By What Criteria Do We Evaluate Accounting?

Some Thoughts on The Archival Literature and Economic Welfare

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Abstract

Accounting obviously matters. Substantial resources have been devoted to the production and use of accounting information for millennia, in different civilizations and in different economic systems, and continue to be devoted to them in the modern age. Activities consuming substantial resources do not survive over such long periods and in so many places without mattering. But how does accounting matter? A partial answer to those questions is implicit or explicit in much of the modern archival accounting literature, though the question seldom is addressed in much depth. In the hope of promoting thought and discussion on this foundational issue, I adopt a “soft” welfare-economic framework, though scholars from other disciplines no doubt will see the world differently. In that framework, the role of an accounting regime is to increase welfare through its effects – in conjunction with complementary economic institutions – on firm and household behavior. I review three major research streams in the archival literature (real effects; price effects, including value relevance; and costly contracting), in terms of what they can and cannot reveal as proxies for welfare effects. One conclusion is that the partial correlations and average effects that predominate in this literature provide insights into the role of accounting in the economy, but provide limited and sometimes alarmingly misleading proxies for welfare effects. A major concern is that teachers and researchers – indeed, regulators and standard setters – raised on this literature could lose sight of, and hence underestimate, the fundamental contribution of accounting to aggregate welfare.

Acknowledgements

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I. Introduction

Accounting obviously matters. How do we know that it matters? The answer is deceptively simple: substantial resources have been devoted to accounting for millennia, in different civilizations and in different economic systems, and continue to be devoted to it in the modern age. Activities consuming substantial resources do not survive over very long periods and in so many places without mattering. The question is how. That is the topic of this essay.

Notable evidence of accounting clearly mattering over the course of history includes the following:¹

- The earliest acknowledged forms of accounting emerged in Ancient Egypt, where bookkeepers kept meticulous commercial and taxation records. These included (Mohamed, 2019): “tax records, agendas, grain distribution tables, accounting tables, distribution records of wages and receivables, food orders, materials, lists of various items and materials, lists of the contents of the temples, documents for the transfer and delivery of materials and yields”.

- In ancient Mesopotamia, more than 7,000 years ago, accounting records of important matters such as crops, herds and transactions were maintained. Researchers including Keister (1963), Schmandt-Besserat (1995) and Mouck (2004) have written on the effect of early accounting record-keeping on commerce, and more generally on human cognition and writing. From extensive research on Mesopotamian accounting records, Basu and Waymire (2006) conjecture that when systematic record-keeping emerged it supplemented human memory and engendered trust, thereby facilitating complex arm’s-length exchange.

- A reference to accounting in Chinese government administration was recorded four millennia ago. (Fu, 1968, 1971).

- The ancient Greeks used independent scribes to record private transactions.²

- The Roman Empire kept elaborate accounting records of revenues, expenditures, assets and debts (Oldroyd, 1995).

- In India, a manuscript outlined accounting and financial practices in the third century BCE.³

- There are references to accounting in ancient religious texts, including the Bible⁴, the Qur’an,⁵ and the Torah.⁶

- The development of double-entry accounting, and its adoption by merchants in Europe during the late 13th Century, is credited by Sombart (1902) and Schumpeter (1952) with playing a substantial role in the development of capitalism. Sombart (1902) argued that by separating the affairs of a

¹ I am by no means an expert in accounting history, so this list undoubtedly is not a representative survey of the literature. The sole purpose of the list is to establish that some form of accounting has existed in a variety of civilizations for millennia.
² Provasi and Farag (2013). Stone (1969) notes that scribes commonly were slaves because – unlike free citizens – they could be tortured to verify the truthfulness of their accounts. That puts the PCAOB in some perspective.
⁴ Exodus 38:21-31: “These are the accounts of the Tabernacle, the Tabernacle of the Testimony, as they were calculated according to the commandment of Moses.” Ecclesiasticus 14:7: “Whatever stores you issue do it by number and weight, spending and taking put everything in writing.”
⁵ “When ye deal with each other, in transactions involving future obligations in a fixed period of time, reduce them to writing let a scribe write down faithfully as between the parties; let not the scribe refuse to write: as Allah has taught him, so let him write.” (Surah Al-Baqarah: 282).
⁶ “[j]hough Moses was the sole treasurer, yet he called others to audit the accounts with him” (Exodus Rabbah 51:1).
business from those of its owners, double-entry accounting allowed assets to be viewed in a more objective fashion and provided owners with a rational measure of business outcomes. Indeed, Sombart believed the emergence of capitalism and the development of double-entry bookkeeping were interconnected and causally related. Schumpeter (1950, 123) famously argued that capitalism encourages rational decision-making, in part via systematic numerical calculation of costs and profits “of which the towering monument is double-entry accounting.” Double-entry accounting even appears in the history of Renaissance literature and art. Jardine (1998) demonstrates that Renaissance art, along with its better-known depiction of sacred themes, also celebrated the ownership of valuable objects that had recently become available through trade opening up. Jardine surveys the roles of developments in communication, banking, credit – and yes, double-entry accounting – in the creation of a new wealthy class through trade, and that sponsored these artistic developments. Double-entry accounting underlies the logic of financial reporting to this day.

In the 20th century, the development of national accounting in the United States was stimulated by the Great Depression and the advent of Keynesian macroeconomic planning, and again by World War II planning. The first formal national accounts for the United States were published as late as 1947. Importantly, they were based on commercial accounting procedures. Other countries soon followed. Quoting from Palgrave (Vanoli, 2008, 2): “The idea of an accounting approach for the economy as a whole, similar to the business accounting approach, was introduced …”.

Soll (2014) argues that good accounting historically played an important role in the rise of countries and bad accounting played an important role in their fall.

In the modern era, accounting has its fingers spread throughout the entire economy. Indeed, accounting is the primary mechanism for measuring – and hence influencing – economic behavior worldwide.

It is difficult to imagine a costly economic activity like accounting flourishing for thousands of years – and in so many civilizations – without mattering.


Before proceeding to discuss these questions, some definitions and caveats are in order. I will define accounting as the measurement of monetary transactions by economic institutions and the communication of their outcomes to inform decisions. I will define an accounting regime as encompassing the entire institutional structure that affects accounting practice in public firms, private firms, not-for-profits, government entities, and other institutions. A regime change could be as simple as adopting one new standard, or as complex as the invention of double entry accounting or the widespread adoption of International Financial Reporting Standards (IFRS) and accompanying enforcement mechanisms in 2005. I will use the terms firm and institution interchangeably.

Consistent with the above, I will define accounting research as investigation of the economics of firm and household behavior, focusing on the integral role of accounting information. Why is it necessary to
specify the qualifier “integral”? Because, as discussed more fully below, accounting institutions co-evolve along with many other economic institutions: they are complements. From the researcher’s perspective, the topic of this essay perhaps could be rephrased as: Why do we do the research we do? I adopt a “soft” welfare-economics perspective. Consequently, the essay is devoid of insights that could be provided by other perspectives.

A central conclusion of this essay is that the partial correlations and average effects that occupy the archival literature can be poor, meaningless or misleading proxies for welfare effects. That is not to say that those results are without merit: they can tell us something about how the economy works, and hence can be important in their own right. They also can provide important clues about welfare effects. Nevertheless, the link between archival literature results and welfare seldom is drawn or even drawable.

The essay focuses on the empirical archival literature, with only tangential references to the analytical literature on the social value of accounting that started with Feltham (1968). Finally, what follows are some personal thoughts on what turns out to be a very complex issue. They are not answers. Others no doubt will see things differently. The intent is to provoke thought and discussion on the foundations of our profession, and on how it contributes to aggregate economic welfare.

II. Efficiency and Equity: The Ultimate Welfare-Economic Criteria

The contribution of accounting to economic welfare lurks behind each of the major research streams in the contemporary archival literature: real effects; price effects (including “value relevance”); and costly contracting. Whether an accounting regime or change in regime affects real outcomes, prices or contracts is inherently interesting, but the deeper issue is whether and how welfare is affected. When authors state or imply that it is in some sense good that accounting information has the real effects, price effects, or uses in contracting that they identify, they implicitly offer those effects as proxies for welfare-increasing outcomes. But how valid are the proxies? What do they tell us about the contribution of accounting to welfare? What do they not tell us?

The primary welfare-economic criterion I will invoke is economic efficiency. This sidelines issues of equity among firms and households. While equity is an indisputably important dimension of welfare, I

7 Efficiency is an idealized and purely conceptual state in which all resources are optimally allocated in the sense that any remaining changes made for the benefit of one would have to harm another (so the remaining issues involve equity).
8 I could hide behind the Kaldor-Hicks Compensation Principle (also known as the Second Theorem of Welfare Economics) to avoid discussing equity. Applied in this context, the theorem states that if a redistribution of wealth takes place in initial
confess I have few useful thoughts to contribute on it, and it rarely is addressed in the archival literature. There is, however, an important literature on externalities and distributional effects that have implications for welfare, which I discuss in Section IX. While much of that literature does not formally adopt equity as a criterion, it provides relevant results – for example, when positive or negative externalities of firms’ behavior exist, or when regulatory mandates benefit some but harm others.

A well-known implication of the Coase (1937) theory of the firm is that economic institutions exist only in a world of economic frictions. If no economic resources such as search costs were consumed in making transactions (i.e., if transactions were frictionless), there would be no role for economic institutions, including accounting: households would transact directly among themselves. Coase reasoned that the role of firms is to contribute to economic efficiency by minimizing these frictions. This simple proposition underlies the logic of economic institutions generally, including accounting institutions (Ball, 1989). It is fundamental to any analysis of the economic role of accounting. Loosely stated, the role of accounting then can be framed as increasing economic efficiency by reducing frictions in the economy, thereby (ignoring equity issues) increasing aggregate welfare.

Two related clarifications are in order. First, economic frictions are not trifles, like the low cost of checking out at the local supermarket, or of transacting on major stock exchanges. Imagine the frictions that were overcome in getting from clay tablets to computers! 9 Second, setting aggregate welfare as a fundamental criterion for evaluating accounting does not in any way support the notion of welfare planning. While the evolution of economic institutions is by no means guaranteed to produce the Nirvana of a completely efficient institutional structure (see the studies in Dixit et al. (2011), for example), the course of history reveals a relentless evolutionary drive to reduce frictions and thereby increase welfare, without it being planned (Hayek, 1960, 1976, 1988). I therefore can address the contribution of accounting to economic welfare without assuming that the accounting regime is purposefully designed with that criterion in mind.

III. Some Barriers to Assessing the Welfare Contribution of Accounting

[endowments to compensate for any accounting regime change that harms some and benefits others, then an unfettered and frictionless price mechanism allocates scarce resources efficiently. However that would be logically inconsistent, because in a frictionless world there are no firms and no accounting regimes anyway. More importantly, the idea of pre-compensation for accounting effects is wildly impractical, in part because we do not fully understand them and their incidence.

9 This is but an extension of Adam Smith’s famous example of pin manufacturing with which he opens The Wealth of Nations, or of Leonard E. Read’s remarkable parable “I, Pencil”

Before proceeding further, I will briefly discuss four barriers to a comprehensive assessment of the welfare-economic contribution of any accounting regime. No doubt there are others.

1. **Specifying the Counterfactual**

What is the base case against which the effect of an accounting regime on welfare is to be assessed? For example, does one assess the current regime relative to one with:

- no accounting of any type whatsoever?
- An early regime in which assets and liabilities are counted in physical terms only (number of goats, amphora of oil, etc.)?
- a monetary-based accounting regime in which assets, liabilities and net income are counted in additive monetary terms, using double-entry accounting?
- a more modern pre-regulatory regime, such as the US before the advent of the state regulations and the creation of the SEC in 1934, or the UK before the accounting mandates of the Joint Stock Companies Act 1844?
- An alternative version of the current regime, such as when comparing fair value accounting with historical cost accounting, when evaluating IFRS relative to prior national accounting standards, or when evaluating the effects of FASB’s first lease accounting standard (SFAS No. 13, in 1976)?

The true base case for assessing the contribution of accounting to economic efficiency is the first (no accounting at all), but it is not easy to imagine and is impossible to research using archival data. Consequently, we tend to take much for granted and view the baseline only as a small perturbation to the existing regime, such as more or less frequent reporting, more or less use of fair value accounting, more or less globalization of standards and enforcement, or with and without an individual new accounting standard. By setting such a limited baseline, we tend to lose sight of the magnitude of accounting’s complete economic role and of the magnitude of its contribution to aggregate welfare. Consequently, it can be helpful for educators, researchers, regulators and standard setters to contemplate – however briefly – a world with no accounting.

2. **Identifying Causality When Accounting and Other Institutions Are Economic Complements**

Under even the least ambitious of the above counterfactuals, there is another seemingly insurmountable barrier to assessing the contribution of accounting to economic welfare: institutional complementarity. Institutional complementarity has long been recognized in economic development. Analytically, it is formalized by Aoki (1994, 2001), for example, building on the demonstration by Milgrom and Roberts (1990) and Topkis (1998) of complementarity emerging in a supermodular strategic game. Empirically,

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10 In principle, assessing the effect of an accounting regime against a baseline of no accounting could be investigated experimentally. Basu et al. (2006) offer such an experiment, but by necessity the simulated economy and its accounting regime is primitive,
after categorizing the institutions in all OECD countries, Hall and Gingerich (2009) conclude that “there are powerful interaction effects among institutions across sub-spheres of the political economy that must be considered if the economic impact of institutional change in any one sphere is to be accurately assessed.” In the accounting literature, institutional complementarity is recognized by Ohlson and Buckman (1981), Ball (2001, 2004), Ball, Robin and Wu (2000, 2003), Leuz, Nanda, and Wysocki (2003), Leuz (2010) and Leuz and Wysocki (2016), among others.¹¹

When attempting to assess the contribution of accounting to economic welfare, a thorny problem therefore is that accounting has important institutional complements, without which an accounting regime – and its effects – would not be the same. Equally, many of those institutions would not be the same without their accompanying accounting regime. Consequently, the optimal accounting regime is not independent of the structure of other economic institutions, and the optimal structure of other economic institutions is not independent of the accounting regime.

For example, even simple regimes that merely account in physical quantities (number of sheep, amphora of oil, etc.) could not emerge without developments in a number system, language, reading and writing, a rudimentary education function in which scribes acquire these skills, and – apparently – even developments in the human brain (Basu and Waymire, 2006; Dickhaut, 2009). How much economic benefit does one then attribute to accounting per se? To the development of commercial language, number systems, reading and writing? To take another example, the development of accounting in monetary rather than physical terms – a foundation of double entry accounting – requires the development of a monetary system with a currency acceptable to all parties using monetary accounting information (for running their business, in transacting with others, for paying taxes, etc.). How much benefit is attributable to accounting or to monetary systems?

At the same time, the demand for keeping accounting records would have created a derived demand for the development of complementary institutional structures, including commercial language, number systems, monetary systems, reading and writing. The development of accounting regimes likely influenced the shape of other developing institutions.

Just as accounting is associated with complementary institutional characteristics, changes in accounting normally are associated with complementary changes in other institutional characteristics. A modern

¹¹ Ohlson and Buckman (1981) assume frictionless pure exchange, without obvious implications for regime design.
and instructive example of this complexity is provided by accounting for marketable securities. In 1993, SFAS No. 115 changed the accepted accounting method from the “lower of cost or market” method of my generation, as encoded by Accounting Research Bulletin (ARB) No. 30 in 1947 and restated in the omnibus ARB No. 43 in 1953, to the current “fair value” method of “marking to market” and “marking to model.” This change was made possible by complementary institutional changes that had preceded 1993, including:

- Markets for commodities and financial instruments had become substantially more liquid, so closing prices at balance dates had become considerably more reliable estimators of realizable values.¹²
- Many new liquid security markets had sprung up, most notably for derivatives, providing a wider range of reliable prices.
- Electronic data services had proliferated, containing timely transactions prices and fair values for stocks, commodities, financial instruments, real estate, used plant & equipment, etc.
- Valuation models had become “generally accepted.” When I was a student, the present value (discounted cash flow) model was not widely known outside of academe, and it was viewed as theoretical and impractical by practitioners who did know about it. That changed over time, in part due to education and in part to reduced costs of calculation. By 1976, FASB was able to judge the discounted cash flow valuation method as being sufficiently generally accepted for it to mandate its use in SFAS No. 13 on lease accounting.
- The Black-Scholes model, on which many “mark to model” calculations are based, was published in 1973. It – and multiple variants – rapidly became generally accepted and used in valuation practice. Two decades later, the FASB deemed Black-Scholes valuations as being sufficiently generally accepted in practice to be used in valuing stock options issued to employees.

These institutional developments made valuation and pricing information more widely accepted, and quicker and cheaper to obtain and process. This created the opportunity for accountants to replace more and more historical costs with “fair values” – based on recently transacted prices, quotes, and generally accepted valuation methods. How much of any welfare economic benefit associated with the introduction of fair value accounting for marketable securities does one attribute to the new accounting method per se? To increased market liquidity and the development of new markets? To reductions in calculation costs? To new pricing services? To advances in valuation theory?

Consistent with the general rule that regime changes are complementary, causality also runs in the other direction: developments in accounting encourage developments in complementary institutional structures. Consider the many data services that now supply firms and their auditors with reliable and timely pricing information, for fair-valuing even the most complex securities. As argued above, the

¹² For example, the daily average number of shares traded on the NYSE in January 1950 was 1.7 million. In January 2018 it was 1,104.8 million. Source: https://www.nyse.com/data/transactions-statistics-data-library, visited August 7, 2018.
advent of their supply helped facilitate the use of fair-value accounting for marketable securities. Equally, the demand for using these data in financial reporting presumably contributed to the development of the data services. In general, accounting developments can be expected to lead to developments in complementary institutions, as well as vice versa. There is limited testing of this conjecture in relation to modern developments.

If accounting and other institutions are complements, can causality ever be attributed to accounting per se? Are developments in accounting caused by developments in other institutional variables? Are developments in other institutional variables caused by developments in accounting? Or is the correct answer “both of the above, they are caused jointly”?

Complementarity implies that changing accounting standards alone, in the absence of changes in other institutions, is unlikely to have substantial effects. Ball, Robin, and Wu (2000) studied the adoption by Chinese firms of International Accounting Standards (the precursor to IFRS) when there were no observable changes in preparer and auditor incentives. They found little change in financial reporting practice and concluded that (Abstract) “financial reporting cannot be improved simply by governments mandating accounting standards that evolved endogenously in different economies.” Ball, Robin, and Wu (2003) found a similar result in a sample of East Asian countries. Christensen et al. (2013) found relatively little effect of IFRS adoption except in countries that concurrently strengthened complementary enforcement institutions.

Researchers seeking to identify accounting effects per se search for “quasi-natural experiments” so they can estimate – as closely as possible – those effects in archival data. Like all research, this is an imperfect art, so researchers adopt settings and controls that identify accounting effects as plausibly as possible. As Leuz (2022, Abstract) concludes, “studies that aim to draw causal inferences are important … assessing the strength of the research design is important when evaluating studies.”

A good working hypothesis is that everything is endogenous. Accounting regime changes generally do not occur completely randomly, independently of complementary institutional changes. As a result, attributing all real effects, price effects or contracting effects to accounting alone is to overestimate the contribution of accounting to welfare; complementary institutional variables are involved also. Conversely, from a welfare perspective it is not clear that researchers studying changes in accounting institutions (such as changes in regime or in individual accounting standards) should control for contemporaneous changes in other institutional variables, as is commonly done. The reason is that the
controlled-for variables themselves can be affected by the accounting changes. In a sense they are part of the treatment variable. It thus is easy to underestimate the contribution of accounting to welfare by ignoring its role in the co-evolution of complementary economic institutions.

In sum, complementarity is a predictable and prevalent feature of the institutional structure of the economy, and the accounting regime is an integral part of it. This makes identification of the contribution of accounting per se to economic welfare, using archival data, an imperfect and maybe impossible task. The alternative might be to live with estimating the joint effects of an accounting regime and its complementary institutions – not a completely unworthy task.

3. Accounting Regime Costs

From a welfare-economic perspective, the optimal accounting regime is not independent of its cost. The optimal quantity of resources consumed – and, consequently, the optimal quantity and quality (however defined) of accounting information produced – is bounded.

If one needs convincing that substantial resources are devoted to our profession (sadly these days it seems more accurate to call it a regulated industry than a profession), consider the complexity of the institutional framework that supports a modern accounting regime. The resources consumed include:

- Regime-level costs associated with educating and training accountants.
- Regime-level costs associated with educating and training auditors.
- Regime-level costs of developing, maintaining and operating the complex set of non-auditing mechanisms that monitor accounting practice (company boards, audit committees, whistleblowing systems, security analysts, credit rating agencies, an independent press, short sellers);
- Regime-level costs of developing and operating an effective accounting regulatory apparatus.
- Regime-level costs of developing, promulgating and maintaining accounting and auditing standards.
- Regime-level costs of developing and operating an independent and effective judicial system in which statutory and private accounting-related litigation occurs.
- Firm-level personnel, information system and overhead costs of developing and operating internal accounting and internal audit systems.
- Firm-level costs of complying with external reporting rules.
- Firm-level costs of complying with contractual reporting commitments (notably, in debt agreements); and
- External audit costs incurred in running independent accounting firms, as reflected in audit fees.

Most of the above costs are unobservable. Audit fees are public information in some regimes, as sometimes are the budgets of standard setters and regulators. Some costs associated with regime changes can be observed, however. For example, Kim, Liu, and Zheng (2012) and De George, Ferguson, and Spear (2013) report increased audit fees upon the adoption of IFRS. In a clever study, Enache et al.
(2022) study job postings for accountants associated with the US introduction of the new revenue recognition standard in 2014 and the new standard on accounting for leases in 2016. They document a substantial increase in postings, implying a substantial increase in the labor cost of preparing financial reports under the new regime. Meehan and Stephenson (2020) and Barrios (2022) study changes in the supply price of accounting labor associated with the US profession introducing 120-hour and 150-hour educational requirements for entry.

From the perspective of a preference ordering of regimes these observable costs are only “the tip of the iceberg.” It is surprising that so little research on accounting costs has been published, especially when viewed relative to the volume of research reporting benefits, though that view must be tempered by recognizing data limitations.

Accounting firms, regulators, politicians, standard setters and the courts routinely make decisions that affect the accounting regime. In doing so, one would hope they pay at least some attention to costs. For example, an alternative accounting standard that would provide users with more or more accurate information is not necessarily better from a welfare economic criterion; proprietary costs (Verrecchia, 1983) and costs of producing, reporting and interpreting the information are part of the equation. An issue that arises from an economic welfare perspective is that these decision-makers might not internalize all the costs of implementing their decisions. For example, it might be in the interest of the accounting profession to require overly complex accounting standards that require more extensive auditing, resulting in higher audit fees. While the profession would encounter some pushback from client firms, that would be somewhat muted because many such costs are imposed industry-wide and thus are largely passed on to consumers, or are dispersed through the economy due to responses such as more firms going private. In other words, the perspective of standard setters is not necessarily one of social optimality. One might assume that regulation solves the problem of accountants not completely internalizing the cost of regimes or regime changes, but similar observations can be made about the size of the budgets and incentives of regulatory bodies.

The U.S. Financial Accounting Standards Board (FASB) is aware of the issue of costs, stating: “A key principle guiding the Board's work is to issue standards when the expected benefits of a change justify the perceived costs of that change.”13 Consistent with this principle, FASB has commenced reporting rudimentary cost-benefit analyses. These consist only of a listing of some expected costs and benefits of

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13 Standard-Setting Process (fasb.org) visited 4 December 2022.
the standards. While these lists might seem limited, that does not imply that standard setters should conduct formal cost-benefit analyses that culminate in numerical estimates of net benefits. As Coates (2014) cautions in the context of financial regulation, that would imply a degree of precision that cannot be obtained in practice. Identifying and then quantifying costs and benefits both are imperfect processes, encountering many unknowns.

The optimal cost of operating an accounting regime obviously is bounded, and high costs are associated with firms departing the regime. Despite its importance, the scarcity until recently of archival research on costs is noticeable.

4. **Calibration**

Researchers frequently make arguments, in varying degrees of persuasiveness, that an effect they are reporting is economically important, both in nature and in magnitude. However, in the absence of fully identified firm production functions, firm and household investment opportunity sets, and household utility functions, the researcher cannot know for sure whether a variable being studied is economically important or trivial in nature. Nor can the researcher know for sure whether the observed magnitude of an effect is optimal, too large, or too small. Assessing the importance of a result from an aggregate welfare perspective then becomes a matter of forming a reasonable judgement.

Perhaps because it is not easy, magnitudes seldom are discussed. Researchers can argue that a result is economically important, when in fact the crux of their evidence is a test statistic. Coefficient magnitudes seldom are highlighted.

Nor do researchers know for sure whether the accounting variable has effects other than those they are studying, either because our knowledge of collateral effects is limited, or because data on them is limited.

Archival researchers have tended to study more easily observable outcome variables such as share market measures (earnings-returns associations, spreads, liquidity, turnover), debt market measures (ratings, debt yields, accounting-based debt covenants), firm investment and financing decisions, management compensation attributes, supply contract features, and other partial measures for which some theory and good data are available. As discussed more fully in Section V, this distorts research that is informative of welfare effects towards those that are easily observable.

5. **Implication of these barriers**

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Researchers obviously cannot experimentally shut down all accounting, however briefly, so they cannot observe a regime’s contribution to economic welfare against the true counterfactual of no accounting at all, thereby severely under-estimating the contribution. Researchers generally are left with studying only partial effects that are associated with cross-sectional or time-series variation at the firm level, or with changes or differences in regime (such as when firms change from public to private status or vice versa, or change country of listing, or when firms or entire countries change accounting standards). Nor can they completely parse out the effects of complimentary economic institutions, and indeed they might not want to: accounting and other institutions are intertwined, as are their effects. Many or most regime costs are unobservable, so they generally are ignored or underestimated. Data unavailability and imperfect calibration of effects create additional limitations.

A comprehensive assessment of the welfare-economic contribution of any accounting regime therefore is well out of reach, so researchers are left with discovering only partial insights. The following section reviews the major streams in the contemporary archival accounting literature from the perspective of the insights they do (and do not) provide about welfare effects.

IV. Criteria for Evaluating Accounting Used in the Contemporary Archival Literature

Three major criteria for evaluating accounting information have been employed in the archival accounting literature in recent decades: real effects, price effects (including value relevance) and costly contracting. These criteria provide different lenses for viewing accounting generally and can be interpreted as offering different proxies for aggregate welfare effects. While the three research streams clearly demonstrate that accounting information affects real outcomes, affects prices, and is used in contracting, from a welfare perspective the issue is whether the information leads to more efficient real outcomes, prices and contracting. That turns out to be quite a challenge.

1. Real Effects

The notion that accounting information affects real outcomes is more than intuitively appealing: it is obvious. Why bother with accounting if it does not affect what firms and households do?

I like to cite a loose application of the Heisenberg Uncertainty Principle, that the act of measuring affects what is measured. A simple example is the effect of accrual accounting on incentives to invest in inventory. Cash accounting expenses all cash outlays for inventory immediately upon acquisition. Accrual accounting expenses only the cost of the inventory that has been used. Accrual accounting
thereby provides greater incentives to invest in inventory: purchasing inventory for future use does not penalize accruals-based earnings but does penalize cash-based performance metrics. The act of measuring and reporting closing inventory under accrual accounting therefore affects the amount of inventory being measured. Another simple example is provided by accounting for unpaid bills. Cash accounting deducts from the operating account only the costs of goods and services that have been paid for. Accrual accounting deducts from earnings the costs of goods and services consumed, including those that have not been paid for (which are recorded as Accounts Payable). Cash accounting rewards managers to stop paying their bills toward the end of their fiscal period, harming the firm’s credit rating and overstating cash-based performance metrics. Accrual accounting therefore provides managers with a greater incentive to follow an optimal financing policy. These are but simple examples of the general rule that accounting measurement affects what is measured.14

Kanodia and Sapra (2016, p.624; emphasis in original) describe the real effects criterion as follows:

The real effects hypothesis states that the measurement and disclosure rules that govern the functioning of accounting systems—which economic transactions are measured, and which are not measured, how they are measured and aggregated, what is disclosed to capital markets and how frequently such disclosures are made—have significant effects on the real decisions that firms make.

Two important dimensions that a welfare economics objective would add to that criterion are that:

1. Accounting affects decisions of households as well as firms, both as consumers and as owners of factors of production (labor and capital invested in firms, housing, education, intellectual property, etc.); and
2. The optimal accounting regime moves real outcomes toward optimality, as distinct from simply affecting outcomes.15

Under this expanded interpretation of real effects, the objective of accounting is to engender more efficient production, investment and consumption decisions, in both firms and households. When the real effects criterion is broadened in this fashion, it becomes clear that there are myriad ways in which accountants accurately and independently counting outcomes could increase welfare by affecting real variables. For example, supplying accurate information about outcomes:

- facilitates firms learning from the outcomes of their past production, investment and financing decisions.

14 Hines (1988) expresses a similar point from the perspective of accounting as a social construct, noting that accounting does not simply mirror an externally given reality, but helps to construct that reality.

15 An attractive property of the Kanodia and Sapra (2016) approach is its linkage of capital markets with firm decision-making, highlighting the artificiality of separating “managerial” and “financial” accounting (though in practice there are data and theory limitations – and some branding by scholars – that lead to compartmentalization of their research steams.)
facilitates firms learning what did and did not generate successful outcomes in other firms.
facilitates households learning where to allocate their resources.
compresses and enhances credibility of manager disclosures of private, forward-looking information.
facilitates formal and informal contracts (debt, management, supply, royalty, dealership, etc.) in which payoffs or decision rights are formally or informally contingent on independently verified accounting outcomes.
facilitates a market for professional managers, who can be compensated and incented on the basis of accounting outcomes, providing gains from specialization and more efficient separation of ownership and control.
incents managers to act in a fashion more aligned with the interests of owners (i.e., reduces agency costs); and
aids the development of debt, equity, supply, and other markets generally.
My understanding of the term “real effects,” as it is used in this literature, is that it refers to accounting effects on quantities, including quantities of managerial effort, firm investment, household consumption, etc. Accounting effects on prices, including effects on changes in prices, are of course real but are not direct effects on quantities; they are discussed in the following subsection.
Recent real effects studied include:

- Kanodia and Sapra (2016) make clever use of public data to investigate accounting effects on investment efficiency, risk taking and economic cyclicality.
- Lara, Osma, and Penalva (2016) also use publicly available data to study accounting effects on investment efficiency.
- Kausar, Shroff, and White (2016) show that voluntarily obtaining a financial statement audit reduces information asymmetry between firms and the capital market. Consequently, firms obtaining audits increase their investment and use of debt finance and increase their operating performance.
- Christensen, Floyd, Liu, and Maffett (2017) show that when the 2010 Dodd–Frank Act required US mine-owning public companies to disclose their mine safety records in their financial reports, mine safety increased. Because these records previously existed in a less accessible form, this real effect likely was due to increased awareness of the issue.
- Shroff (2020) shows that firms whose auditors receive a clean report under the international inspection program of the US Public Company Accounting Oversight Board (PCAOB) increase capital raising and investment.
- Napier and Stadler (2020) report minor real effects from the introduction of a new accounting standard (IFRS 15 Revenue from Contracts with Customers).

It is apparent that accounting information has myriad effects on real outcomes throughout the economy. Regretfully, most real effects are unobservable: firms disclose mainly aggregate data, on only a small fraction of their real outcomes. Consequently, archival research on real effects is constrained by data availability. To overcome the paucity of data, Leuz and Wysocki (2016, p. 530, emphasis in original) urge “researchers to examine non-traditional disclosure and reporting settings, especially to learn about the real effects of disclosure mandates.”
As noted above, in the absence of fully identified production functions, investment opportunity sets and household preferences, the researcher cannot know whether an observed real effect is economically important or trivial. Nor can the researcher know whether the magnitude of the real effect is optimal, too large, or too small – especially when costs of operating the regime are taken into account. Limited ability to calibrate real effects therefore inhibits the informativeness of this stream of research from an aggregate welfare perspective.

Despite its recent popularity in the archival literature, real effects is by no means a new concept. More than six decades ago, the decision-usefulness theory of accounting, of which the major proponent was Staubus (1961), stressed the role of financial reporting in users’ decisions, though (as was normal in those days) Staubus offered no evidence of accounting effects. The real effects criterion also overlaps “economic consequences,” on which there is a robust archival literature. The early, Rochester-based, literature is surveyed in Holthausen and Leftwich (1983). A cross-section of subsequent research on economic consequences includes Dechow, Hutton and Sloan (1996), Leuz and Verrecchia (2000), Sadka (2006), Christensen, Lee and Walker (2007), and Ernstberger, Stich and Vogler (2012).16

In sum, it is clear that accounting has substantial real effects, some of which are observable to the researcher, but identifying them all and measuring their welfare effects is a formidable challenge.

2. Price Effects and Value Relevance

Another way in which accounting could be expected to improve welfare is through its effect on prices. From a welfare economics viewpoint, an optimal accounting regime:

1. Affects prices, as distinct from merely being associated (i.e., correlated) with them;
2. Affects prices in many markets; and
3. Moves prices toward optimality, as distinct from merely affecting them.

Under this criterion, an objective of accounting is to engender more economically efficient (“better”) prices in general, including equity market, debt market, and other factor market prices, as well as product market prices (e.g., supply prices, royalties, labor prices and management compensation).

Historically, research on the relation between accounting variables and prices overwhelmingly has addressed equity prices. This reflects the importance of the equity market as well as that market’s

16 Nor is the term itself completely new. While others could have preceded it, the first use of the term in the accounting literature of which I am aware is by myself (Ball 1972, p.1; emphases in original): “changes in accounting techniques can be responses to real variables … and they can also induce real effects … .”

Electronic copy available at: https://ssrn.com/abstract=4235703
substantial use of accounting information. However, it also reflects the ready availability to researchers in many countries of voluminous equity market data. In recent years, data on debt prices, management compensation and other prices have become available, but the equity market still garners considerable attention. In discussing the welfare implications of this vast literature, it is helpful to divide it into association studies and price effect studies. The latter seek to demonstrate causation (i.e., that accounting variables affect equity prices) and the former do not (i.e., they only demonstrate correlation).

2.1 Association Studies

Researchers can learn a lot about the properties and the economic role of accounting from using equity market prices, and changes in equity prices, as benchmarks. I have a personal stake in this genre. In our 1968 paper, Phil Brown and I initiated the study of the association between equity prices and accounting earnings. We concluded that accounting earnings contain information that overlaps the information that is incorporated in firms’ market values (in terms of subsequent terminology, they are value-relevant). More specifically, we calculated that annual earnings contain 22.6% of the information contained in annual returns (the first value relevance metric). We also concluded that earnings are not as timely as we had expected because they are mostly anticipated by investors. These are fundamental properties of accounting, measured using the natural benchmark of the equity market.

The equity market provides a natural benchmark for evaluating accounting earnings because – despite being seemingly disparate variables – earnings and equity returns are structurally related. Indeed, total earnings and total returns are identical over firms’ lifetimes, the only difference being timing. Both sum to total distributions to owners minus total contributions received from owners. At the end of firms’ lifetimes, they have no share prices and balance sheets: cash, as they say, is king. But at any point during their lifetimes, firms’ equity prices incorporate the information that has been incorporated in accounting earnings to date as well as considerable other information that will not be incorporated in earnings until later periods (hence the adage “prices lead earnings”). This almost tautological proposition is confirmed in many archival studies, including Kothari (1992), Gelb and Zarowin (2002) and Lundholm and Myers (2002). The accumulated timing difference typically becomes proportionately smaller as firms age, to the point where at the end of their lives it disappears completely. Because of this structural relation, Phil Brown and I were able to study fundamental properties of accounting earnings, and indeed of accounting generally, by using equity returns as a benchmark. Subsequent studies using equity returns as a
benchmark to learn important properties of accounting information include Dechow (1994) and Basu (1997).

Using equity prices or returns as benchmark for accounting was highly controversial at the time (e.g., Chambers, 1974; See responses in Ball and Brown, 2014 and 2019). It remains controversial in some circles. Nevertheless, it has become widely used and known as “value relevance” research.

In an influential paper (3014 Google cites as of 7 September 2022), Barth, Beaver and Landsman (2001, pp.78-79) describe value relevance as follows: “In the extant literature, an accounting amount is defined as value relevant if it has a predicted association with equity market values.” The value relevance research stream has been so successful that it more appropriately might be described as a river. However, as Phil and I pointed out in the last sentence of our 1968 paper, one cannot take this too far: benchmarking against equity prices provides only a “restricted class” of evidence about an accounting regime. While one can learn important properties of accounting information using the equity market as a benchmark, one cannot meaningfully order accounting regimes based merely on correlations with equity prices or price changes. Using equity market price behavior as a proxy for welfare effects can be misleading, perhaps severely. Some of the many reasons are discussed below.

To begin with, value relevance is an excessively narrow criterion from a welfare-economic perspective. Equity claims on firms are not the only factors of production whose prices are affected by financial reporting. Other prices affected include debt, compensation, supply, product, and royalty prices. These prices are not perfectly positively correlated with equity prices. Consequently, a high (low) correlation between accounting numbers and one price does not imply a high (low) correlation between those accounting numbers and other prices. There is no a priori reason to believe that what is good for the equity market is good for other markets. Indeed, Gjesdal (1981) argues it is not.

For example, the equity price response to accounting information generally will exceed the price responses of other factors of production because equity is the residual claimant on the firm, generally receiving distributions only after the claims of all other suppliers have been satisfied. Consequently, equity prices generally are more sensitive than the values of other claims to earnings outcomes. Notably,

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17 For example, Morales and Sponem (2017), channeling Stigler (1994) opine that: “‘economic imperialism’ in accounting research emerged after the publication of the seminal article by Ball and Brown on ‘economic consequences’ and reflects the broader imperialism of economics research in the social sciences. Its success stems in particular from a certain mathematical rhetoric seen as a sign of scientific quality.”

18 A search for "value relevance" combined with "accounting" on 7 September 2022 returned 51,700 Google cites, 16,800 of which were post-2018.
debts generally is less responsive than equity to earnings outcomes. Within debt, prices of highly rated
issuances will be comparatively insensitive to earnings outcomes, but prices of lowly-rated debt will
behave more like equity. In general, equity price behavior in response to accounting information is
expected to be atypical of other price responses, and an exaggerated guide to welfare effects via the
price mechanism generally.

In addition, most U.S. firms using accounting information are private, and have no traded equity prices.
There is no reason to believe that what is good for public firms is good for all firms. Indeed, Ball and
Shivakumar (2005) argue it is not.

Nor is value relevance a comprehensive reflection of equity holders’ interests when ranking accounting
regimes. It is in the interest of shareholders that their firm’s accounting practices reflect the usefulness
of its accounting information to other parties contracting with it, including lenders, managers,
employees, suppliers and customers. Why? Because other parties can be expected to “price protect” to
some degree against an accounting regime that is sub-optimal from their perspectives. Consequently, the
firm and hence its shareholders would pay a price for not incorporating the interests of others in its
accounting practices. If a firm’s financial reporting is not optimal from the viewpoint of any contracting
party, that party will impose at least some of the resulting cost on the firm (lenders and suppliers will
charge higher prices to the firm; customers will only pay lower prices). This is another reason that value
relevance is not a sufficient criterion for evaluating accounting because it is too narrow.

Further, as noted in Section III, without taking accounting costs into consideration one cannot make
statements about the optimal accounting regime, including whether the closeness of association between
accounting and market variables is too low or too high. Consider the desirability, or otherwise, of Basu
(1997) conditional conservatism (asymmetrically timely gain and loss recognition). Shareholders are
approximately equally interested in timely information about both gains and losses, which would
suggest that optimal accounting involves symmetric treatment of them. However, lenders are more
interested in timely recognition (incorporation into the accounts) of losses than of gains, so the total
demand for timely loss recognition, taking into account both the debt and equity markets, exceeds that
for timely gain recognition. Given that it is costly for the firm to run its accounting system, the optimal
accounting regime thus will tilt toward asymmetry. That is, it will exhibit at least some Basu (1997)
conditional conservatism. The asymmetry is difficult to understand without taking costs into
consideration.

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Lev (1989) penned an influential commentary (with 1998 Google cites as of 21 June 2022) proposing the association between accounting variables and equity prices, as measured by the univariate OLS regression $R^2$, as a criterion for evaluating accounting. Lev bemoaned its low level and called for research to increase it. A follow-up piece a decade later with Paul Zarowin (with 3073 cites) proposed changes to financial reporting to increase the metric. In essence, these papers equated the size of the univariate contemporaneous correlation between a firm’s earnings and its equity returns with a preference ordering of alternative accounting regimes. Despite its inherent appeal and its popularity, there are several limitations of using the $R^2$ metric for that purpose, including the following.

1. I am aware of no theory of the optimal earnings-returns $R^2$. Any observed association could be too low, too high, or even optimal; there is a calibration problem here too. In the absence of a theory of the optimal level of earnings-returns association, how do we interpret any observed level?

2. Over what horizon is the $R^2$ to be calculated? Trade by trade? Daily? Weekly? Quarterly? Annually? Over decades? Over a typical investor’s horizon? The metric is expected to increase with the horizon, to the point where, as noted above, the $R^2$ between earnings and stock returns is 100% over a firm’s life. The unstated horizon problem illustrates the absence of theory to support this metric.

3. Assessing the optimality of an accounting regime would need to take into consideration its operating cost. At what cost would it be optimal to increase the value relevance $R^2$? Taking cost into account, is it too high, too low, or “just right”?

4. Assessing the optimality of an accounting regime would also need to take into consideration the existence of myriad information sources in the equity market, and interactions among them. Consequently, accounting information only can be evaluated incrementally with respect to the total set of available information (Ball, 2001). An important interaction occurs when independent verification (auditing) of accounting information allows it to complement other information. Notably, when managers and investors both know that future earnings outcomes will be verified and publicly reported, disclosure by managers of their private information about the future will be more credible, hence more informative (Gigler and Hemmer, 1998; Ball, 2001; Ball, Jayaraman and Shivakumar, 2011). Examples of managers’ private information include expected contributions to revenues and earnings from planned new products or acquisitions, expected cost savings, expected merger benefits, and expected earnings. The irony then is that – other things equal – the higher the reliability of reported earnings outcomes, the more credible will be disclosures that help investors
anticipate them, and hence the lower will be the earnings “surprise” content. This complementarity t
would make the earnings-returns $R^2$ at the time of announcements a decreasing function of the effect
of accounting on equity prices, including the indirect effect on the credibility of other information –
causing the $R^2$ metric to understate the effect of earnings on equity prices, perhaps substantially.

5. Value relevance estimation is even more complex to define and to estimate in a multi-firm world.
One source of complexity is that earnings-returns $R^2$s, when measured at the individual firm level,
are not clearly relevant to diversified investors. For example, random accounting errors in firm-level
earnings tend to offset each other, under the fundamental logic of diversification, so $R^2$s are expected
to be larger at the household’s portfolio level than at the firm level. 19

6. Firms’ financial information is informative about other firms’ values, especially those in the same
industry (Foster, 1981). For this reason also, association metrics measured at the individual-firm
level would seem to understate the welfare effects of accounting information, perhaps substantially.

7. A well-known reason that estimated earnings-returns $R^2$s are understated is the existence of errors in
estimating expected earnings. For example, if the event window over which equity returns are
calculated is three days, an accurate measure of the earnings information conveyed during that
window is the difference between the earnings outcome and its expectation at the beginning of the
window. That expectation is observable with error and thus the information released during the
window also is estimated with error, thereby reducing the estimated $R^2$.

Proponents of value relevance as a criterion might be surprised to learn that they are assuming market
efficiency. If equities were subject to substantial mispricing, closeness of association between
accounting numbers and equity market prices or returns would not be informative of the contribution of
accounting to economic welfare. In other words, the equity market then would provide a poor
benchmark. For example, a low earnings-returns $R^2$ could be due to excess market volatility (Shiller,
1990). Alternatively, a high earnings-returns $R^2$ could be due to investor “fixation” on earnings that
requires correction in subsequent periods (Sloan, 1976). In general, using equity price or rate of return as
the benchmark for assessing an accounting regime assumes the absence of mispricing.20

19 This point was made in Ball and Brown (1969, p. 316). The extent to which it has been ignored in the five intervening
decades is humbling.
20 A criterion that might not seem to assume efficient pricing is the ability of earnings to predict cash flows (Ball and
Nikolaev, 2022), but it is only in theory – absent mispricing – that equity price equals the present value of free cash flows.
Ironically, in value relevance studies of mere association between accounting variables and equity prices (i.e., in studies that do not address causation), from a welfare perspective it would seem more appropriate to evaluate accounting regimes on the inverse of the closeness of accounting information with market prices, or changes in prices. Absent causal effects, accounting variables are informatively redundant to the extent they are correlated with – and hence duplicate – the information in prices. Thus, absent causal effects, accounting information in high R² regimes is more redundant (more closely duplicates the publicly available information in equity prices) than in low R² regimes. Conversely, in pure association studies, it is in the low R² contexts where accounting has the potential to provide the most incremental information.

Adding to the irony, the degree of association between accounting variables and equity prices or returns can be a valid measure of the usefulness of those accounting variables in debt markets, regardless of whether causation is present. In debt contracts with payoffs or decision rights that are a function of accounting variables such as balance sheet leverage ratios or interest coverage ratios, the extent to which those accounting variables incorporate adverse information in a timely fashion (Basu, 1977) affects their usefulness in contracting. Hence, an argument can be made that the value relevance R² derived from equity prices is a substantially better proxy for welfare effects in the debt market (and in contracting generally) than in the equity market (Ball, Robin, and Sadka, 2008).

In addition to all of the above, a stronger correlation/association between accounting and equity prices is not the same as better prices. It is trite to demonstrate this by the following hypothetical. Instead of incurring the cost of estimating market values of individual assets and liabilities, why not simply mark the book value of equity to market?²¹ The correlation between book and market values then would be perfect, as would be the correlation between earnings and returns. Nevertheless, accounting then would contribute absolutely nothing positive to the economy, merely duplicating existing market prices. Indeed, any accounting costs would be a deadweight economic loss. This purely hypothetical case illustrates the general proposition that, when evaluating an accounting regime, higher correlation between accounting numbers and equity prices is not the same as contributing more to economic welfare. The age-old distinction between correlation and causation rears its head here.

²¹ Defined as the number of outstanding shares times their closing price at balance date. Individual assets and liabilities could be recorded at historical cost, the balancing item then being the value added or destroyed by the firm relative to cost. Alternatively, if assets were recorded at current value, the balancing item would reflect the fundamental proposition that for all surviving (i.e., non-liquidated) firms, the value of the sum exceeds the sum of the values of its parts (Coase, 1937).
2.2 Studies Showing Price Effects

Several research designs do provide seemingly valid evidence of causation: that is, of accounting information leading to better prices. For example, Daske et al. (2008) exploit the widespread change in 2005 from countries’ domestic accounting standards to IFRS. They demonstrate that measures of equity market liquidity increased around the time of the change. As the authors point out, this research context is not a pure experiment because of possible complementary institutional changes, but many of these can be carefully addressed, and the study appears to reliably document a causal improvement in traded equity prices.

An important body of research provides evidence of accounting information leading to better prices by showing that earnings have “surprise content. Despite the fact that they are largely anticipated, earnings announcements clearly cause revisions in equity prices (Beaver, 1968). Assuming market efficiency, this implies that pre-announcement prices had not incorporated the information that was later contained in earnings announcements. It follows that post-announcement prices are more informed than pre-announcement prices about the firm’s current financial position. Loosely stated, they are better prices. If firms had not reported earnings, the information they would have conveyed to the market would have been revealed eventually through other media. However, under that hypothetical, prices at any intermediate point would have been less informed than if earnings had been reported. This is why Ball and Brown (1968) emphasized earnings timeliness.

Ball and Shivakumar (2008) report that the magnitude of the Beaver (1968) earnings “announcement effect” has increased in recent decades, a result confirmed a decade later by Beaver, McNichols and Wang (2018). Ball and Nikolaev (2022) report an increase over time in the ability of earnings to forecast future free cash flows and offer the result as a potential explanation for the increased announcement effect. The implication is that accounting earnings have increased in timeliness, which could be interpreted as a welfare-increasing change resulting from better equity prices.

Causality is quite well – albeit imperfectly – established in “announcement effect” research. The potentially confounding issue is information released close in time to, or together with, earnings announcements. Confounding information events include managers releasing forecasts of future earnings or them discussing plans and other information during earnings conference calls. This problem can be minimized by studying price reactions over small “event windows” in which confounding information events are less likely, or by controlling for confounding events that are observable. For
example, Beaver (1968) eliminates sample observations with concurrent dividends and Ball and Shivakumar (2008) control for concurrent releases of manager forecasts. All things considered, a reasonable interpretation of this literature is that earnings announcements cause prices to incorporate more information about firm value than hitherto, and hence cause “better” prices.

2.3 Equity market research and aggregate welfare.

“Announcement effect” studies and other causal designs demonstrate to a reasonable degree of confidence that accounting information improves equity prices. In turn, more informed equity prices seem likely to increase aggregate welfare. There are caveats, however. The magnitude of the welfare effect is impossible to gauge from the literature. Furthermore, the literature likely underestimates price effects for several reasons, including: it largely ignores the effects of accounting information on myriad other prices, including product prices, prices of factors other than equity, and the equity prices of other firms; it ignores the complementary effect of independently audited accounting information on the credibility of other information; and it ignores private companies. Nevertheless, there does seem to be a clear directional effect: accounting information improves equity prices.

In contrast, it is difficult to see how “value relevance” association studies could tell us much about welfare effects arising in the equity market (ironically, they shed some light on the utility of accounting information in contracting). The simple reason is that association studies merely report correlations: they do not show that equity prices are informed or in any way improved by accounting information. A connection between “value relevance” and accounting’s contribution to economic welfare might seem intuitive, but it is far from clear.

3. Costly Contracting

Accounting variables play an important economic function in a variety of implicit and explicit contractual arrangements. The literature that addresses that function is known as “costly contracting” research, reflecting the Coasian axiom that the economic role of institutions such as firms and accounting is to increase welfare by reducing contracting frictions (i.e., contracting costs).

In their survey of the costly contracting literature, (Christensen et al., 2016, p. 398) define accounting information as satisfying a costly contracting criterion if it “facilitates transactions between capital providers and firms”. This criterion would seem to be necessary but not sufficient from a welfare perspective; two important dimensions I would add to that formulation are:
1. accounting affects many more contracts other than just those involving the capital market; and
2. the objective is to push contracts toward optimality, not simply to facilitate them.

Under this broader interpretation of costly contracting, the objective of accounting is to engender more efficient contracting – both explicit and implicit – in factor and product markets generally.

Firms contract in factor markets with suppliers of equity and debt market capital, with suppliers of labor (including management), and with suppliers of goods, components, intellectual property, etc. Firms also contract in product markets with final consumers, corporate and government clients, and with other firms in supply contracts, royalty contracts, dealership arrangements, etc.

I prefer to view firms as specialist contracting intermediaries, situated between owners of factors of production and consumers (Ball, 1989). All parties contracting with a firm have made an investment in the relationship (search costs, relocation costs, becoming familiarized with how the firm operates, etc.). That investment in contracting costs is specific to the firm, as defined in Alchian (1984): it has no value if they are required to exit the firm due, for example, to layoffs or bankruptcy. In such events they are required to invest in search and other contracting costs once more. This principle applies to suppliers, employees, customers, lenders and all contracting parties. Therefore, when entering into a supply, employment, purchase, financing, or any other relationship with a firm, all parties have an interest in information about its financial health, which signals the probability of them being required to incur the costs of recontracting with another firm at a later date. Said differently, shareholders and lenders are not the only investors in a firm, and accounting information about firms’ finances is potentially useful to all contracting parties.

Note that I am not advocating that all stakeholders should have equal decision rights over firm management. Alchian and Demsetz (1972) argue persuasively that ordinarily decision rights optimally reside with shareholders, who are the residual claimants to the firm’s cash flows and hence are the party with the greatest incentive to ensure it is run well. There no doubt are circumstances where that proposition does not hold, the obvious case being firm insolvency, in which case shareholders have

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22 While regulation has tended to obscure the fact that firms contract with their shareholders. For example, Watts and Zimmerman (1986) show that firms voluntarily contracted to provide shareholders with audited financials well before regulation required it (firms built this requirement into their corporate charters, for example). It became such a generally accepted good practice that the stock exchanges made it a condition of listing. It subsequently became mandated by statute in many countries. This is an example of how focusing on mandates can obscure the underlying economic forces involved.

23 Accounting information also is used by many non-contracting parties, including competitors, consultants, economists, academics, and governments.
incentives to gamble the firm’s resources and consequently some decision rights are transferred to creditors. But in general the Alchian and Demsetz (1972) proposition makes sense. What I am arguing is that all parties dealing with the firm have an investment in it: in search costs, housing location, orientation costs, investment in specific information about how it is run, etc. Consequently, all parties contracting with the firm have an interest in accounting information about the strength of its resources and profitability, even if they do not explicitly contract on the basis of that information.

From a costly contracting perspective, accounting information plays several roles. An important role is reducing information asymmetry between the firm and contracting parties ex ante, when deciding whether to enter into an agreement and on what terms, thereby reducing moral hazard and adverse selection. For example, knowing that a potential customer is profitable and solvent can influence a supplier’s decision to enter into a multi-period arrangement and also can influence the terms of the arrangement. Accounting information also facilitates contracting when future payoffs and decision rights are agreed to be a function of ex post financial statement outcomes. This role of financial information has been well studied in the context of debt contracts, as surveyed by Christensen et al. (2016), in management contracts (Bushman and Smith, 2001) and more recently in long term supply contracts (Costello, 2013).

Independence is central to the role of accounting in efficient contracting. Independent verification of accounting information plays an important role in reducing ex ante information asymmetry. In addition, contracts based on ex post outcomes are enhanced when parties are assured that those outcomes have not been unduly influenced by the other contracting party. For example, when financial statements prepared by managers are communicated externally for use by investors, lenders, suppliers, and other parties, an independent audit (Jensen, and Meckling, 1976) of compliance with “fair” accounting standards (Paton and Littleton, 1940) renders them externally contractible. Similarly, when firms’ internal accountants perform cost or revenue allocations that affect different employees’ relative performance measures, this independent arbitration function is performed by internal audit, CFO oversight and other centralized functions that render internal accounting information internally contractible. In general, independent verification of financial statement information adds to economic welfare by rendering the information more reliable and contractible, and hence facilitating efficient contracting.

The rich tapestry of contracting relationships involving accounting information that is addressed under the costly contracting perspective casts even more doubt on the (to my mind) simplistic notion that the
economic role of financial reporting lies entirely in providing new (i.e., previously unavailable) information. It also lies in contrast to the unidimensional “value relevance” criterion, with its exclusive focus on pricing in the equity market. Is the contribution of accounting to economic welfare really as narrow as that?

On a similar note, the costly contracting perspective is substantially broader than Jensen and Meckling (1976) agency theory, which was first applied to accounting by Watts and Zimmerman (1978). Agency theory addresses asymmetric contracting contexts, in which one party (the agent) acts on behalf of another (the principal), and only one party to the contract (the agent) can act opportunistically against the interests of the other. The public equity market is a natural setting to apply an asymmetric framework, where managers act on behalf of dispersed and rationally passive shareholders, resulting in a separation of ownership and control (Berle and Means, 1932). Shareholder passivity arises because each holds an insufficiently large shareholding to make it worthwhile incurring the cost of monitoring and changing manager behavior. This passivity implies a latent incentive for managers to act opportunistically in their own interest and against the interest of shareholders. In particular, it includes a latent incentive for managers to engage in “earnings management” (a.k.a. “cooking the books”) to enhance their compensation, job retention prospects, or social status.

The qualifier “latent” is important in the above. A variety of institutional solutions have emerged to constrain this latent opportunism, to the point where investors routinely rely on accounting information, and lenders and other parties routinely find it contractible. These solutions include independent audits (Jensen and Meckling, 1976) that verify that financial statements are in compliance with “fair” accounting standards (Paton and Littleton, 1940), board monitoring, whistleblower systems, regulatory scrutiny, and the risk of civil and criminal penalties. An implication of the fact that various parties find accounting measurements to be useful is that these institutional solutions are effective in bounding (if not eliminating) the opportunism problem. A notable example is that, despite latent incentives for it to occur, “earnings management” is not as prevalent as some may believe (Ball, 2013). Nevertheless, detecting opportunism by managers is not costless, so it occurs to some degree.

The applicability of the agency model to the public equity market has been reduced somewhat by the advent of activist shareholders with sufficiently large holdings to affect managerial behavior (Shleifer and Vishny, 1986). Nevertheless, the model remains an attractive depiction of that setting – not in proving that management opportunism is rife, but in explaining the role and effectiveness of the various
institutional solutions (including independent audit) that bound it. These solutions create an environment in which managers largely if not completely pursue the interests of owners, in which “earnings management” is minimized, and in which accounting information generally is trusted and used by a variety of parties.

It is important to note that accounting information plays a role in a wide variety of settings in which opportunism is possible by both parties, and hence where the asymmetric agency model is not applicable. Firms contract with other firms for the supply and purchase of goods, materials, components, energy, consulting services, and intellectual property, in royalty contracts, dealership arrangements, joint ventures, and a variety of other relationships. Accounting information plays indirect and direct roles in many such relationships, because firms on both sides of these contracts have an interest in information about the strength of the other’s financial position. Indeed, they frequently contract on the basis of accounting information, such as when requiring the other party in a supply agreement to remain profitable (Costello, 2013). In these relationships, both parties face issues of adverse selection and moral hazard. Consequently, the asymmetric agency model, which so well explains the latent incentives of managers in public financial reporting – and the institutional solutions that constrain those incentives – does not work as well in many contracting contexts.

In sum, the costly contracting stream of literature provides important insights into the use of independently attested accounting information to reduce contracting frictions in a variety of markets.

V. How Are These Criteria Related to Each Other and to Economic Welfare?

Similarities. On the surface, there appears to be a clear scission between the three criteria discussed in the previous Section. Viewed from an aggregate welfare perspective, they offer seemingly disparate proxies for welfare effects. However, on closer examination it is apparent that real effects, value relevance and costly contracting are intertwined.

When a real effect is the dependent variable, the proxy used by the researcher is the effect of accounting on a quantity. When equity value is the dependent variable, the proxy is the effect of accounting on a price. In a frictionless market economy, prices and quantities are jointly determined, and alternative accounting regimes have the same rankings under the price and quantity criteria. Frictionless economies do not exist and, if they did, there would be no firms and no accounting (Coase, 1937). Nevertheless, price and quantity effects are expected to be correlated, if not perfectly, so price and quantity effects
should provide alternative insights into how accounting affects economic welfare. (Here I am referring to prices generally, not only equity prices).

Further, prices and quantities are established through contracts: some tacit, some explicit; some simple, some complex. Contracts specify the dimensionality of prices: i.e., the mapping from states to payoffs. They do so either by explicit enumeration of payoffs in future states or by insertion of what I call completion functions (such as arbitration and auditing) that determine payoffs in states that arise but were not enumerated (Ball, 1989). Accounting adds to the dimensionality of prices through contracts with payoffs that are a function of accounting numbers. As is well known, contracting on the basis of accounting information implicitly incorporates into the contract all of the rules in GAAP except those the contract excludes (Leftwich, 1983).

An example of how the real effects, value relevance and costly contracting proxies for welfare effects are intertwined is provided by earnings-based management compensation. The accounting regime affects the calculation of earnings and hence, in contracts that incent managers by making compensation a function of earnings, the regime affects the mapping from manager actions to payoffs. The regime therefore affects prices (such as management compensation) and quantities (such as manager effort and actions), as a function of implicit and explicit contracting.

Differences. So why are the three criteria represented so separately in the literature? Why do research streams seemingly operate in “silos,” with few references to other streams, even though they intersect? My hunch is that the separation in the literature is largely due to the availability of data and of tractable research designs.

Data differ in availability. For example, agency theory posits a relation between management effort (a real quantity) and management compensation (a price). We have good data on management compensation but poor data on effort. Data-driven research comes with its problems. First and foremost is the well-known tendency for research to concentrate in areas with easy data access, as in the above-noted case of the equity market. In addition, ready access by a large number of researchers to commercial data sources such as CRSP and Compustat can lead to overfitting.24 Relying on common data sources can drive researchers to investigate increasingly marginal topics.

24 This issue has long been recognized in the asset pricing literature. See, for example, Lo and MacKinlay (1990).
Similarly, research designs that have been shown to be tractable in one context provide a convenient and safe formula for using them in other contexts.25 This is fine, and conforms to what Kuhn (1970) describes as “normal science,” in which research methods become increasingly refined over time and the incumbent paradigm is applied increasingly widely in search of predicted or anomalous results. However, it can add to the tendency for researchers to adopt data sources and research techniques without putting much thought into them, and to add to the tendency for research to be contained in independent silos.

In sum, the real effects, price effects and costly contracting streams in accounting research share much in common. Real quantities and prices obviously are co-determined. Prices are established in contracts – some simple (e.g., spot supply contracts, public equity purchases and sales), some complex (e.g., long-term supply contracts, management agreements). Where they differ is in the proxies they offer for welfare effects – differences that are driven by the availability of data, theory and tractable research designs. I do believe that researchers would gain from giving thought to how these streams overlap.

VI. The Concept of Information in Accounting

The concept of information underlies the contribution of accounting to economic welfare. For accounting to affect real quantities or prices, or to be used in contracting, it must provide households or firms with information. The question is: What type of information?

In general, it is impossible to separate the concept of information from an information communication system (e.g., Burgin, 2010). In other words, what constitutes information depends on the context of its use. Consistent with this rule, accounting provides at least two distinctly different types of information: novel and timeless. The distinction can be illustrated by the following example. Accounting students reading an introductory accounting textbook find it full of information that is novel to them; The accounting professor adopting the book for class use finds little that is new in it but adopts it because it contains considerable information about accounting that is almost timeless.

In financial economics, information generally is viewed as a time-independent random variable, in which past values of the variable contain no additional information relative to the current value. This concept of information as novelty, when applied to Fama’s (1965) seminal framing of stock price behavior as a function of information arrival, leads to viewing stock price changes (i.e., returns) as

25 As in “following X and Y, I do the following … .”
independent across time, following so-called “random walks” (Bachelier, 1900; Samuelson, 1965, 1969; Fama, 1970; Campbell et al., 1997). Information then is pure novelty: yesterday’s news no longer qualifies as information. This concept of information also underlies much of the value relevance literature. Consider the relation between earnings announcements and price revisions at the time of the announcements. Using the strength of this effect to evaluate an accounting regime implies that the exclusive role of accounting is to provide novel information.

In contrast, there are many contexts in which information is used despite its lack of complete novelty. For example:

- Stale (i.e., not novel) accounting information that has been independently audited plays an important economic role in the settlement of many contracts. For example, many contracts are settled only annually. Lenders might receive audited accounts for a December-end firm in April, review them, and decide in May whether to take any action based on those numbers, which by then are months old in a novelty sense. Boards might award bonuses to managers based on annual earnings, when meeting months after the novel information in earnings has been released.

- Consider the example of accounting for firms’ long-term debt. Loans are obtained from banks and from other informed lenders, and most corporate bonds are held by institutions that are well aware of their values. Indeed, many are required to price their investments as frequently as daily. It is implausible that year-end market values contained in audited financial statements released more than a month after the year end contain novel information to these lenders. So, what type of incremental information can the balance sheet provide them? One candidate would be the face value of the firm’s debt (i.e., its historical cost), which is a necessary input for any Black-Scholes valuation of existing or potential new debt: it measures the amount of existing claims that could compete for repayment. The implication is that lenders and potential lenders would find stale historical costs more informative than novel market values. Furthermore, knowing the face value of the firm’s debt (i.e., the amount of competing claims) would seem more important as the probability of default rises, and hence its market value declines. Thus, the incremental information to lenders contained in the historical cost of debt increases in its distance from its current market value, contrary to the novel-information logic of value relevance association metrics.

- Stale (i.e., not novel) accounting information that has been independently audited plays an important economic role in confirming and hence increasing the reliability of non-accounting information. Managers possess considerable private information (i.e., information that is not observable to others), such as expected revenue growth, expected cost savings, or expected merger benefits. The credibility of private information when it is publicly released is enhanced when managers commit to have actual outcomes reliably counted and revealed (Gigler and Hemmer, 1998; Ball, 2001; Ball, Jayaraman and Shivakumar, 2011). In my view, this role – independently counting actual economic outcomes, even when they have been widely anticipated – has been sidelined by a focus on the financial-economics view of stale information being worthless.

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26 Insurance companies, mutual funds, pension funds and banks owned 94 percent of US corporate bonds in 2017 (Koijen and Yogo, 2022).
Historical numbers frequently are used by managers, boards, analysts and the press to provide a basis for comparison with current-period numbers, for measuring growth, and for comparison with other firms. Stale, historical numbers thereby add information to an evaluation of current numbers. Economists, researchers, consultants, historians and others use stale historical numbers because they find them to be informative.

The above are but a few examples of contexts in which the accounting regime supplies information that is not novel, in the sense used in financial economics, but nevertheless fulfills important economic functions.

VII. Normative or Positive?

Hume’s guillotine, named after the C18th philosopher David Hume, states that one cannot logically derive normative “ought” statements from positive “is” statements. Whether the distinction between the positive and the normative is as clear cut as Hume believed has been debated ever since. Nevertheless, positive research can have implications for normative research if it provides evidence on the empirical validity of premises on which normative research is based. In that sense, the positive/normative distinction is not completely clearcut. Two familiar studies illustrate how positive and normative analyses of accounting regimes can be related.

Ball and Brown (1968) brought the results of positive accounting research (i.e., empirical evidence) to bear on the normative theories that were promulgated by scholars at the time. A premise on which those theories had been founded was that accounting numbers are meaningless aggregations of numbers because they are calculated using heterogeneous accounting methods, such as lower of cost or market for inventories and straight-line depreciation for plant & equipment. From that premise, scholars had concluded the accounting regime required radical change to one that utilizes a single universal measurement method, such as valuing all assets at their current selling prices, that would for the first time make accounting numbers meaningful. We could have challenged the premise at a theory level, based on the Ogden and Richards (1923) thesis that the meaning to users of words like “earnings” and “book value” arises in usage, not in dictionaries. However, we challenged the premise empirically by showing that earnings contain information that investors incorporate into market values, and therefore they cannot be meaningless to them. In doing so, the study cast doubt on the radical redesign of

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27 The first assertion that accounting earnings are meaningless of which I am aware is by Canning (1929, 126): “No propositions that assign a qualitative nature to net income can be maintained. … it expresses the magnitude of a difference between two summations of non-homogeneous things.” By 1968, the prevailing view in academia was that balance sheets and income statements are “of very doubtful utility” because “it is pointless to add unlike things” (Chambers 1966, 4).
accounting proposed by those scholars (a normative issue), because the premise on which their proposals were founded was refuted by the data (positive evidence). A brief reading of the introduction reveals that we viewed the study as bearing on normative propositions.\textsuperscript{28} A normative corollary of the Ball and Brown (1968) research – one that remains relevant to this day – is that placing all accounting measurement methods on a homogeneous basis, as proposed by Chambers (1966), Mattessich (1972) and Barth (2014) for example, and attempted by the Conceptual Framework, is not necessary for accounting information to have meaning and to be useful.\textsuperscript{29} We also showed that accounting income lags market value in incorporating information, which to my mind tells us something about its economic function. So, while our paper is viewed as having introduced positive empirical research to accounting, it definitely had normative implications.\textsuperscript{30}

Similarly, Basu (1997) reported evidence that in practice there is an asymmetric incorporation into accounting income (and hence into balance sheets) of information that investors view as value-relevant, a property of accounting practice known as conditional conservatism. That is, decreases in asset values are recognized in a timelier fashion than increases. Correlated omitted variables confound estimation of the extent of the asymmetry (e.g., Ball, Kothari and Robin, 2000, §6.4; Dutta and Patatoukas, 2017), but it is difficult to deny it exists. The asymmetry is confirmed by the accounting standards themselves. IAS 36 requires impairments (i.e., downward revaluations) of long-term assets to fair value, but does not symmetrically require upward revaluations. Similarly, IAS 38 requires impairments of intangible assets, but does not require upward revaluations. In addition, IAS 2 requires inventories to be reported at the

\textsuperscript{28} A rare appreciation of this point is in Dopuch (1983, p.178): “Few people realize, however, that one of the primary motivations for that study [Ball and Brown (1968)] was to provide a rebuttal to criticisms of historical cost accounting provided by theorists such as Chambers, Canning, Paton, and others.” See also Ball and Brown (2019, p. 427).

\textsuperscript{29} Perfect homogeneity of accounting methods is unobtainable. It would require firms to account entirely on a cash basis, or the existence of perfectly liquid and perfectly efficient markets for all the firm’s assets and liabilities, in which case firms and accounting would not exist anyway (Coase, 1937). In practice, “fair values” are reported using many different methods. Marketable securities are calculated using so many methods that the methods are classified into three buckets. Real property generally is valued using the comparable transactions method. Plant & equipment, goodwill and other long-term assets generally are “fair valued” using discounted cash flows methods, with both future cash flows and discount rates estimated by a variety of methods. The notion that fair value accounting involves homogeneous accounting methods is a fairy tale. While homogeneity of accounting methods is impossible, that does not mean that reducing heterogeneity in methods cannot increase the meaningfulness or usefulness of accounting information. Is there an optimal (non-zero) amount of accounting method heterogeneity? At what cost? Is it greater or lesser than under the current regime?

\textsuperscript{30} A (perhaps uncharitable) analogy for the prior literature that focused on accounting design per se (for example, arguments about the properties of historical cost versus replacement costs or realizable value) is as follows. A centralized R&D arm of the auto industry collects no information whatsoever about how the vehicles the industry produces actually are used (how frequently, with how many passengers, with how much cargo or luggage, over what terrain, in what weather, at what speeds, garaged or not, using what fuel, with what fuel economy, etc.). Nevertheless, it concludes that vehicles as currently produced are useless, and recommends a radical new design for all vehicles.
lower of cost and net realizable value, again requiring write-downs but in this case not permitting write-ups. There is a distinct asymmetry in these accounting standards as to how good news and bad news about asset values are incorporated into earnings and balance sheets; while the IASB and FASB have eliminated the term “conservatism” from their vocabulary, their own standard-setting impounds conditional conservatism. Furthermore, as Basu (1997) observes, the adage “anticipate no profits but anticipate all losses” has survived for at least a century.\textsuperscript{31}

Whether this property of accounting is viewed in the literature as good or bad depends on whether the author is a value relevance or a costly contracting person, but the positive evidence of accounting practice and of accounting standards cannot be said to be normatively neutral.

**VIII. An Aggregate Perspective When Evaluating Accounting Regimes**

As should be clear from the above, there now is an enormous and diverse literature that evaluates aspects of accounting regimes generally, and public financial reporting in particular. Are financial reports useful to investors, lenders, suppliers, or in management compensation contracts or corporate governance? Do they affect equity or debt prices, or contractual payouts. Do they affect user actions and real quantities? Are they timely, conservative, noisy, manipulated? Do they induce investor myopia?\textsuperscript{31} Essentially all this work is at the micro level. Aggregate welfare seldom is investigated.

In a way this is strange. The brief summary in the Introduction gives some idea of the historically important contribution of accounting to economic development. Those contributions are macro in nature. Indeed, some are almost universal. Nevertheless, essentially all archival research on properties and effects of accounting regimes, or of changes in regimes, is at the micro (individual firm or user) level. Given the magnitude of macro effects, it is not surprising that an entirely micro analysis can lead to limited or even erroneous conclusions.

An illustrative example of the difference between micro and aggregate welfare perspectives is provided by the effect of the widespread international adoption of IFRS in 2005. This episode demonstrates the limitations of thinking about accounting effects at the individual-firm level rather than at the aggregate level.

\textsuperscript{31} I cannot resist drawing your attention to an article on conservatism in the very first issue of *The Accounting Review* (Scott et al., 1926). The article contains “an obituary notice” for the passing of “the time honored inventory rule to use cost or market price whichever is the lower.” Nevertheless, the rule is still alive, almost a century later. Scott’s proclamation is reminiscent of the American humorist Mark Twain who, when a newspaper mistakenly printed his obituary, famously quipped: “The reports of my death are greatly exaggerated.”
One frequently claimed benefit of the adoption of IFRS was to make firms more transparent to investors, who then would perceive them to be less risky. In turn, investors would require a lower return from investing, thereby reducing the supply price of capital to firms (a.k.a. “cost of capital”). But this story is too simple. Widespread IFRS introduction in 2005 was a macroeconomic event involving firms in all industries in more than one hundred countries. It cannot be completely analyzed at the individual-firm or even individual-country level.

If all firms in an industry were required to adopt IFRS, and all firms obtained the alleged benefits from higher transparency, the first effect would be to reduce the industry supply price of capital. Competition among firms in the industry then could be expected to have passed much of the benefit on to consumers, in the form of reduced product prices. If firms in all industries adopted IFRS, the benefits to consumers would be economy wide. Thus, from a macro perspective the largest ultimate beneficiaries of IFRS adoption might have been consumers, not firms or investors, suggesting that researchers might want to study product market effects rather than capital market effects.

A second and partially offsetting effect would arise from firms in all industries expanding investment in response to the reduced supply cost of capital. Even if firms or industries adopted at different times, those short-term timing differences would seem immaterial to investing in long term assets. Consequently, increased investment would be expected from all firms and all industries in anticipation of or around the time of IFRS adoption. This in turn would increase the aggregate demand for capital and – other things equal (notably, households’ consumption preferences) – increase the supply price of capital, somewhat offsetting the transparency-induced decrease.

These two effects suggest that the expected net effect of IFRS adoption on capital costs might be muted, and that the benefits of adoption might be reflected more in lower consumer prices and increased investment by firms. In this example, focusing on the capital market could lead to a substantial underestimation of aggregate welfare effects.

History shows that accounting has had important aggregate welfare effects over the years, as an important and integral contributor to the evolution of economic institutions. These effects cannot be

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32 De George, Li, and Shivakumar (2016) provide one review of the IFRS literature.
33 This conjecture is partially tested by Downes, Flagmeier, and Godsell (2018) in a large-sample study of EU public and private firms. They conclude that firms subject to mandatory IFRS adoption experience lower financing costs than non-adopters and exploit this advantage to increase their market shares.
identified by partial correlation studies, “turning one dial at a time.” Consequently, taking an aggregate welfare perspective can be fruitful, though difficult, as discussed in the following Section.

IX. Externalities, Distribution Effects, and Aggregate Welfare

Externalities

Financial reporting can be shown to have positive or negative externalities, which are benefits obtained by, or costs imposed on, some parties as a result of the actions of others. In the accounting literature, the focus historically has been on positive external benefits. The early work on external benefits addressed across-firm information transfers in the equity market. Brown and Ball (1967) reported that approximately 35-40 per cent of the variation in the median firm’s earnings is associated with aggregate effects and a further 10-15 percent is associated with industry effects, the implication being that one firm’s earnings information is informative about the earnings of others. Foster (1981) and Freeman and Tse (1992) subsequently demonstrated that individual firms’ earnings disclosures do in fact affect the stock prices of other firms in their industries, confirming that investors gain external benefits from the earnings information produced by other firms. Absent agency costs, firms will endogenize the benefits of reporting to their own shareholders, but that is not the case for external benefits. Other things equal, firms therefore under-produce accounting information relative to the social optimum. This has provided a fundamental rationale for disclosure regulation (Benston, 1979).

More recent work has addressed external benefits to decision-making by firms themselves, rather than investors. For example, Badertscher, Shroff, and White (2013) hypothesize that private firms’ investment decisions are informed by the aggregate amount of publicly available information in their industry (their “information environment”). Their proxies for this construct involve the proportion of firms in an industry that are public and hence disclose publicly. Among other things, the authors show that measures of the investment efficiency of private firms are increasing in their information environment proxies. In other words, private firms obtain external benefits from information produced by public firms.

There are myriad ways in which a firms’ financial reporting and disclosures could inform other firms’ production, investment and financing decisions – particularly those of their competitors. These positive externalities imply another latent incentive for firms to under-produce accounting information relative to
the social optimum, because they do not internalize the benefits of their information to other firms – and to the shareholders, lenders, managers, employees and other parties who contract with other firms.

Mechanisms to ameliorate information under-production include government fiat (such as reporting and disclosure mandates and penalties), moral suasion, and private cooperative agreements (such as trade associations with information-sharing rules, and various subscription services that collect, aggregate, and sell industry-level information). If the external benefits exceed the costs of operating these mechanisms, the mechanisms increase aggregate welfare. Otherwise, they impose welfare losses.

Negative externalities (i.e., social costs) of financial reporting likely exist also. “Crowding out” is a prime example. The classic application of crowding is motor vehicle traffic, where externalities occur because each vehicle entering the road causes a comparatively small effect on aggregate traffic that is not internalized by its driver but which, when aggregated over all vehicles entering the road, slows the traffic substantially. Applied to financial reporting, the argument is that the aggregate capacity of the communication channels from firms to users is inelastic, due to factors such as limited attention of investors and other users, limited size of the financial press, or a limited number of security analysts (e.g., Fishman and Hagerty, 1989; Hirshleifer and Teoh, 2003). Public disclosures by firms thus can create negative externalities by crowding out the disclosures of other firms. The implication here is that public firms over-produce information relative to the social optimum, other things equal.

The potential for crowding out is increased by the practice of firms bunching their earnings announcements in time. For good reasons they mostly adopt common fiscal period ending dates (such as 31st December, 31st March, or 30th June) and in consequence there are “earnings seasons” containing a flurry of announcements around the same time. Further, earnings announcements are almost 30 per cent more frequent on Wednesdays and Thursdays than on other weekdays days (Ball and Bartov, 1995). Compounding this again, firms in the same industry tend to announce within days of each other. These practices create the potential for “crowding out,” the result being a negative externality that firms do not endogenize.

However, the degree of inelasticity in the supply of information processing capacity can be questioned. Supply elasticity normally is greater in the long run than in the short run, as institutions and individuals find ways to relax constraints. For example, the practice of investment advisors analyzing accounting information on behalf of time-constrained individuals might emerge. Online services summarizing financial information might make it easily accessible. Investors might invest in professionally managed
portfolios or follow passive investment strategies. Brokerages, investment banks, institutional investors and the financial press might arrange their work rosters to increase their information-processing capacity in the busy earnings season. In the long run, one would expect institutional solutions to emerge that bound information-processing capacity constraints, if not completely.

There also is a long analytical literature on public disclosure crowding out private information production (e.g., Gonedes, 1980; Verrecchia, 1982; Diamond, 1985; Goldstein and Yang, 2017). In these models, individual firms do not internalize these negative externalities, once again implying a latent incentive for firms to over-produce accounting information relative to the social optimum, other things equal. Here too, one wonders what institutional innovations have evolved to bound this problem.

Recent archival research has uncovered several negative externalities from reporting mandates. Kraft, Vashishtha, and Venkatashalam (2018) and Fu et al. (2020) study effects on firm behavior when the US mandated half-yearly financial reporting, and when it subsequently increased the mandate to quarterly. These mandates presumably made accounting information available in a timelier fashion, but the authors conclude that the increased frequency of reporting also induced managerial myopia and inhibited investment and innovation. Duguay, Minnis, and Sutherland (2020) study negative external effects on US private companies and nonprofit organizations caused by the Sarbanes–Oxley Act of 2002, which increased the labor intensity of public company audits. This increased the aggregate demand for auditors which, when combined with short-term inelasticity of audit labor supply, increased audit prices. The effects included a doubling of the cost of nonprofit audits and a substantial reduction in the use of audited financial statements by private firms. A longer-term effect was a restructuring of the audit market, with nonprofits rotating away from auditors with public firm clients.

While positive externalities have provided the basic rationale for state reporting and disclosure mandates, the likelihood that they also create negative externalities implies regulatory caution.

The qualification “other things equal” appears repeatedly in the above discussion. The literature points to many potential externalities, some positive and some negative. This illustrates the limitation of partial correlations in assessing the contribution of an accounting regime to aggregate welfare. What is the net effect? Do firms under- or over-produce accounting information?

Distributive effects

Much of the literature surveyed above consists of partial equilibrium analysis, typically reporting average effects, and ignoring potentially important distributional effects. Notably, when interpreting a cross-sectional regression of an outcome variable (share price, investment, management compensation, debt contract provision, etc.) on an accounting regime treatment variable (new accounting standard, change in audit rules, etc.), it is common to focus on the coefficient for the accounting treatment variable, and its statistical significance. The implicit assumption from a welfare economics perspective is that the residual unexplained variation in the outcome variable – which often is substantial – is noise (i.e., is not caused by the accounting treatment variable, and is without implications for welfare). However, it could indicate that the treatment effect varies across firms or across time, in which case the average result under-states the full welfare effects, perhaps substantially.

For example, an accounting innovation might reveal to some firms that they had been over-investing, and to others that they had been under-investing. The OLS coefficient might be an unbiased estimator of the mean treatment effect across firms, which might be insignificant, but from a welfare economics perspective, average effects are only part of the picture; one cannot completely ignore distributional issues across households and firms. They are, however, difficult to identify.

The importance of looking beyond average effects is nicely demonstrated by three studies: Zhang (2013), Downes, Flagmeier, and Godsell (2018) and Breuer, Leuz, and Vanhaverbeke (2021). Zhang (2013) develops a model in which the quality of accounting information affects firm cash flow uncertainty, which in turn affects capital costs and then investment. In this model, improving accounting information leads to a welfare-increasing expansion of the real economy but also affects capital allocation across firms. In a large sample study of the product market effects of mandatory IFRS adoption in the EU, Downes, Flagmeier, and Godsell (2018) show that IFRS adoption led to increased concentration in industry sales. Larger firms increased their market share at the expense of smaller firms. Breuer, Leuz, and Vanhaverbeke (2021) show that requiring German firms to publicly disclose financial statements did not reduce aggregate innovation-related expenditure by innovating firms, but did reduce the number of innovating firms. The mandate imposed proprietary costs of disclosure that were decreasing in firm size, and produced external benefits of disclosure that were increasing in firm size, resulting in a concentration of innovation spending among large firms. In terms of its effect on
innovation, the regulation had no average effect but important distributional effects. These studies demonstrate that average effects can be misleading proxies for welfare effects.

In general, externalities and distributional effects complicate the task of evaluating an accounting regime, or a change in regime. What are they? How big are they? Are they positive or negative in aggregate? Who is affected? Does the regime under-regulate financial reporting and disclosure, or over-regulate? These are difficult questions to answer with the partial-equilibrium research designs that predominate in the literature.

In principle, questions like these can be addressed with general-equilibrium analyses. Choi (2021) demonstrates this by adapting the David, Hopenhayn, and Venkateswaran (2016) model of resource allocation across firms to provide a role for accounting. Choi incorporates three sources of information about current productivity that firms use to predict future productivity and hence to make more informed decisions: cash flows, accruals-based accounting earnings, and other information. The distinction between the effects of cash flow and accrual accounting is based on the Nikolaev (2018) framework. The result is an aggregate “real effects” framework (the price of capital and the quantity of labor are exogenous, and there is no contracting in the model), in which accounting information affects firms’ decisions, improves resource allocation, and increases aggregate productivity. The model estimates that in 2012 accrual accounting (relative to a cash accounting regime) generated a 0.7% ($118 billion) increase in aggregate output for the United States, 3.4% ($295 billion) for China, and 2.3% ($42 billion) for India. The effect of accruals information on aggregate output was proportionately lower in the United States for two reasons: firms’ productivities were less uncertain, and there was more non-accounting information available to managers. Despite these impressive numbers, the model likely underestimates the welfare contribution of accounting, for several reasons: the model uses cash flow accounting as the base case, which itself would provide welfare-increasing information to firms; it confines the role of accounting to informing firms’ operating decisions; it does not address effects on prices or on contracting; and it ignores complementarity between accounting and other information. Alternative general equilibrium analyses undoubtedly would estimate different aggregate effects, both in character and in magnitude, but in my view the study is an important contribution. It illustrates the insights obtainable from aggregate analyses, and hopefully leads to further work.

X. Why Is There So Much Negative Commentary?
I will finish with an issue that has vexed me for a long time: the amount of negativism in the literature. It is abundantly clear that accounting matters. Nevertheless, a surprising amount of the commentary on the contributions of accounting has been occupied by “the sky is falling” opinions, including the following claims (some reasonable, some alarmist):

- Lack of auditor independence, increased audit market concentration, audit firm incentive structures, long auditor tenures and a host of other variables inhibit financial statement reliability.  
- Periodic accounting scandals and associated company collapses destroy user confidence in accounting information and demonstrate the need for fundamental changes in accounting.
- Financial reporting is a “numbers game” played between company managers and Wall Street.
- “Earnings management” – manipulation of financial statement numbers by managers in their own self-interest – is rampant.
- Quarterly public financial reporting encourages investor and manager short-termism.
- Managers are prepared to sacrifice substantial firm value in order to meet short-term earnings targets.
- The correlation between accounting earnings and stock market returns is too low.
- In recent years, the increased importance of intellectual property in the economy, combined with inadequate accounting for intellectual property assets, has rendered financial statement information almost useless to investors.
- Accounting information prepared without a universal measurement system is meaningless.
- Accounting information only is meaningful if it has been adjusted for general price level changes.
- Fair value accounting contributed to the 2008 financial crisis.
- Investors “functionally fixate” on earnings without regard to the different valuation implications of different earnings components.

Negative commentaries date at least as far back as Canning’s (1929) doctoral thesis at Chicago, they were central to the “Golden Age” accounting literature (Nelson, 1973) deriding the extant accounting regime that I read as an undergraduate in the 1960s, they were fueled by the Enron-era scandals, and they have continued unabated for decades. They do not tell the whole story.

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36 For example: Chambers (1973), Nobes (2005), and Soll (2014).
37 Levitt (1989).
38 The literature on this topic is so extensive that a Google Scholar search on “earnings management” returned approximately 155,000 results (conducted on 30th April 2022). There have been many attempts to survey and synthesize it, including Schipper (1989), Healy and Wahlen (1999), Dechow and Skinner (2000), and Ball (2013). The literature exploded in volume after the Enron-era scandals.
40 Graham, Harvey, and Rajgopal (2005).
42 Notably: Lev and Gu (2016).
43 See section VI.
44 Sweeney (1936), Gynther (1966).
46 For example: Hand (1990), Sloan (1996).
Despite the list of negatives, accounting information continues to be used extensively throughout the economy. It is used by managers, boards, households, professional investors, analysts, the press and the general public. It is used in valuing firms, in trading, in evaluating managers, in evaluating strategies, in learning from the financials of other firms, and in myriad other uses. Accounting information continues to be used extensively in debt, compensation, supply and other contracting. Can it be as bad as the critics allege? Myriad users “vote with their feet,” so by inference the positives surely outweigh the negatives by a substantial margin.

That is not to say that accounting does not need to learn from past mistakes, such as the accounting scandals early this century. Further, the profession continually needs to adapt to political and economic change: the world always shifts in a fashion that makes at least some dimension of the prevailing regime worthy of improvement, such as the proliferation of long term non-cancellable leases in the 1960s and 1970s that led to FASB issuing SFAS13. But critics pointing out some inadequacy in the status quo – real or imagined – tend to “occupy the airtime”; the positives largely go unspoken.

I can only speculate on why negativism is so prevalent. There presumably are other reasons, but in my experience people whose living derives from commenting authoritatively on the world — academics, politicians, journalists, columnists, authors of populist books, “leaders” of the profession, etc. — are excessively disposed to viewing it as needing improvement in ways that they propose. Indeed, they frequently have incentives to do so. Hayek’s (1988, p. 76) oft-quoted statement from The Fatal Conceit comes to mind: “The curious task of economics is to demonstrate to men how little they really know about what they imagine they can design.”

So, has our profession really continued to slip backward, as many pundits would imply? Or are the critics paying insufficient attention to the profession’s contributions to aggregate welfare, perhaps because they take them for granted, or because they are largely unaware of where they lie?

**XI. Concluding Remarks**

In conclusion, I do believe it is important for accounting scholars, teachers, and professional bodies to at least occasionally step back from their daily activities and think deeply about the conceptual underpinnings, and fundamental contribution to aggregate welfare, of their profession – and about the underpinnings of their practice, teaching or research – because accounting clearly matters. And I hope my ramblings on the topic stimulate some thought on how it matters.
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