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Accounting for Inflation: The Dog That Didn't Bark

A fundamental flaw in the methods that academics and practitioner bodies have proposed to account for price changes is that they assume the real and monetary sectors are independent. This is the logic of classical macroeconomics pre-Keynes/Friedman, which long since has been discredited by theory and evidence. Both economy-wide and idiosyncratic shocks to firms' factor prices are unlikely to be positively correlated with their financial strengths, as assumed by the price adjustment methods that have been proposed. This helps explain the historical reluctance of governments and regulatory bodies to embrace proposed accounting standards that require firms to adjust their financial statements for either general or firm-specific price changes. For example, firms then would tend to report stronger balance sheets at a time of weakened financial positions.

Key words: Accounting standards; Accounting theory; Asset prices; CCA; GPLA; Inflation; Money neutrality.

In Sir Arthur Conan Doyle's (1894) short story *Silver Blaze*, the fictional detective Sherlock Holmes used the absence of a fact to help solve a crime: a watchdog was not heard barking at the time of the crime. From that fact Holmes deduced that the dog knew the criminal, which proved to be an important clue.

Researchers typically offer the *presence* of expected facts in support of their hypotheses. Failure to produce an expected result is viewed as failure of the hypothesis or, worse, of the researcher (Kuhn, 1962). Consequently, the literature is awash with expected results. Seldom is the *absence* of expected facts reported, let alone viewed as providing a clue worthy of further investigation.

Changes in the general price level—inflation and also deflation—are a persistent and worldwide economic phenomenon. For approximately a century, accounting researchers have advocated various means of adjusting a firm's historical costs, which mostly are stale

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This short essay is dedicated to the memory of the late Reginald S. (Reg) Gynther, a tireless advocate of accounting for changing prices and who, in 1971, had me appointed, at age 26, as a tenured full professor in the University of Queensland. I should acknowledge the very helpful comments of Richard Morris, who forced me to better exposit the argument and corrected an egregious error on my part. The remaining errors—as usual—are mine.

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prices when financial statements are prepared, to account for price changes over time. One type of adjustment method, known as general price-level adjusted accounting (GPLA), adjusts historical costs for changes in aggregate prices, as represented, for example, by changes in the consumer price index. Subsequent academic interest and (during inflationary periods) practitioner interest has focused more on a second type of method, adjusting historical costs for changes in those prices that are specific to individual firms' production functions, using various specific price level adjustment (SPLA) methods. SPLA methods became known as current cost accounting (CCA) because—to firms—factor prices are costs. GPLA and SPLA methods and their impact—or lack thereof—on accounting practice are the focus of this short essay.¹

During periods of high inflation, researchers and their ideas on accounting for changing prices have attracted the attention of practitioner and regulatory organizations. These bodies have investigated, proposed, and, in several cases, adopted accounting standards to adjust for inflation, using either or both types of method, adjusting historical costs for general and/or specific price changes, in the reported financial statements or in supplementary disclosures. But it has not happened. GPLA or SPLA reporting requirements now are not on the books in any non-hyperinflationary economies: the dog has not barked.

Why? Is this fact an important clue? What does the *absence* of required adjustments to historical costs for price changes—general or specific—suggest one might conclude?

ACADEMIC AND PRACTITIONER ADVOCACY

The current generation of students would have little reason to be aware of the prolonged and widespread advocacy of accounting for price changes by academics and practitioner bodies in prior generations. What follows is a brief summary intended only to provide a sense of this troubled history; comprehensive analyses are provided by Whittington (1983) and Tweedie and Whittington (2009).

As Whittington and Zeff (2001, p. 216) observe, '[t]he academic debate on price change accounting can be traced back to the beginning of the twentieth century'. In developing his theory of financial crises, Irving Fisher (1911) noted that inflation generated paper profits but offered no alternative method of calculation. During the rapid inflation after the removal of WWI price controls in the US, Bauer (1919) and Paton (1920) reported problems with analysing historical-cost numbers. The most celebrated contributor to that debate undoubtedly was Henry Whitcomb Sweeney, who published a series of articles informed by the German hyperinflation under the Weimar Republic following WWI, but whose seminal contribution is the volume *Stabilised Accounting* (1936).² Sweeney outlined a comprehensive GPLA system,

¹ The essay does not address accounting for hyperinflation, though one suspects that its central thesis is even more applicable in those economies.

² The book was published by Harper and Row in 1936. A revised edition, published by Holt, Rinehart, and Winston in 1964, was read by students in my generation. The original was reprinted by Arno Press in 1978.

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much of which was incorporated decades later in the US by the Accounting Principles Board (APB, the precursor body to the FASB, the current Financial Accounting Standards Board) in its *Accounting Research Study No. 6, Reporting the Effects of Price-Level Changes* and subsequently by the FASB in its *Statement of Financial Accounting Standards No. 33*.

In response to the widely-recognized problems of working with historical numbers during periods of inflation (the common metaphor was measuring firm performance with a rubber yardstick), practitioner bodies have formed committees, have produced draft opinions, and have issued accounting standards requiring radical revision to historical cost accounting in the financial statements or in supplemental disclosures. The remarkable fact is that none of these has survived in practice, not even the supplemental standards. No price level adjustment standard is in place today, except in hyperinflationary economies.

Reviewing the scene almost four decades ago, Davidson and Weil (1975, p. 27) lamented:

The most significant and persistent complaint about published financial statements in recent years has been that they do not reflect the economic facts of life. Inflation is a reality throughout the world, yet its effects go unrecognized in financial statements prepared in accordance with generally accepted accounting principles in the United States and in most of the other countries in the Western World.

The scene today is little different, despite considerable historical effort by academics and practitioner bodies to change it.

In the US, the American Institute of CPAs published *Accounting Research Study No. 6, Reporting the Financial Effects of Price-Level Changes* in 1963. The study was prepared by the staff of the Institute's Accounting Research Division, of which Professor Maurice Moonitz of the University of California at Berkeley was Director. Influenced by then prevalent academic thinking, the study recommended that firms report both traditional financial statements based on historical costs and supplementary statements based on GPLA (i.e., adjusted for aggregate inflation effects). In 1969, the APB issued *Statement No. 3, Financial Statements Restated for General Price-Level Changes*. Known as APB3, it recommended, but did not require, supplementary disclosure of GPLA financials. The APB (1969, p. 3) noted that this GPLA-adjusted information was 'not intended to represent appraisal values, replacement costs, or any other measure of current value'. In practice, few companies followed APB3's recommendation (IASB, 2013, p. 4), providing the first sign that implementation might be difficult to achieve.

In December 1974, with annual inflation running at 11%, the FASB issued an exposure draft, *Financial Reporting in Units of General Purchasing Power*, proposing to require supplementary disclosure of key financial information adjusted for general price level changes. Soon thereafter, in March 1976, the SEC intervened by issuing *Accounting Series Release No. 190*, shunning the FASB's choice of GPLA and requiring supplementary disclosure of key SPLA information adjusted for specific price changes, as measured by replacement costs. The FASB

then acceded in 1979. Its compromise *Statement of Financial Accounting Standards No. 33* required supplemental disclosure of key financials adjusted for general price changes, and also their equivalents adjusted for specific price changes. Seemingly hedging its bets, this standard provided users with three calculations of (for example) income from continuing operations: under historical cost accounting in the financial statements, and under both GPLA and SPLA in the supplemental disclosures. For the specific price change adjustments, cost of goods sold and depreciation and amortization expenses were calculated at the lower of replacement cost and realizable value. No revision of the financial statements was required; the disclosure was all supplemental. The standard was approved for only a five-year experimental period, further signalling the FASB's uncertainty as to whether and how best to adjust historical costs. At the end of the trial period, and with US inflation falling to 1.9% by 1986, even these supplemental disclosure provisions were abandoned, 'bringing to an end FASB attempts to mandate capital maintenance in the United States' (Chatfield, 2014, p. 98).

The UK experience was similar. In January 1973, at a time of unprecedented inflation, the Accounting Standards Steering Committee (ASSC) of the Institute of Chartered Accountants in England and Wales issued Exposure Draft 8 (ED8) *Accounting for Changes in the Purchasing Power of Money*. ED8 proposed reporting GPLA accounts on a supplementary basis. Three days before the exposure period ended, and thus before the Institute could make the proposal mandatory, the UK Government intervened by announcing a Royal Commission to investigate the issue. Named the Inflation Accounting Committee of the United Kingdom and Ireland, its brief encompassed a wide range of issues including the effects of alternative accounting regimes on firm investment, on resource allocation, on taxation, and on investors and other users. In September 1975 the Commission delivered its unanimous recommendations in a report that became known after its Chairman as the Sandilands Report. Its central recommendation was that accounts should be adjusted for specific, not general, price changes. In particular, reasoning from the premise that the value of an asset is the loss a firm would suffer if deprived of it, the Committee recommended that assets and, therefore expenses, be measured by their replacement costs (some historical costs would be reported in the notes to the accounts).

The Sandilands Report was well received by the ASSC and by accounting academics,³ if not by all UK economists.⁴ Nevertheless, it encountered substantial opposition from the UK Government and by corporations, and ultimately lapsed.⁵ In their review of this episode, Tweedie and Whittington (2009) praised the

³ For example: 'The report of the Sandilands Committee is the reference point for how an accounting research study should be conducted and drafted' (Vangermeersch, 2014, p. 513).

⁴ For example, Kay (1977) offered several criticisms.

⁵ Mumford (1979) describes a similar episode in the UK post-WWII inflation of 1948–1954.

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accounting theory underlying the Report and viewed its demise as due to self-interested opposition by governments and corporations.

Internationally, in response to the inflation of the 1970s, the International Accounting Standards Committee (the IASC, the precursor body to the current International Accounting Standards Board, or the IASB) issued *IAS 6 Accounting Responses to Changing Prices*, effective in 1978. This standard soon was superseded by *IAS 15 Information Reflecting the Effects of Changing Prices*, effective in 1983. Showing similar uncertainty to that of the FASB a few years earlier, the IASB allowed firms to account for the effects of changing prices using either GPLA or SPLA (replacement cost) methods, and allowed this to take place in the primary financial statements or on a supplementary basis. Six years later, the IASC made applying any of these alternatives completely optional. Then, in 2003, the successor body, the IASB, withdrew the standard completely, as part of its Improvements Project.⁶

In Australia, academic accountants (in particular, Chambers, Gynther, and Mathews) were at the forefront of SPLA advocacy during the 1970s (Whittington and Zeff, 2001, p. 215). Working closely with the academics, Australian standard setting organizations produced several provisional standards and exposure drafts during the 1970s inflation.⁷ Gibson (2014, p. 54) summarized this experience as follows:

While Australia led the world in 1976 by issuing a provisional standard for the application of current cost accounting, it was the only major English-speaking country to fail to achieve, even on a temporary basis, any widespread application of fundamentally different methods of accounting to reflect changing prices.

Rutherford (2007), Tweedie and Whittington (2009), Whittington (1983), and Whittington and Zeff (2001) thoroughly document the process by which the hopes of academics and standard-setting bodies have been dashed in several countries, usually by governments or regulatory bodies being reluctant to implement reform.

Never before had academic accountants come so close to determining the need for—indeed, the shape of—an accounting standard, let alone a standard so fundamental that it would have upended historical cost accounting. Nevertheless, more than a century after Bauer (1919) and Paton (1920) brought problems of dealing with historical numbers in periods of inflation to the attention of academics and practitioners, and over 80 years after Sweeney's (1936) influential publication,

⁶ A famous case is Philips Industries of the Netherlands, which uniquely and voluntarily reported its financials on a CCA basis from 1951 to 1991. When announcing the end of this policy, Philips cited its needs for simplicity and for improving communication with shareholders.

⁷ The Institute of Chartered Accountants in Australia and the Australian Society of Accountants: *Provisional Standard: Current Cost Accounting* (issued 1976, revised 1978) and *Explanatory Statement: The Basis of Current Cost Accounting* (issued 1976, revised 1978). Australian Accounting Research Foundation: *Exposure Draft: The Recognition of Gains and Losses on Holding Monetary Items in the Context of Current Cost Accounting* (1979) and *Exposure Draft: Current Cost Accounting-Omnibus Exposure Draft* (1980).

general price-level changes remain with us, and there are no GPLA or SPLA accounting standards for non-hyperinflationary economies on the books.

Why? Is the *absence* in practice of price level accounting standards an important clue? Why didn't the dog bark?

THE FLAW IN INFLATION ACCOUNTING

Two central characteristics of GPLA are its treatment of non-monetary items (such as property, plant and equipment, capitalized leases, and inventories) and monetary items (such as cash, accounts receivable and payable, loans and debt). The distinction is due to the fact that monetary items have a fixed monetary value that always is expressed in current purchasing power terms.⁸

Each fiscal period (i.e., quarter, half-year, or year), GPLA indexes the historical costs of firms' non-monetary assets at the cumulative rate of general price change (inflation or deflation) since their acquisition. This periodic indexing maintains the assets' historical costs on balance sheets in units of current purchasing power. The fundamental assumption underlying indexation of assets' book values is that real asset values are independent of the rate of inflation. For long-lived assets such as property, the cumulative indexation adjustment can be substantial.

Monetary items attract no such adjustment because they already are expressed in units of current purchasing power. However, under GPLA a gain or loss is booked to reflect (in periods of inflation) the reduced economic significance of the future cash settlements on monetary assets and liabilities. In inflation, a gain is booked if the firm is a net debtor (monetary liabilities exceed monetary assets); a loss is booked from being a net creditor (vice versa). The gain or loss is calculated as the average net monetary position during the fiscal period times the rate of inflation over that period. The opposite occurs in periods of deflation: lenders win, borrowers lose.

The central thesis of this essay is that information provided in financial statements prepared under GPLA standards is fundamentally misleading, even false. In times of inflation, GPLA Balance Sheets purport to maintain assets' historical costs over time in units of current purchasing power, when, in fact, that is unlikely to have occurred. Price level adjustments of this genre assume money neutrality: that it is informative to adjust book values of assets on a one-to-one basis with inflation, regardless of the rate of inflation. Indexation of book values follows the simple logic of a classical monetarist world of money neutrality, in which the real and monetary sectors are assumed independent, and which long since has been discredited by theory and evidence. That assumption is the fundamental flaw of GPLA.

There is a substantial macroeconomics literature trying to figure out why economies do not behave as if the real and monetary sectors are independent (e.g., Friedman, 1970; Gordon, 1983; Keynes, 1936; Lucas, 1973; Orphanides and

⁸ A detailed description of how GPLA works is provided in Davidson *et al.* (1976).

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Solow, 1990). Economists might argue about why this occurs, but in fact there is a *negative* correlation between inflation and the real economy that is beyond dispute: high inflation is associated with low growth in real output and low asset prices. To be convinced of this, one only needs to consider the 'stagflation' (a combination of high inflation and slow or stagnant economic growth) the US economy suffered in the 1970s, which was the time of the great debates on inflation accounting.

Of particular interest is the negative relation between inflation and asset prices. The classicist view, commonly attributed to Irving Fisher (1930), was that the real interest rate is determined by real supply and demand factors, independent of the rate of inflation. Indeed, Fisher proposed protecting borrowers and lenders from unanticipated shocks to inflation by indexing interest rates to the rate of inflation. This assumes that the real and monetary sectors operate independently. Under this view of the world, the nominal interest rate adjusts to incorporate expected inflation on a one-to-one basis, with the real rate being set independently of monetary factors. This hypothesis is contradicted by a very large body of evidence using US and worldwide data, and over extended periods. There is, in fact, a *negative* relation between *nominal* equity market returns and anticipated rates of inflation, and also between *nominal* returns and unanticipated changes in the rate of inflation.

Starting with Kessel (1956), the literature finding a negative correlation between inflation and stock returns—in different countries and over various time periods—includes Bodie (1976), Cagan (1972), Gultekin (1983), Jaffe and Mandelker (1976), Johnson *et al.* (1971), Kessel (1956), Kim and Ryoo (2011), Modigliani and Cohn (1979), Nelson (1976), Oudet (1973), and Stulz (1986). Leuthold (1980) provides an entertaining analysis from the perspective of a professional money manager. The most influential research has been Fama and Schwert (1977).⁹ Using US data, they regressed nominal equity returns on contemporary actual and expected inflation rates, obtaining negative regression slopes for both. The money neutrality premise underlying GPLA predicts positive slopes of +1.00.

Fama (1981) hypothesized that the negative correlation between equity market returns and inflation is due to real fundamentals, and in particular to a negative correlation between inflation and expected aggregate economic growth. Consistent with this hypothesis, Bernard (1986) found that differences in the impact of inflation on firms' values were caused by differences in their exposures to changes in expected aggregate real activity. Other explanations have been offered for these results (e.g., Benderly and Zwick, 1985; Caporale and Jung, 1997), but one thing is clear: nominal as well as real equity prices are adversely affected by inflation over short to intermediate periods (such as five years), though they are less affected over the long term (Boudoukh and Richardson, 1993; Jaffe and Mandelker, 1976). Equity prices are traded claims to firms' real assets, many of which are recorded on firms' balance sheets, so the result that inflation is bad

⁹ The paper has 3,857 Google Scholar cites as of 11 January 2023.

news for equities is salient to the GPLA debate. GPLA inflates book values at the same time as even nominal asset prices are falling, let alone real.

In sum, aggregate real activity and real asset prices are not independent of changes in the price level, as assumed in GPLA. A basic flaw of GPLA, therefore, is that it attempts to make balance sheets more useful and informative under periods of inflation based on an embedded premise that the real and monetary sectors of the economy are independent, when they are not. Adapting the common metaphor, GPLA replaces a rubber yardstick with one that is upward biased when it is most needed: in times when the real sector is experiencing downturns.

What about SPLA? When considered at the individual-firm level, SPLA also suffers from the flaw of assuming that monetary and real events are independent: it replaces historical costs (which are past factor prices) on balance sheets with current factor prices, independent of the size of the intervening shocks to those prices. The shocks to firms' inputs could be idiosyncratic, such as a major supplier to the firm experiencing a fire, a strike, or a shipping problem, to the supplier negotiating a new wage agreement, to it discontinuing production of the product, or even to it ceasing business. Alternatively, the shock could be economy-wide, such as a general supply chain malfunctioning, a war, a large increase in general labour or capital costs, or any macroeconomic event causing a large change in the firm's factor prices.¹⁰ Perversely, under CCA's replacement cost accounting, firms put in financial peril by positive shocks to their factor prices would report strengthened balance sheets when their holdings of factors of production such as plant and equipment and inventories are revalued at their replacement costs. Shocks to firms' factor prices, whether idiosyncratic or economy-wide, are unlikely to be positively correlated with the firms' financial strengths, as would be reported under replacement cost accounting balance sheets. In other words, real and monetary economic phenomena are not independent at the individual-firm level as well.

It is important to also consider the fate of SPLA at the aggregate level, in terms of the average firm. This would be a major concern to governments and regulators. Perhaps not by coincidence, the push by professional groups to adopt specific price level accounting has taken place during periods of high inflation, most recently in the 1970s. The average firm's SPLA adjustment to its historical costs, using the replacement cost method preferred by standard setters, then would have been similar in magnitude to the adjustment that would have taken place under GPLA. That is, the average firm's rate of input price change would have been similar to the aggregate average rate of input price change recorded in price indexes. The implication is that—in times of inflation with declining asset prices, the average firm would have reported strengthening balance sheets under replacement cost accounting. Considered in terms of its effect on the average firm,

¹⁰ These scenarios might seem extreme, but one such scenario occurred during the SPLA debates in the 1970s. In October 1973, the Organization of Arab Petroleum Exporting Countries (OAPEC) commenced a total oil embargo against the US, tripling the price of oil overnight and crippling energy-intensive businesses. Those with assets such as inventories and plant and equipment that are energy-intensive to produce would have reported stronger balance sheets at that time under replacement cost accounting.

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SPLA suffers from essentially the same fatal flaw as GPLA: it assumes that real and monetary forces are independent.

So, it is not surprising that SPLA proposals met essentially the same fate as their GPLA cousins. Considered in terms of both average and firm-specific effects, the embedded SPLA assumption of money neutrality is rejected by the facts.

As an aside, a serious contender in academic circles to replacement cost accounting would record assets at their net realizable values, defined as the prices at which assets could be sold at balance date, net of selling costs. The most famous advocate of this alternative was Chambers (1966), who argued that his system of 'continuously contemporary accounting' (CoCoA) would provide the only accounting information that is relevant to users. Even in normal times, this method would run into two related problems. First, many assets are specific to the firm, in the Alchian (1984) sense of having little or no value in alternative uses, which implies that individually they would have no meaningful exit prices. Second, an implication of the Coase (1937) theory of the firm is that the value of the firm exceeds the sum of the values of its individual assets (indeed, the difference is what creates value for shareholders, and arguably is what they most want information about). For these reasons, the only economically meaningful exit price is what the firm itself would sell for. In addition, the illiquidity of the markets for firms and their individual assets could be an even larger problem in times of high inflation and weak asset prices. These problems could help to explain the seemingly universal preference of accounting bodies for replacement cost accounting in periods of inflation, using buying rather than selling prices.

RELUCTANCE TO IMPLEMENT ACCOUNTING FOR PRICE CHANGES: A CONJECTURE

Both GPLA and SPLA methods adjust the historical cost of each non-monetary asset by the rate of price change (general or specific) since the asset's date of acquisition. In periods of inflation, both methods, therefore, increase the book values of non-monetary assets reported on balance sheets, and correspondingly increase book values of stockholders' equity. Because monetary liabilities are not affected, both general and specific adjustment methods reduce reported leverage. In addition, most public firms are net debtors, presumably to take advantage of the tax incentive to finance in part by debt. In periods of inflation, most firms therefore record gains from debt financing under GPLA.

Consider initially the perspective of lenders to firms. As outlined in the previous section, inflationary periods tend to coincide with weak economies in which even nominal asset prices fall, and thus in which the average lender's real security is weakened. Perversely, under both GPLA and SPLA methods, reported leverage ratios are reduced at that time. To rub salt into lenders' wounds, GPLA also records gains from them having lent to the firm. In regard to the latter, Davidson and Weil (1975, p. 77) wryly observe: 'It has been suggested that with enough

debt outstanding a firm can report profits (on a general price level adjusted basis, including monetary gains) right up to the time it goes bankrupt’.

Financial statements and supplementary disclosures that record higher asset values and lower leverage during weak economies, when firms’ real financial strengths have deteriorated, are unlikely to provide either actual or potential lenders with useful information. Importantly, balance sheets are unlikely to provide an efficient basis for writing debt contracts with covenants that utilize leverage ratios to indicate whether firms’ financial strengths are impaired. In times of deteriorating real financial position, GPLA and SPLA methods tend to report stronger leverage numbers.

Nor does it make sense from the perspective of shareholders to see stronger balance sheets in eras of depressed nominal share prices. In terms of the income statement, analysts routinely revise their forecasts of revenues, expenses, and earnings to reflect information about firms’ factor prices, so it is not clear that GPLA and SPLA would add much.¹¹ Indeed, an IASB Staff Paper observed (IASB, 2013, p. 13): ‘Most of the writing about price-level adjusted financial reporting is done by accounting standard setters and academics. I have found very little on the subject from the analyst community.’

It is the long-standing opinion of this author that the once influential body of research known as accounting theory has misled academics—and professional accounting organizations—in several ways. In the preface to the best-selling accounting theory text over several decades, Hendriksen (1965, p. xi) described the area as follows:

The approach to accounting theory presented is based primarily on deductive reasoning and logic starting with the basic objectives and postulates of financial reporting.

A purely deductive approach, without confronting the premises or the predictions of the theory with data, produces a tendency to view the prescriptions drawn from theory as self-evident truths.¹² Such has been the case with price level accounting. Academics generally have attributed the absence of GPLA or SPLA standards on the books in non-hyperinflationary economies to failure of will, to dallying until inflation subsides, to regulatory or other political interference, or to some other institutional failure, and not to failure of their theories. One should at least consider the possibility that the outcome was based on common sense.

So, whence arises the demand for GPLA and SPLA? Not from lenders or shareholders, surely. And one can understand why astute governments and regulators might balk at the prospect of strong balance sheets being reported

¹¹ Lemke and Page (1992) show that preparation costs were not a factor for UK firms.

¹² This was a central issue in Ball and Brown (1968). Deductive reasoning based on accounting measurement theory led to the conclusion that financial statement information is meaningless, because it is aggregations of heterogeneous calculations—an assertion that had not hitherto been tested against reality.

under their jurisdiction during periods of weak economies with falling asset prices. Is this why the dog didn't bark?

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