

# Some Thoughts on the Foundations of Accounting and Auditing Research

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## Bill Gates

- Take our 20 best people away and I tell you that Microsoft would become an unimportant company.
- I'm not an educator, but I'm a learner.
- And one of the things I like best about my job is that I'm surrounded by other people who love to learn.

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## Bill Gates says the next big thing in tech can help people learn like he does. 2016

- In a new interview with The Verge, Microsoft cofounder and richest man in the world Bill Gates explained the potential for chatbots — programs you can text with like they're human — in education.
- Gates lauds the potential for what he calls "dialogue richness," where an chatbot can really hold a conversation with a student, essentially making it into a tutor that can walk them through even the toughest, most subjective topics.

• <https://www.businessinsider.in/bill-gates-says-the-next-big-thing-in-tech-can-help-people-learn-like-he-does/articleshw/51986262.cms>

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- It's actually similar to how Gates himself likes to learn, he tells The Verge:
- You know, part of the reason I'm so willing to tackle new subjects is that for each of those subjects, if I get utterly confused, I know somebody I can send an email to, and they'll straighten me out.

- Gates is a big fan of lifelong learning, reading 50 books a year and encouraging others to do the same. It's clear that he has a lot of passion for applying his technology expertise towards making that kind of learning more accessible to all.



## Financial Statement Analysis

- K. R. Subramanyam
- Eleventh Edition
- **McGraw-Hill Companies, 2014**



## Income Measurement

### Concepts

#### Illustration Facts:

- Company with \$100,000 in cash
- Buys condo for \$100,000
- Rents condo for \$12,000 per year
- End of the first year: Condo valued at \$125,000



## Income Measurement

### Concepts

#### Illustration Facts:

- Net (free) cash flow = \$(88,000)
- Operating cash flow = \$12,000
- Economic income = \$37,000
- (\$12,000 rental income + \$25,000 holding gain)
- Accounting income = \$11,500 (\$12,000 rental income - \$500 depreciation\*)

\*Condo's useful life is 50 years and its salvage value is \$75,000—yearly straight-line depreciation is \$500

## Income Measurement

### Concepts

#### Economic Income:



Two measures reflect the economic concept

- economic income
- permanent income

## Income Measurement

### Concepts

#### Economic Income:

- Equals net cash flows + the change in the present value of future cash flows
- Measures change in shareholder value—reflecting the financial effects of all events in a comprehensive manner
- Includes both recurring and nonrecurring components—rendering it less useful for forecasting future earnings potential



- Related to Hicksian concept of income—income includes both realized (cash flow) and unrealized (holding gain or loss) components

## Income Measurement

### Concepts

#### Permanent Income\*

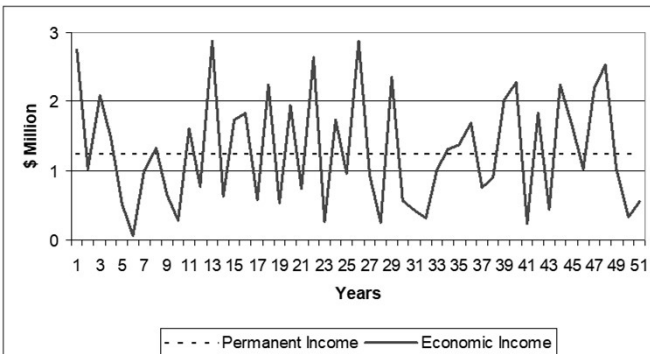
- Equals stable average income that a company is expected to earn over its life
- Reflects a long-term focus
- Directly proportional to company value
- Often expressed by dividing permanent income by cost of capital

\*Also called sustainable earning power, or sustainable or normalized earnings

## Income Measurement

### Concepts

#### Economic Income and Permanent Income



## Income Measurement

### Concepts

#### Accounting Concept of Income:

- Based on accrual accounting
- Capture aspects of both economic income and permanent income



- Suffers from measurement problems—yields accounting analysis

## Income Measurement

### Concepts

#### Economic Income vs. Accounting Income:

Economic Income and Accounting Income reflect similar concepts

**BUT:**

Accounting income is a product of the financial reporting environment—accounting standards, enforcement mechanisms, managers' incentives, etc.

**HENCE:**

Accounting income can diverge from economic income (yielding accounting distortions)



## Income Measurement

### Concepts

#### Accounting Income consists of:

- **Permanent Component**—the recurring component expected to persist indefinitely
- **Transitory Component**—the transitory (or non-recurring) component not expected to persist (Note: The concept of economic income includes both permanent and transitory components.)
- **Value Irrelevant Component**—value irrelevant components have no economic content; they are accounting distortions

## Nodhead Store Forecasts

Principles of Corporate Finance by Brealey, Myers, and Allen

	YEAR					
	1	2	3	4	5	6
Cash flow	100	200	250	298	298	298
PV at start of year (r = 10%)	1000	1000	901	741	517	271
PV at end of year (r = 10%)	1000	901	741	517	271	0
Change in value	0	-99	-160	-224	-246	-271
Economic income	100	101	90	74	52	27
Rate of return %	10	10	10	10	10	10
Economic depn.	0	99	160	224	246	271

## Nodhead Book Income & ROI

	YEAR					
	1	2	3	4	5	6
Cash flow	100	200	250	298	298	298
BV at start of year, strf line depn	1000	833	667	500	333	167
BV at end of year, strf line depn	833	667	500	333	167	0
Change in BV	-167	-167	-167	-167	-167	-167
Book income	-67	+33	+83	+131	+131	+131
Book ROI %	-6.7	4.0	12.4	26.2	39.3	78.4
Book depn.	167	167	167	167	167	167

## Understanding earnings quality

Dechow, Ge, and Schrand, 2010, JAE

[https://repository.upenn.edu/cgi/viewcontent.cgi?article=1004&context=accounting\\_papers](https://repository.upenn.edu/cgi/viewcontent.cgi?article=1004&context=accounting_papers)

- We begin with a definition of “earnings quality” that sets the scope of our review.
- Higher quality earnings more faithfully represent the features of the firm’s fundamental earnings process that are relevant to a specific decision made by a specific decision-maker.
- Our definition implies that the term “earnings quality” is meaningless without specifying the decision context, because the relevant features of the firm’s fundamental earnings process differ across decisions and decision makers.

## Overall Conclusion

- All of the proxies for earnings quality that involve earnings (i.e., properties such as persistence as well as the ERCs) have at their core the reported accrual-based earnings number.
- Reported accrual-based earnings are a function of “fundamental earnings” (X), which are unobservable, as well as the accounting system that imperfectly measures X:

*Reported Earnings = Function of (X) + error induced by accounting system (e)*

- Fundamental earnings (X) represents the output of the firm’s production function or business model and can be thought of as the expected cash flows generated during the period that could be annuitized to obtain the fundamental value of the firm, alternatively referred to as perpetual earnings.

### Three broad earnings quality (EQ) categories:

- 1. statistical properties of earnings;
- 2. investor responsiveness to earnings; and
- 3. external indicators of financial reporting quality.

### 1. statistical properties of earnings

- a) persistence and accruals,
- b) earnings smoothness,
- c) asymmetric timeliness and timely loss recognition; and
- d) benchmarking, in which the distance of earnings from a benchmark is viewed as a measure of its quality (e.g., small profits).

### *Persistence*

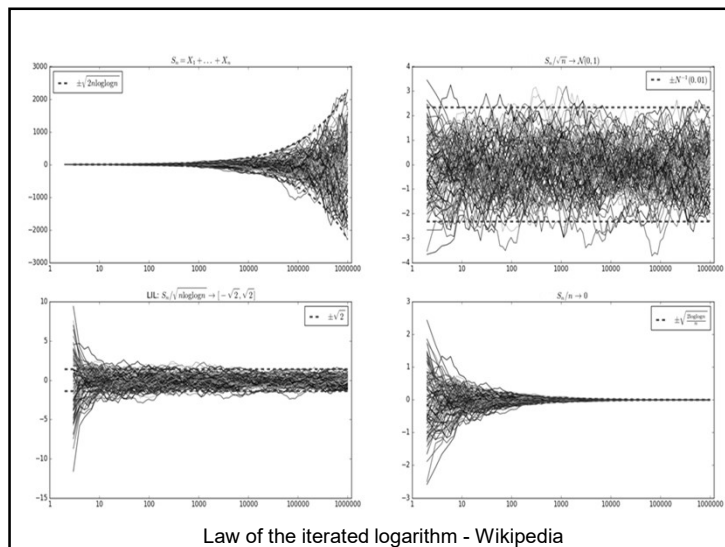
*Earnings Quality, 2008, by Jennifer Francis, Per Olsson and Katherine Schipper*

- Persistence as a measure of earnings quality is predicated on the view that more sustainable earnings are of higher quality.
- In its simplest form, earnings persistence is measured as the slope coefficient estimate,  $\varphi_{1,j}$ , from an autoregressive model of order one (AR1) for annual split-adjusted earnings per share ( $X_{j,t}$ , measured as firm  $j$ 's net income before extraordinary items in year  $t$  divided by the weighted average number of outstanding shares during year  $t$ ):
- $X_{j,t} = \varphi_{0,j} + \varphi_{1,j}X_{j,t-1} + u_{j,t}$ . (4.3)
- Equation (4.3) is typically estimated in time-series, firm-by-firm, using maximum likelihood estimation.
- The resulting estimate of  $\varphi_{1,j}$  captures firm  $j$ 's persistence of earnings. Values of  $\varphi_{1,j}$  close to one imply highly persistent (i.e., high quality) earnings, while values of  $\varphi_{1,j}$  close to zero imply highly transitory (i.e., low quality) earnings.

Related to the first stream of research, a simple model specification estimates earnings persistence as:

$$Earnings_{t+1} = \alpha + \beta Earnings_t + \varepsilon_t$$

- A higher beta implies a more persistent earnings stream. Intuitively, the logic behind earnings persistence being a quality metric is as follows:
- If firm A has a more persistent earnings stream than firm B, in perpetuity, then
- (i) in firm A, current earnings is a more useful summary measure of future performance; and
- (ii) annuitizing current earnings in firm A will give smaller valuation errors than annuitizing current earnings in firm B. Thus higher earnings persistence is of higher quality when the earnings is also value-relevant.



## 2. investor responsiveness to earnings

- The investor responsiveness to earnings category includes papers that use an earnings response coefficient (ERC) as a measure of earnings informativeness or earnings quality.

## 3. external indicators of financial reporting quality.

- The category for external indicators of financial reporting quality includes: AAERs (SEC Accounting and Auditing Enforcement Releases), restatements, and internal control procedure deficiencies reported under SOX.

## The Published version

Abstract

- Researchers have used various measures as indications of “earnings quality” including persistence, accruals, smoothness, timeliness, loss avoidance, investor responsiveness, and external indicators such as restatements and SEC enforcement releases.
- For each measure, we discuss causes of variation in the measure as well as consequences. We reach no single conclusion on what earnings quality is because “quality” is contingent on the decision context.
- We also point out that the “quality” of earnings is a function of the firm’s fundamental performance.

## The Published version

- In order to provide a commentary on the state of the literature, we begin by presenting a framework for thinking about earnings quality. For expositional convenience, we define reported earnings as follows:
- Reported Earnings =  $f(X)$ ,
- $X$  is the "...enterprise's financial performance during a reporting period," which SFAC No. 1 states is what earnings, a primary focus of financial reporting, should represent.

- Statement of Financial Accounting Concepts No.1 (SFAC No.1) states that "Financial reporting should provide information about an enterprise's financial performance during a period."
- Borrowing language from SFAC No.1, we define earnings quality as follows:
- Higher quality earnings provide more information about the features of a firm's financial performance that are relevant to a specific decision made by a specific decision-maker.

- The function  $f$  represents the accounting system that converts the unobservable  $X$  into observable earnings.
- One implication of this definition is that earnings is a function of performance itself, and not just the measurement of  $X$ .

- We borrow the term "financial performance" directly from SFAC No.1 to define  $X$ , but we recognize that the meaning of "performance" is ambiguous.
- For a one-period model of a firm, "performance" is observable and consists of the cash flows generated during the period plus the change in the liquidation value of net assets.



- When a firm exists over multiple reporting periods, performance represents three components:
- (i) cash flows generated during the current period;
- (ii) the present value of cash flows that will be generated in future periods that are a result of actions taken in the current period; and
- (iii) the present value of the change in the liquidation value of net assets that are a result of actions taken in the current period.

- Penman and Sougiannis (1998) describe a primitive construct like X, specifically in the context of equity valuation, as "...attributes within the firm, which are said to capture value-creating activities" (p.348).

Penman and Sougiannis (1998)  
A Comparison of Dividend, Cash Flow, and Earnings Approaches to Equity Valuation

- Standard formulas for valuing the equity of going concerns require forecasting payoffs to infinity but practical analysis requires that payoffs be forecasted over finite horizons. This truncation inevitably involves often-troublesome terminal value calculations. This paper contrasts dividend discount techniques, discounted cash flow analysis, and techniques based on accrual earnings when each is applied with finite-horizon forecasts. Valuations based on average ex post payoffs over various horizons, with and without terminal value calculations, are compared with ex ante market prices to discover the error introduced by each technique in truncating the horizon. Valuation errors are lower using accrual earnings techniques rather than cash flow and dividend discounting techniques. The accounting features that make a given technique less than ideal for finite horizon analysis are also detailed. Conditions where a given technique requires particularly long forecasting horizons are identified and the performance of the alternative techniques under those conditions is examined.

- To solve this so-called dividend conundrum, alternative valuation approaches forecast attributes within the firm, which are said to capture value-creating activities, rather than the value-irrelevant payout activities.
- The identification and tracking of additions to value is an accounting system.
- An accounting system that periodically recognizes additions to value that are distinguished from distributions of value is expressed as:

$$B_{t+\tau} = B_{t+\tau-1} + X_{t+\tau} - d_{t+\tau} \quad (\text{CSR}) (2),$$

Two features of our definition of reported earnings are noteworthy.

- First, the unobservable component  $X$  is defined without reference to a particular stakeholder (e.g., equity holder or debtholder).
- However, the relevance of a specific element of a firm's performance can vary across stakeholders and decision models.

- For example, an important decision model input for a long-term debtholder may be liquidation values of assets in the period when principal payments are due, while the relevant decision model input for a short-term debtholder is near-term expected cash flows, and performance ( $X$ ) can differentially affect these two outcomes.

- A compensation committee may care only about the elements of performance that are under management's control.
- Defining  $X$  without respect to a decision model is intentional and is consistent with a long-standing debate in the accounting literature on what earnings should represent.
- Should earnings measure changes in fair value (current or exit prices) of an enterprise (e.g., Chambers, 1956; Sterling, 1970), or should earnings measure "sustainable" cash flows (e.g., Paton and Littleton, 1940; Ohlson, 2000), such that it can be annuitized to reflect value?

To sharpen up the analysis, a restriction on the accounting will now be necessary. We consider the idea of earnings (eps) being permanent in expectations, which one naturally defines as follows:

$$e\bar{p}s_{t+1} = R e\bar{p}s_t - r d\bar{p}s_t$$

for all  $t = 0, 2, \dots$ . Importantly, the above equality need not hold for  $t = 0$ , and hence the qualifier "in expectation". If the last expression holds for  $t = 0$  as well, then  $e\bar{p}s_1 = R e\bar{p}s_0 - r d\bar{p}s_0$ , and earnings are permanent without the qualifier "in expectation". In other words, "permanent earnings implies permanent earnings in expectation", but the converse is false.

Permanent earnings in expectation means that the growth in expected eps beyond the next year depends on the payout policy alone. That is, for each date  $t \geq 2$ ,

$$\Delta \bar{e}ps_t / \bar{e}ps_{t-1} = r \times [1 - d\bar{p}s_{t-1} / \bar{e}ps_{t-1}].$$

A full payout policy leads to zero growth in expected earnings beyond the upcoming year; in case of zero payout for any future date  $t \geq 2$ , the growth in expected earnings equals  $r$ , i.e., the retained earnings have an earnings rate that corresponds to cost-of-equity capital. These extreme policies firm up the concept of permanent earnings in expectations. But there

- The debate over the quality of earnings, as opposed to the quality of the balance sheet, is another important question, and it underscores a significant message of there view: the decision usefulness of accounting information is jointly determined by the decision model and by the accounting information that is used as an input to the model.

- The second noteworthy feature of our definition of reported earnings is that reported earnings does not equal  $X$ ; it is a function of  $X$ .
- We distinguish three explanations for why an accounting measurement system (f) would not perfectly measure performance:

- (1) Multiple decision models: An accounting system that produces a single reported earnings number can not produce a representation of  $X$  that is equally relevant in all decision models.
- In U.S.GAAP: "The objectives are directed toward the common interests of many users in the ability of an enterprise to generate favorable cash flows but are phrased using investment and credit decisions as a reference to give them a focus" (SFAC No.1).
- Ultimately, the standard setters make trade-offs in setting standards across anticipated users' needs, and in the end no individual decision-maker gets a representation of firm performance that is perfectly relevant for his or her decision.

- (2) Variation in X: Firms choose among a limited set of pre-determined measurement principles (e.g., accounting standards) to measure X.
- No single standard will perfectly measure X for any given firm. Consider, for example, cost of goods sold (COGS), which represents the reportable measure of a firm's unobservable inventory production performance during the period.
- GAAP defines the costs to be included in COGS and the timing of the recognition of the costs. However, the resulting "standardized" measure of COGS will not be an equally good measure of decision-relevant performance across all Xs (e.g., retail chains versus oil producing companies, to use the Graham and Dodd example), and it will not be a perfect representation of any X.

- (3) Implementation: An accounting system that measures an unobservable construct (X) inherently involves estimations and judgment, and thus has the potential for unintentional errors and intentional bias (i.e., earnings management).

Accrual model	Theory	Notes
<b>Jones (1991) model</b> $Acc_t = \alpha + \beta_1 \Delta Rev_t + \beta_2 PPE_t + \epsilon_t$	Accruals are a function of revenue growth and depreciation is a function of PPE. All variables are scaled by total assets	Correlation or error with firm performance can bias tests. $R^2$ around 12%. Residual is correlated with accruals, earnings and cash flow
<b>Modified Jones model (Dechow et al., 1995)</b> $Acc_t = \alpha + \beta_1 (\Delta Rev_t - \Delta Rec_t) + \beta_2 PPE_t + \epsilon_t$	Adjusts Jones model to exclude growth in credit sales in years identified as manipulation years	Provides some improvement in power in certain settings (when revenue is manipulated)
<b>Performance matched (Kothari et al., 2005)</b> $DisAcc_t = \text{Matched firm's } DisAcc_t$	Matches firm-year observation with another from the same industry and year with the closest ROA. Discretionary accruals are from the Jones model (or Modified Jones model)	Can reduce power of test. Apply only when performance is an issue
<b>Dechow and Dichev (2002) approach</b> $\Delta WC_t = \alpha + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \epsilon_t$	Accruals are modeled as a function of past, present, and future cash flows given their purpose to alter the timing of cash flow recognition in earnings	$\sigma(\epsilon_t)$ or absolute $\epsilon_t$ proxies for accrual quality as an unsigned measure of extent of accrual "errors." Focuses on short-term accruals does not address errors in long-term accruals
<b>Discretionary estimation errors (Francis et al., 2005a)</b> $TCAt = \alpha + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \beta_4 \Delta Rev_t + \beta_5 PPE_t + \epsilon_t$ $\sigma(\epsilon_t) = \gamma_1 Size_t + \gamma_2 \sigma(CFO_t) + \gamma_3 \sigma(Rev_t) + \gamma_4 \log(OpexCycle_t) + \gamma_5 NegEarn_t + \nu_t$	Decomposes the standard deviation of the residual from the accruals model into an innate component that reflects the firm's operating environment and a discretionary component ( $\nu_t$ ) that reflects managerial choice	Innate estimation errors are the predicted component from $\sigma(\epsilon_t)$ regression

## Audit Quality

## A Review of Archival Auditing Research

Mark DeFond,\* Jieying Zhang\*

\*University of Southern California

Journal of Accounting and Economics

Volume 58, Issues 2–3, November–December 2014

## Mark L. DeFond

Senior Editor TAR

- Studies financial accounting, auditing, and issues in international accounting, and is among the 25 most highly cited authors in accounting.
- Is a board member of several leading academic journals and a recipient of the Notable Contribution to Auditing Literature Award, the Mellon Award for Excellence in Mentoring Faculty and the Dean's Educator of the Year Award.
- Has held visiting professorships at universities in Hong Kong and Singapore and travels regularly to China.
- Is a C.P.A. (inactive), is a four-time winner of the M.B.A. Golden Apple teaching award, and was ranked among the 10 most outstanding USC M.B.A. faculty by...

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## Abstract (original)

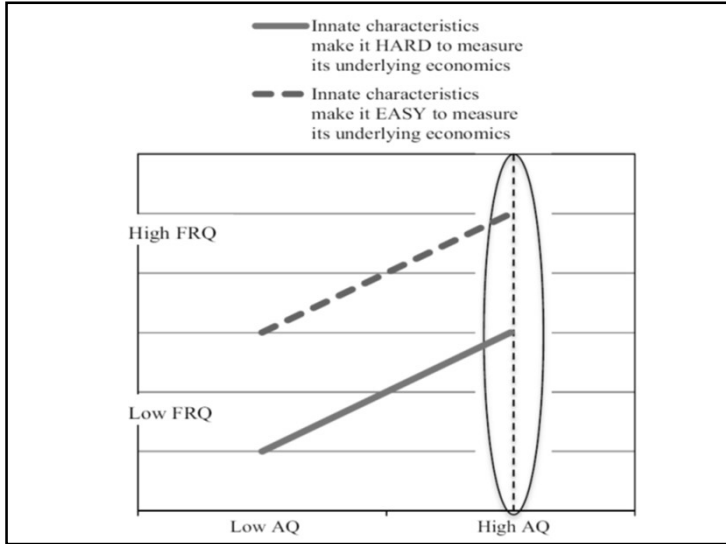
- We review and critique the archival auditing research using an economics-based framework.
- The demand for archival auditing research arises from attempts to understand the nature and role of auditing, particularly with respect to audit quality.
- We organize our review of this literature around four broad questions: (1) What is audit quality? (2) What drives client demand for audit quality? (3) What drives auditor supply of audit quality? and (4) What are the regulators' concerns about audit quality?
- In the course of addressing these questions we define audit quality, develop a framework for evaluating the commonly used audit quality proxies, discuss and critique the research to date, and provide our views on what is yet to be learned.

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## Revised Abstract

- We define higher audit quality as greater assurance of high financial reporting quality.
- (greater assurance that the financial statements faithfully reflect the firm's underlying economics, conditioned on its financial reporting system and innate characteristics)
- Researchers use many proxies for audit quality, with little guidance on choosing among them.
- We provide a framework for systematically evaluating their unique strengths and weaknesses.

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## The relation between audit quality and financial reporting quality

This section makes several observations about the relation between audit quality and financial reporting quality. One is that audit quality is a component of financial reporting quality, because high audit quality increases the credibility of the financial reports. This increased credibility arises through greater assurance that the financial statements faithfully reflect the firm's underlying economics. Audit quality, however, is not the only component of financial reporting quality. Financial reporting quality is also affected by the quality of the pre-audited financial statements, which are an input to the audit process. The quality of the pre-audited statements is further determined by the firm's financial reporting system, which maps its underlying economics into the financial reports; and the firm's innate characteristics, which determine its underlying economics (Dechow et al., 2010). Thus, financial reporting quality (FRQ) is a function of audit quality (AQ), the quality of the firm's financial reporting system (R) and its innate characteristics (I). These relations can be described in notation form as

$$FRQ = f(AQ, R, I) \tag{1}$$

$$\frac{\partial FRQ}{\partial AQ} > 0 \tag{2}$$

$$(FRQ|I_{Easy}, AQ_{High}) > (FRQ|I_{Hard}, AQ_{High})$$

**Market Model**

First let us consider again the simple one-commodity market model of (3.1). That model can be written in the form of two equations:

$$Q = a - bP \quad (a, b > 0) \quad [\text{demand}]$$

$$Q = -c + dP \quad (c, d > 0) \quad [\text{supply}]$$

with solutions

$$P^* = \frac{a + c}{b + d} \tag{7.14}$$

$$Q^* = \frac{ad - bc}{b + d} \tag{7.15}$$

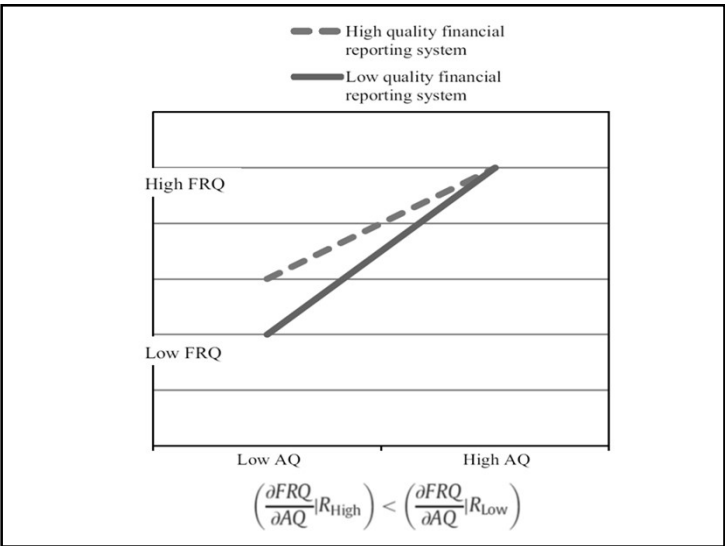
These solutions will be referred to as being in the *reduced form*: The two endogenous variables have been reduced to explicit expressions of the four mutually independent parameters  $a$ ,  $b$ ,  $c$ , and  $d$ .

To find how an infinitesimal change in one of the parameters will affect the value of  $P^*$ , one has only to differentiate (7.14) partially with respect to each of the parameters. If the *sign* of a partial derivative, say,  $\partial P^* / \partial a$ , can be determined from the given information about the parameters, we shall know the direction in which  $P^*$  will move when the parameter  $a$  changes; this constitutes a qualitative conclusion. If the magnitude of  $\partial P^* / \partial a$  can be ascertained, it will constitute a quantitative conclusion.

Similarly, we can draw qualitative or quantitative conclusions from the partial derivatives of  $Q^*$  with respect to each parameter, such as  $\partial Q^* / \partial a$ . To avoid misunderstanding, however, a clear distinction should be made between the two derivatives  $\partial Q^* / \partial a$  and  $\partial Q / \partial a$ . The latter derivative is a concept appropriate to the demand function taken alone, and without regard to the supply function. The derivative  $\partial Q^* / \partial a$  pertains, on the other hand, to the equilibrium quantity in (7.15) which, being in the nature of a solution of the model, takes into account the interaction of demand and supply together. To emphasize this distinction, we shall refer to the partial derivatives of  $P^*$  and  $Q^*$  with respect to the parameters as *comparative-static derivatives*. The possibility of confusion between  $\partial Q^* / \partial a$  and  $\partial Q / \partial a$  is precisely the reason why we have chosen to use the asterisk notation, as in  $Q^*$  to denote the equilibrium value.

Concentrating on  $P^*$  for the time being, we can get the following four partial derivatives from (7.14):

$$\frac{\partial P^*}{\partial a} = \frac{1}{b + d} \quad \left[ \text{parameter } a \text{ has the coefficient } \frac{1}{b + d} \right]$$

$$\frac{\partial P^*}{\partial b} = \frac{0(b + d) - 1(a + c)}{(b + d)^2} = -\frac{(a + c)}{(b + d)^2} \quad [\text{quotient rule}]$$


- Because it is inextricably intertwined with financial reporting quality, audit quality also depends on firms' innate characteristics and financial reporting systems.
- Our review of the models commonly used to disentangle these constructs suggests the need for better conceptual guidance.
- Finally, we urge more research on the role of auditor and client competency in driving audit quality.

## Audit Quality DeAngelo

- Most studies define audit quality as some variation of “the market-assessed joint probability that a given auditor will both detect a breach in the client’s accounting system, and report the breach” (e.g., DeAngelo, 1981).
- While this definition motivates a large body of research, it portrays auditing as a binary process, with the auditor’s role reduced to the simple detection and reporting of “black and white” GAAP violations.

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- While there is no doubt that auditors are charged with assuring that the financial statements are free of material misstatements, we believe that this characterization understates the benefits of high audit quality, which extend well beyond the simple detection and reporting of GAAP violations to assuring financial reporting quality.
- In particular, we expect high quality auditors to consider not only whether the client’s accounting choices are in technical compliance with GAAP, but also how faithfully the financial statements reflect the firm’s underlying economics.

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## Auditing Standards PCAOB

- The objective of the ordinary audit of financial statements by the independent auditor is the expression of an opinion on the fairness with which they present, in all material respects, financial position, results of operations, and its cash flows in conformity with generally accepted accounting principles.

## Audit Quality: A New Definition

- While high audit quality provides greater assurance of high financial reporting quality, financial reporting quality is also a function of the firm's financial reporting system and its innate characteristics.
- The financial reporting system, including internal controls, maps the firm's underlying economics into the financial reports.

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- The firm's innate characteristics are characterized by its underlying economics, which are determined by its returns generation process (Dechow et al., 2010).
- Together, the firm's financial reporting system and innate characteristics affect how faithfully its financial reports reflect its underlying economics, thereby constraining the achievable level of financial reporting quality.

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- For example, ceteris paribus, financial reporting quality is expected to be lower for firms with difficult to measure innate characteristics, such as assets that consist primarily of investment opportunities, than for firms with assets that consist primarily of tangible assets, regardless of the level of audit quality.

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- Thus, for purposes of this review, we adopt a definition of audit quality that reflects auditing's close association with financial reporting quality, and that considers the constraints imposed by the firm's financial reporting system and innate characteristics.

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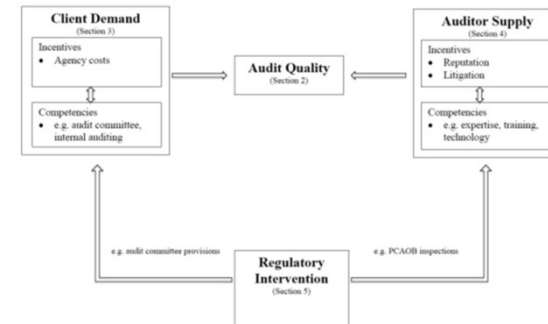


- Specifically, we define higher audit quality as
- “greater assurance that the financial statements faithfully reflect the firm’s underlying economics, conditioned on its financial reporting system and innate characteristics.”

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Figure 1

Audit Quality Framework



Proxy Category	Commonly used proxies	Directness	Eggregiousness	Actual vs. Perceived	Measurement Issues			Unique Strengths & Weaknesses	
					Discrete vs. Continuous	Consensus on Measurement	Measurement Error	Strengths	Weaknesses
<b>OUTPUT MEASURES</b>									
Material misstatements	Restatements, AAERs	Very direct	Very egregious	Actual	Discrete	High	Low	<ul style="list-style-type: none"> <li>• Strong evidence of poor audit quality</li> </ul>	<ul style="list-style-type: none"> <li>• Does not capture subtle quality variation</li> <li>• Cannot infer high quality from lack of misstatements</li> <li>• Rare and low power</li> </ul>
Audit opinions	GC opinions	Very direct	Egregious	Actual	Discrete	High	Medium	<ul style="list-style-type: none"> <li>• Uniquely captures auditor independence</li> <li>• Strong evidence of poor audit quality</li> </ul>	<ul style="list-style-type: none"> <li>• Does not capture subtle quality variation</li> <li>• Only applies to disclosed firms, limits generalizability</li> </ul>
Earnings quality	DAC, meet-beat, accrual quality, conservatism	Relatively less direct	Relatively less egregious	Actual	Continuous	Low	High	<ul style="list-style-type: none"> <li>• Tightly linked to concept of audit quality</li> <li>• Evidence of within-GAAP manipulation</li> <li>• May signal more egregious undetected misstatements</li> <li>• Captures quality variation for a large number of firms</li> </ul>	<ul style="list-style-type: none"> <li>• Limited consensus on measurement</li> <li>• Potentially large measurement errors</li> </ul>
Perception-based	market reaction, cost of capital, change in client market share, change in fees	Very indirect	Egregiousness can be inferred	Perceived	Continuous	Depends on proxy	Can be high (e.g., COC)	<ul style="list-style-type: none"> <li>• Captures perceptions of users such as investors and audit committees</li> <li>• Captures subtle quality variation</li> <li>• Measurable for a large number of firms</li> <li>• Equity measures reflect net benefits and costs of audit quality</li> </ul>	<ul style="list-style-type: none"> <li>• Most are very indirect (e.g., cost of capital)</li> <li>• Limited consensus on measurement for some (e.g., cost of capital)</li> </ul>
<b>INPUT MEASURES</b>									
Auditor characteristics	Big N, industry specialization	N/A	N/A	Actual	Discrete	High	Can be high (e.g., specialization)	<ul style="list-style-type: none"> <li>• Captures demand for audit quality</li> <li>• High construct validity</li> </ul>	<ul style="list-style-type: none"> <li>• Does not capture subtle quality variation</li> <li>• Lack of consensus in measuring specialization</li> </ul>
Audit fees	Audit fees	N/A	N/A	Actual	Continuous	High	Medium	<ul style="list-style-type: none"> <li>• Captures subtle quality variation for a large number of firms</li> <li>• Well-developed fee models</li> </ul>	<ul style="list-style-type: none"> <li>• Subject to alternative explanations</li> </ul>

Is Accounting an Academic Discipline?

## Some Thoughts on the Intellectual Foundations of Accounting

- Joel S. Demski, John C. Fellingham, Yuji Ijiri, and Shyam Sunder
- Accounting Horizons
- Vol. 16 No. 2
- June 2002
- pp. 157-168

## Henry Rand Hatfield

An Historical Defense of Bookkeeping  
Journal of Accountancy 1924

- “I am sure that all of us who teach accounting (auditing) in the university (accounting department) suffer from the implied contempt of our colleagues, who look upon accounting (auditing) as an intruder, a Saul among the prophets, a pariah whose very presence detracts somewhat from the sanctity of the academic halls.”

## Is Accounting an Academic Discipline? John Fellingham

Accounting Horizons 21 (2007)

- There are lots of accounting (auditing) journals. Are the contents read or noticed by other citizens of the University? It seems hard to find evidence that that is so.
- Anthony Hopwood offered evidence that accounting (auditing) journals are very internally focused and self-referential.

- More casually, but perhaps more telling, is this question: what big intellectual ideas have we contributed to the University?
- Can we say human genome, or options pricing, or something of that magnitude?
- While we have figured some things out, we are not used to thinking in terms of our contribution, as a discipline, to the University.

$\lim_{GPA \rightarrow 0} \text{Engineering} = \text{Business}$

$\lim_{GPA \rightarrow 0} \text{Business} = \text{Accounting}$

$\lim_{GPA \rightarrow 0} \text{Accounting} = \text{Auditing}$

- The codification of accounting rules provides an way to organize and frame the teaching of accounting.
- That is, we teach the rules, and contribution to the academy is deemphasized.
- So the tendency is to think in terms of contributions to the students, the current generation of students – to prepare them for a job – and not to think in terms of contributions to the academy, and future generations of students.

### Heine–Borel theorem

- For a subset S of Euclidean space  $\mathbf{R}^n$ , the following two statements are equivalent:
  - S is closed and bounded
  - every open cover of S has a finite subcover, that is, S is compact.

### Need for Elegance

- Elegance is prized for itself. It tends to give us hints about a deeper reality.
- And we've got as elegant a system as there is – one which has survived for over five centuries.
- Notwithstanding enormous and unrecognizable changes in commerce and technology, the double entry system written down by Pacioli remains recognizable and thriving.

- Judging from the majority of the textbooks, we tend not to emphasize the elegance in the introductory accounting courses, or elsewhere in the curriculum.
- Linear algebra, for example, was developed in concert with the study of double entry accounting.
- We can use the double entry system to illustrate important theorems in mathematics like the theorem of the separating hyperplane, duality and projection theorems, and what is called the fundamental theorem of linear algebra.

- Here's an accounting example of the theorem of the separating hyperplane.
- Consider a set of financial statements with all balances given, and a set of journal entries with no particular amounts attached.
- Is it possible to find non-negative amounts for the journal entries so that the given financial statements are generated?

### Is Accounting an Academic Discipline? Joel Demski

Accounting Horizons 21 (2007)

- We have become vocational, indeed first job vocational in our instruction.
- Accounting majors are treated to a litany of rules.
- Beyond that, a vast amount of the curriculum is arguably aimed at preparing the student for his or her initial job.
- Initial jobs are, of course, important, but so is the one that follows, not to mention the one that follows that one.

- More distressing, to me at least, is this virus of initial job myopia has infected our PhD training, where we now find an emphasis on how to do today's research, using today's literature, how to deal with today's (yesterday's) technology and student mind sets in today's classrooms, all packaged in a laser like focus on producing and polishing one's resume, job talk paper and presentation.

- Our journals have become homogenized, tribal, and governed by self-protective social networks.
- The vast bulk of our published work is insular, largely derivative, and lacking in the variety that is essential for innovation.
- Our published work is exhibiting more and more of a job placement and retention focus.

- Hardly anyone “touches” the data, but elects to substitute literature derived control variables and problem formulations for familiarity with the infrastructure that produced the data.

- Accounting per se has disappeared from our activities.
- Likelihood structures or random variables routinely substitute for accounting structure.
- Simple models of accruals, as opposed to sophisticated, economic based structural models, based on accounting structure and economic fundamentals, are routinely employed in our research and teaching.

### Conceptual Framework

- The conceptual framework has stayed too long (and this is not superseded by the recently released joint FASB/IASB discussion paper).
- The conceptual framework is the major organizing framework for our teaching, our research (consider value relevance) and for regulation. Yet it is and remains irreparably flawed.
- The foundation of qualitative characteristics of relevance and reliability (or relevance and faithful representation) does not comport with economic fundamentals, a straightforward application of the Blackwell Theorem.

- The net effect is relative performance evaluation based on quasi-indicators has become the norm: CPA exam pass rates, GMAT scores, *Business Week* or *US News* rankings, student evaluations, citation counts, and peer-based, intra-tribe evaluation.
- What emerges is a classic “bad” equilibrium. We have tribe-based, self-protection, an over-emphasis on rules and regulations, and an over-emphasis on first job training.

## Conclusion

- In conclusion, accounting is an ever narrowing, insular vocational enterprise, is not today an academic discipline. But it could, and in my opinion, should be an academic discipline.
- We are at present a troubled enterprise.
  - Our research is largely derivative, bifurcated and far from foundational.
  - Our textbooks are intellectually embarrassing.
  - Our intellectual contribution to the academy has asymptoted to nil.

- Statistically there are a few youngsters who came to academia for the joy of learning, who are yet relatively untainted by the vocational virus.
- I urge you, whoever you are, to nurture your taste for learning, to follow your joy. That is the path of scholarship, and it is the only one with any possibility of turning us back toward the academy. Don't play the game. Redefine the game.

敬請指教

非常感謝