases the relevance of HC profit or loss.

B&D show that in market condition Ⓐ a current value accrual income measure is possible but not needed, and argue that, in market condition Ⓑ, the existence of uncertainty *per sé* does not make a difference. B&D do not consider market condition Ⓒ and they use Ⓓ only to make their argument against the measurement perspective on decision-usefulness.

E&B's theoretical justification of current exit values provides an illustration of the conversion of subjective goodwill into realizable profit in market condition Ⓒ but not Ⓓ since E&B move from current exit values to current entry values in Chapter 3. B&D and E&B were not concerned with the information included in HC profit or loss or OCI. OCI as such wasn't a concept yet, although E&B did introduce the concept of holding gains and losses in Chapter 3.

Certainty with perfect and complete markets Ⓐ

Table 2 shows the reconciliation of economic income (Y) with realizable profit (I), HC profit

or loss (E), and cashflow (C) under conditions of certainty with perfect and complete

markets. Note that under these conditions, all current value incomes are equal.

TABLE 2: Reconciliation of income concepts in Scenario Ⓐ

Concept		How to calculate it
Cash inflow	C	
Less: HC depreciation		$B_{t0} - B_{t1}$
HC Profit (or loss)	E	$C_{t1} - (B_{t0} - B_{t1})$
Less: Difference HC and CV depreciation		$(P_{t0} - P_{t1}) - (B_{t0} - B_{t1})$
Realizable profit	I	$C_{t1} - (P_{t0} - P_{t1})$
Economic income	Y	$C_{t1} - (V_{t0} - V_{t1})$
Normal return	R	$r * V_{t0}$

In Scenario Ⓐ, over the life of the firm, the total measure of income is $\Sigma Y = \Sigma R = \Sigma I = \Sigma E = \Sigma C$. In each separate period, $Y = I = [E + (P_{t0} - P_{t1}) - (B_{t0} - B_{t1})]$.

Uncertainty with perfect and complete markets Ⓑ

Table 3 reconciles economic income *ex ante* (Y$_{EA}$) with realizable profit (I), historical cost

(HC) profit or loss (E), and cashflow (C) under conditions of uncertainty with perfect and

complete markets.

TABLE 3: Reconciliation of cash profit to income *ex ante* in Scenario Ⓑ

Concept		How to calculate it
Cash inflow	C	
Less: HC depreciation		$B_{t0} - B_{t1}$
HC Profit (or loss)	E	$C_{t1} - (B_{t0} - B_{t1})$
Less: Difference HC and CV depreciation		$(P_{t0} - P_{t1}) - (B_{t0} - B_{t1})$
Realizable profit	I	$C_{t1} - (P_{t0} - P_{t1})$
Mixed economic income	Y$_{MIX}$	$C(1,1) - \{V(0,0) - V(1,1)\}$
Less: Windfall *ex ante*	W$_{EA}$	$\{C(1,1) - C(1,0)\} + \{V(1,1) - V(1,0)\}$
Economic income *ex ante*	Y$_{EA}$	$C(1,0) - V(0,0) - V(1,0)\}$

In Scenario Ⓑ, over the life of the firm, $[\Sigma Y_{EA} + \Sigma W_{EA}] = \Sigma Y_{MIX} = \Sigma I = \Sigma E = \Sigma C$. Windfall

is, by definition, unexpected. In each separate period, realizable profit (I) includes the total

windfall *ex ante* (W_{EA}) for the period. On the other hand, HC profit or loss (E) includes only

the realized part of windfall *ex ante* for the period, that is, the unexpected cash flow. Hence,

the difference between realizable profit and HC profit or loss contains information about the

unrealized unexpected gains and losses. Appendix A, Table 2 reconciles economic income *ex*

ante and economic income *ex post*, which may or may not be trivial.

Certainty with imperfect and incomplete markets ©

Table 4 reconciles economic income (Y) with historical cost (HC) profit or loss (E),

realizable profit (I), and cashflow (C) under conditions of certainty with imperfect and

incomplete markets.

TABLE 4: Reconciliation of cash to economic income under Scenario ©

Concept		*How to calculate it*
Cash inflow	C	
Less: HC depreciation		$B_{t0} - B_{t1}$
HC Profit (or loss)	E	$C_{t1} - (B_{t0} - B_{t1})$
Less: Difference HC and CV depreciation		$(P_{t0} - P_{t1}) - (B_{t0} - B_{t1})$
Realizable profit	I	$C_{t1} - (P_{t0} - P_{t1})$
Less: Change in subjective goodwill ΔSGW	$G_{t0} - G_{t1}$	$(V_{t0} - P_{t0}) - (V_{t1} - P_{t1})$
Economic income	Y	$C_{t1} - (V_{t0} - V_{t1})$

In Scenario ©, over the life of the firm, $[\Sigma Y + \Sigma G] = \Sigma I = \Sigma E = \Sigma C$. Subjective goodwill ($G_t$

$= V_t - P_t$) is, by definition, expected. Under certainty, the expected change in subjective

goodwill ($G_{t0} - G_{t1}$) will be converted into market value. Edwards and Bell (1961, p. 48-51)

illustrate how the total subjective goodwill associated with a venture is converted into market

value over three years (See Appendix A, Table 3). Realizable profit includes the entire

change in subjective goodwill for the period. HC profit or loss includes only the realized part

of the change in subjective goodwill. Hence, the difference between HC profit or loss and

realizable profit for the period contains information about the yet to be realized change in subjective goodwill for the period.

Uncertainty with imperfect and incomplete markets Ⓓ

Table 5 reconciles economic income *ex ante* (Y_{EA}) with historical cost (HC) profit or loss (E), realizable profit (I), and cashflow (C) under conditions of uncertainty with imperfect and incomplete markets.

TABLE 5: Reconciliation of cash profit to economic income *ex ante* under Scenario Ⓓ

Concept		*How to calculate it*
Cash inflow	C	C(1,1)
Less: HC depreciation		B(0,0) – B(1,1)
HC Profit (or loss)	E	C(1,1) – {B(0,0) –B(1,1)}
Less: Difference HC and CV depn		{B(0,0) –B(1,1)} – P(0,0) – P(1,1)}
Realizable profit	I	C(1,1) – {P(0,0) –P(1,1)}
Less: ΔSGW	G(0,0) – G(1,1)	{V(0,0) – P(0,0)} – {V(1,1) –P(1,1)}
Mixed economic income	Y_{MIX}	C(1,1) – {V(0,0) – V(1,1)}
Less: Windfall *ex ante*	W_{EA}	{C(1,1) – C(1,0)} + {V(1,1) –V(1,0)}
Economic income *ex ante*	Y_{EA}	C(1,0) – V(0,0) – V(1,0)}

In Scenario Ⓓ, over the life of the firm, $[(\Sigma Y_{EA} + \Sigma W_{EA} = \Sigma Y_{MIX}) + \Sigma G] = \Sigma I = \Sigma E = \Sigma C$.

Note that $V_t \neq P_t$. $Y_{EA}= I – [W_{EA} + (G(0,0) – G(1,1)]$. In other words, realizable profit includes total windfall *ex ante* (realised and unrealised) plus the entire change in subjective goodwill for the period (expected and unexpected). Equation 1 defines the expected change in subjective goodwill {G(1,0) – G(0,0)} and equation 2 defines the unexpected change in subjective goodwill {G(1,1) – G(0,1)}(Asami 2021 p. 158-159).

$$\{G(1,0) – G(0,0)\} = \{V(1,0) – P(1,0)\} – \{V(0,0) – P(0,0)\} \tag{1}$$
$$\{G(1,1) – G(1,0)\} = \{V(1,1) – P(1,1)\} – \{V(1,0) – P(1,0)\} \tag{2}$$

HC profit or loss, on the other hand, only includes the realized part of windfall *ex ante* ({C(1,1) – C(1,0)} i.e., the unexpected cash) plus the realized part of the unexpected change in subjective goodwill ({P(1,0) – P(1,1)} i.e., the unexpected price change) (Asami 2021, p. 159). Together, realizable profit and HC profit or loss provide information about the unrealized unexpected change in subjective goodwill ({V(1,1) – V(1,0)} which is also the unrealized windfall *ex ante*). This information has both feedback value and predictive value. Therefore, under uncertainty with imperfect and incomplete markets, the unrealized unexpected change in subjective goodwill in OCI increases the relevance of the realized unexpected change in subjective goodwill included in profit or loss. This finding supports an argument for adopting dualistic concepts of profit such as in the Type 2 and Type 3 reconciliations of the transactions and valuation approaches to the determination of profit.

How might the *á priori* literature after 1980 have been different?

If E&B and B&D had collaborated in 1980 and yielded similar findings as the analysis above, how might the main *á priori* theoretical responses to Beaver and Demski's (1979, p. 45) challenge have been different? In the early 1970s, expectations regarding market-based accounting research (MBAR) were high (e.g., Beaver 1972). By the early 1980s, limitations of MBAR's basic assumptions (the efficient markets hypothesis [EMH] and the validity of the capital asset pricing model [CAPM]) had been recognised (Lev and Ohlson 1982, pp. 283-291). Furthermore, Lev and Ohlson (1982, p. 292) observed that the shift from a normative orientation towards a positive orientation decreased the relevance of MBAR to policymakers. Yet, the decline of normative research continued.

Had B&D read Edwards and Bell (1961)?

Beaver's research articles between 1966 and 1980 tend to reference finance articles and other accounting scholars active in MBAR. Beaver (1981, p. 3) references Edwards and Bell (1961) to classify it as taking a measurement perspective. Demski's research articles during

the same period reflect an interest in information economics, individual decision theory, and social choice theory. Demski (1973, p. 720) refers to qualitative characteristics on page 8 of ASOBAT. Demski (1974, p. 222) references Edwards and Bell (1961) focusing on management's need for information when talking about heterogenous users of accounting information. These references seem to confirm that Edwards and Bell had become 'a popular footnote reference, referring to the past rather than to current concerns: hence the predominance of citation over close study' (Whittington 2008a, p. 74).

Impact on the residual income valuation model literature 1980 - 2000
Penman (1992, p. 469) mentions that Ohlson (1988, 1991) in two unpublished papers established a breakthrough illustrating that 'Value is based on projections of future accounting earnings from current information.' Penman expresses hope for a return to fundamental analysis, and states that the substitutions to derive the RIV equation were 'recognised in Edwards and Bell (1961, Chapter 2) and Peasnell (1982), among others' (Penman 1992, p. 469). Bernard (1994, p. 3) labels Ohlson's RIV equation as the Edwards-Bell-Ohlson (EBO) valuation formula '(with apologies to Preinreich, Peasnell, Feltham and others)'. Bernard (1995, p. 733) describes the Ohlson (1995) and Feltham and Ohlson (1995) studies as representing 'the base of a branch of capital market research might have followed, but did not.' Bernard (1995, p. 741) no longer uses the term 'EBO valuation formula' but still makes the connection with Edwards and Bell (1961) and Preinreich (1938).

Ohlson's first reference to Edwards and Bell (1961) appears in Ohlson (1995, p. 667). Feltham and Ohlson (1995) mention E&B in end note 1 on p. 726. Feltham and Ohlson (1995, end note 14 on p. 728) draw parallels with other studies using the clean surplus relation such that goodwill equals the capitalisation of future abnormal profits, including Edwards and Bell (1961, Appendix B). However, Feltham and Ohlson either missed or ignored E&B's distinction between objective goodwill and subjective goodwill. Feltham and

Ohlson (1999, p. 1 fn 1) states that 'Most of the early papers that consider the discounting of abnormal earnings do not explicitly model uncertainty'. Indeed, we also conducted our analysis above because E&B did not model uncertainty in Chapter 2. The reference to 'Edwards and Bell (1964)' probably features a typo.

In the RIV model, because of the clean surplus relation, goodwill equals the present value of expected abnormal profits, irrespective of the accounting measurement basis used. In Edwards and Bell's justification of current exit values, subjective goodwill equals the present value of expected abnormal realizable profits. Edwards (1980) emphasises the fundamental character of what he calls 'excess current income'. It is curious that Bernard, Penman, Feltham and Ohlson referenced Edwards and Bell (1961) but not Edwards (1980).

If a counterfactual collaboration of E&B and B&D had taken place in 1980, Feltham and Ohlson (1995) might not have missed E&B's distinction between objective goodwill and subjective goodwill. The subsequent RIV literature might have been more open to indirect articulation of financial statements or even full dual measurement and dual income disclosure as in ASOBAT (AAA 1966) or Sorter and Ronen (1972). The *á priori* literature on reconciling the valuation and transactions approaches to the determination of profit might have started to make progress in the 1980s rather than after the formation of the IASB.

Impact on reconciling approaches to income determination and the 2018 IASB CF

Black (1980) questions traditional articulation and Black (1993) identified four choices related to the need to reconcile the different approaches to income determination. However, apart from the typology in Van Mourik and Katsuo Asami (2018) there has been little research that enables comparison of the different ways of reconciling valuation and transactions approaches to income determination. The Type 1 proposals (e.g., Barker 2004; Ohlson 2006; Barker and Penman 2020) and the Type 2 proposals (e.g., ASBJ 2007;

Nishikawa 2016; FASB 2011) each seem rooted in their own perspective on articulated financial statements. The Type 3 proposals for full dual measurement and dual income determination in ASOBAT (AAA 1966) and Sorter and Ronen (1972) predate 1980. Ronen (2008) builds on Sorter and Ronen (1972). Comparative analysis of the three types of reconciliation proposals could provide clarity and enable assessment of their strengths and weaknesses. All proposals could be compared with the compromise in the 2018 IASB CF and evaluated from *á priori* and empirical measurement and information perspectives.

The results of E&B and B&D's counterfactual collaboration might have inspired *á priori* and empirical researchers to develop and investigate different normative proposals for reconciling the approaches to income determination. It is likely that progress would have been made, and the approach to OCI in 2018 IASB CF would have been a Type 1, Type 2 or Type 3 reconciliation instead of its current political compromise between Type 1 and Type 2.

Conclusion

This article makes three contributions. First, it shows that, under uncertainty with imperfect and incomplete markets, the unrealized unexpected change in subjective goodwill in OCI increases the relevance of the realized unexpected change in subjective goodwill included in profit or loss. This finding supports an argument for adopting dualistic concepts of profit such as in the Type 2 and Type 3 reconciliations of the transactions and valuation approaches to the determination of profit. By its own definition of relevance, it would be logical for the 2018 IASB CF to adopt dual concepts of profit rather than prioritise comprehensive income.

Second, it makes the point that comparative research on the three ways to reconcile the valuation and transactions approaches to the determination of profit is necessary. If normative accounting theory had not been largely abandoned and a collaboration between E&B and B&D had taken place in 1980, it is plausible that the approach to OCI in 2018 IASB CF

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would have been a Type 1, Type 2 or Type 3 reconciliation instead of a political compromise between Type 1 and Type 2. Regarding Type 3 reconciliation, unlike in 1966 when ASOBAT was published, today's users arguably have to the tools and skills to analyse and understand the information in dual column balance sheets and income statements. However, if this is still too demanding of users, the IASB CF could reconcile the transactions and valuation approaches to income determination via a Type 2 reconciliation.

Third, it explores counterfactual history of thought to argue for the importance of bridging seemingly irreconcilable paradigms and identified research opportunities. Topics include application of the EMH, the no-arbitrage assumption, and consensus expectations in relation to relevance and representational faithfulness and their empirical proxies. Tracing ideas and citations raised the issue that we need to better understand the (unintended) consequences for the development of accounting thought of how accounting researchers use referencing and citation practices.

Limitations of the analysis include the following. First, our analysis based on Edwards and Bell (1961) and Beaver and Demski (1979) is perhaps more in the style of E&B than B&D. However, our analysis synthesises normative and analytic parts from both studies. Our answer to the first research question may appear simple but its implications for the 2018 IASB *Conceptual Framework* are sound, novel, and complex. Second, constructing a robust counterfactual history is difficult. Although counterfactual thinking is ingrained in decision theory and accounting concepts like opportunity cost and fair value, readers may not agree on what is plausible. Ultimately, this article is meant to inspire renewed interest in the history of accounting thought on reconciling the measurement and information perspectives.

End notes

[1] We thank Brian Alleyne for pointing out that, irrespective of methodology, historians construct narratives.

[2] Edgar O. Edwards (1919-2010) inducted into the AAA Accounting Hall of Fame in 2003.

[3] Philip W. Bell (1924-2007) inducted into the AAA Accounting Hall of Fame in 2003.

[4] William H. Beaver (1940-2024) inducted into the AAA Accounting Hall of Fame in 1996.

[5] Joel S. Demski, born in 1940 and inducted into the AAA Accounting Hall of Fame in 2000.

[6] In the 1980s, positivism started to dominate the mainstream literature, and the heterodox interpretivist and critical research paradigms (Chua 1986) started to provide publication outlets and career opportunities. Normative accounting theory virtually disappeared from the curriculum and became an unviable research option for all but the most established academics. Soon, accounting scholars started to voice concerns that accounting research had become rigid, bifurcated, tribal, and its contributions to practice limited (e.g., Demski et al. 1991; Demski, 2007).

[7] The 2018 IASB Conceptual Framework defines relevance as 'being capable of making a difference in the decisions made by users' (IASB 2018, 2.6), which indicates an information perspective. 'Financial information is capable of making a difference in decisions if it has predictive value, confirmatory value or both' (IASB 2018, 2.7). Relevance is deemed to be affected by the characteristics of the asset or liability (IASB 2018: 6.49) and how it contributes to future cash flows (IASB 2018; 6.54).

[8] A representationally faithful depiction is complete, neutral, and free from error (IASB 2018, 2.13). which is something a preparer or auditor may be able to judge, but users typically lack the information to do.

[9] Linsmeier (2016, p. 487) lists seven categories that were considered and discarded by the FASB and IASB: degree of persistence or sustainability of income, core versus non-core activities, degree of management control, one-time (nonrecurring) remeasurements versus recurring amounts, degree of measurement uncertainty, time horizon until realization, and operating versus investing and financing categories.

[10] Some empirical studies into the relative value-relevance of net income versus comprehensive income (using as-reported data) find that net income is more value-relevant (e.g., Barton et al. 2010; Goncharov and Hodgson 2011; Mechelli and Cimini 2014; and Veltri and Ferraro 2018). Others find that comprehensive income is more value-relevant (e.g., Biddle and Choi 2006; Kanagaretnam *et al.* 2009; and Khan *et al.* 2018). Furthermore, total OCI gains and losses have predictive value (e.g., Jones and Smith 2011, Kubota *et al.* 2011) and research into the value-relevance of components of OCI shows that 'some OCI items are found more consistently relevant than others' (Durocher *et al.* 2024, p. 745). Literature reviews in Durocher et al (2024, pp. 744-746) and Russel and Hodgson (2014).

[11] Dual concepts of profit (determining and disclosing both net income and comprehensive income) must be distinguished from dualistic accounting theories, such as Fritz Schmidt's organic accounting theory in the 1920s, which seek to determine the 'true' value of capital in the balance sheet and the 'true' net profit in the income statement (Näsi et al 2014, p. 85). In this paper, dual concepts of profit can lead to full dual measurement balance sheets and dual income statements such as in the proposals by AAA (1966) and Ronen and Sorter (1972) or the disclosure of net income and comprehensive income with recycling by ASBJ (2007). Tsunogaya et al (2011) make a case for economic and accounting dualism, which they describe as a reconciliation of accounting monism (a pure HC-based revenue-expense approach to income determination) and economic monism (a pure present values or fair value-based asset-liability approach to income determination) (Tsunogaya et al 2011, p. 5). Their case serves to argue that by determining both net income and comprehensive income and recycling upon realisation, IFRS would be more acceptable in Japan.

[12] Cooper (2020, p. 357) critiques Barker and Penman (2020, p. 338, fn 23) as ducking 'the question of how to deal with OCI, which is still there, implicitly.'

[13] Van Mourik and Katsuo (2015, pp. 209-210) describe the ASBJ Discussion Paper's released-from-risk concept.

[14] The International Accounting Standards Committee (IASC) existed from 1973 until it was reorganised into the IASB in 2001. See Camfferman and Zeff's (2007) history of the IASC.

[15] Like E&B, Lee (1985, pp. 127-129) uses numbers to reconcile economic income with current cost income but is sometimes vague about the difference between windfall and subjective goodwill (Lee 1985, p. 122).

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Appendix A

Table 1: Definitions and assumptions - market conditions

Term	Meaning / Definition
Certainty	Under certainty, all expectations regarding future cash flows come true, hence windfall gains or losses do not exist.
Uncertainty	Under uncertainty, the expected cash flow for the period estimated at the start of the period $[C(1,0)]$ does not necessarily equal the cash flow for the period realized at the end of the period $[C(1,1)]$, i.e., $C(1,0) \neq C(1,1)$. As a consequence, the same applies to the expected present value of an asset's future cash flows, that is, $V(1,0) \neq V(1,1)$. Hence, windfalls exist. One must distinguish between economic income *ex ante* Y_{EA} and economic income *ex post* Y_{EP}.
Perfect markets	In perfectly competitive markets, the law of one price holds such that no asset can trade for two different prices. Replacement costs (entry values) will equal selling prices (exit values).
Complete markets	Complete markets means that all goods and claims are traded in perfectly competitive markets with unique prices that are publicly observable.
Perfect and complete markets	In perfect and complete markets, the present value of an asset's future cash flows (V_t) equals the market price of the asset (P_t,), i.e., ($V_t = P_t$). Entry value = Exit value = Value in use. Subjective goodwill does not exist.
Imperfect and incomplete markets	In imperfectly competitive markets: Entry value $\neq$ Exit value $\neq$ Value in use ($V_t \neq P_t$), and each cost or price may depend on the quantity sold. Usually, $V_t \geqq P_t$ because investment in an asset or a project must have a positive or zero net present value, otherwise it is not worth doing. Subjective goodwill $G_t = V_t - P_t$.
Certainty with perfect and complete markets	General equilibrium: The market price an asset P_t will equal the market value of the claims against the asset M_t (Beaver, 1998, 67), i.e., ($P_t = M_t$). Hence, $V_t = P_t = M_t$, and no economic profit.
Uncertainty with perfect and complete markets	$C(1,0) \neq C(1,1)$ and $V(1,0) \neq V(1,1)$, but $V_0 = P_0$ and $V_1 = P_1$. Windfalls exist, but economic income *ex ante* represents a unanimous ranking of production plans and economic income *ex post* represents a unanimous ranking of outcomes (Beaver and Demski 1979, 41). Question: [$V_t = P_t = M_t$ as in B&D] or [$V_t = P_t \neq M_t$ as in Knight]?
Certainty with imperfect and incomplete markets	$C(1,0) = C(1,1)$ and $V(1,0) = V(1,1)$, so windfalls do not exist, but $V_0 \neq P_0$ and $V_1 \neq P_1$, so subjective goodwill expectations arise and will be confirmed by the market.
Uncertainty with imperfect and incomplete markets	$C(1,0) \neq C(1,1)$ and $V(1,0) \neq V(1,1)$, so windfalls exist, and $V_0 \neq P_0$ and $V_1 \neq P_1$, so subjective goodwill expectations arise and the change in subjective goodwill will be partly expected and partly unexpected.

Table 2: Reconciling income *ex ante* to income *ex post*

$Y_{EA} = C(1,0) - \{V(0,0) - V(1,0)\}$
Add: $W_{EA} = \{C(1,1) - C(1,0)\} + \{V(1,1) - V(1,0)\}$
$Y_{MIX} = C(1,1) - \{V(0,0) - V(1,1)\}$
Less: $W_{EP} = V(0,1) - V(0,0)$
$Y_{EP} = C(1,1) - \{V(0,1) - V(1,1)\}$

Table 3: Reconciliation of cash profit to economic income under Scenario ©

Concept		t0~t1 ($)	t1~t2 ($)	t2~t3 ($)	Total ($)
Cash flow	C	4,000	7,000	8,000	19,000
Less: HC depn		(3,333)	(3,333)	(3,333)	(10,000)
HC profit or loss	**E**	**667**	**3,667**	**4,667**	**9,000**
Diff HC and CV depn		(333)	667	(333)	0
Realizable profit	**I**	**1,000**	**3,000**	**5,000**	**9,000**
Less: ΔSGW	$G_{t-1} - G_t$	147	2,304	4,619	**7,070**
Economic income	**Y**	**853**	**696**	**381**	**1,930**
Normal return	**R_t**	**853**	**696**	**381**	**1,930**

Note to Scenario ©:

Edwards and Bell's (1961, p. 39) basic scenario is as follows. Suppose that a firm is organized now and is to operate for three years. The firm's resources are $10,000. It purchases a machine for this amount. The machine is expected to generate cash flows of $4,000 in year 1, $7,000 in year 2 and $8,000 in year 3, which enables the firm to pay these amounts in dividends at the end of each year. The interest rate is 5 percent. E&B did not consider historical cost. We make the additional assumption that, for historical cost purposes, the asset is depreciated over three years, with no residual value.

V_0	$\dfrac{C1}{1.05} + \dfrac{C2}{1.05^2} + \dfrac{C3}{1.05^3} = \dfrac{4,000}{1.05} + \dfrac{7,000}{1.05^2} + \dfrac{8,000}{1.05^3} = 3,809 + 6,350 + 6,911 = 17,070$
V_1	$\dfrac{C2}{1.05} + \dfrac{C3}{1.05^2} = \dfrac{7,000}{1.05} + \dfrac{8,000}{1.05^2} = 6,667 + 7,256 = 13,923$
V_2	$\dfrac{C3}{1.05} = \dfrac{8,000}{1.05} = 7,619$