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### Accruals

#### An overview

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## Accruals: An overview

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### ABSTRACT

The paper provides a broad discussion of the topic “accruals”. Though much of what is said is familiar from the literature on accruals, the paper tries to develop concepts and show how these forge tight links across a variety of themes. The starting point of the analysis concerns the construct of an accrual. The case is made that it should rest solely on consecutive balance sheets and the splitting of assets/liabilities into (i) cash and approximate cash, assets/liabilities and (ii) all other kinds of assets/liabilities. Given this divide of assets/liabilities one can measure the components in the foundation equation: cash earnings + net accrual = comprehensive earnings. The paper then proceeds to discuss how the net accrual relates to growth in a firm’s operating activities and the extent to which it can be informative or misleading. This topic in turn integrates with the issue of a firm’s quality of earnings and the role of accounting conservatism. Among the remaining topics, the paper discusses how one conceptualizes diagnostics to assess whether or not a period’s accrual is likely to be biased upwards or downwards. It gives rise to a consideration of how one constructs accruals that may be more informative than GAAP accruals and the role of value-relevance studies to assess the information content of accrual constructs. The paper ends with a list of suggestions how future research may be modified in light of the discussions in this paper.

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## 1. Introduction

Research on “accruals” has grown significantly over the past 15 years, the most well-known papers being due to Jones (1991) and Sloan (1996). While this extensive literature deals with a variety of questions, most of the papers in one way or another consider the statistical properties of accruals – or the properties of cash flows vs. earnings. These flow variables prompt the issue of how one converts financial data into a period’s cash flows or accruals. A review of the literature bears out that there are numerous approaches to the measurement of accruals. Some of these depend on changes in balance sheet accounts; other studies start from statements of cash flows and adjust key numbers using information extracted from income statements. Specific details in individual studies can also vary, so readers may be left with an uneasy feeling that research executions allow for too many degrees of freedom.<sup>1</sup> One can safely assert that the literature offers no “standardized” way of putting the 3 components – cash flows, earnings and accruals – together. Nevertheless, the various efforts at measuring accruals would seem to be based on a common understanding as to the nature of accruals; when studies discuss the measurement of accruals they do move (broadly speaking) in a similar direction.<sup>2</sup>

Missing in all of this empirical research is an analysis of the *concept or construct* of an accrual and its implications.<sup>3</sup> Such absence makes it hard to assess whether there are other workable (perhaps better) alternatives to the accrual measurements found in specific studies. These hypothetical alternatives could lead to different (or less robust) empirical findings, suggesting the need for an accrual concept. In the background lurks a more fundamental issue, however. Only after a construct is in place can one examine the circumstances under which accruals have a practical role in valuation because they beneficially complement cash earnings. This sets the stage for an analysis of when accruals tend to misinform rather than inform investors.

This paper develops and evaluates an accrual construct which I view as particularly useful. It is not new. Textbooks, like Penman (2009), refer to it as “change in net operating assets.” Much of what is discussed in this regard reaffirms what many readers have seen elsewhere. Yet in key respects the analysis here diverges from what the literature puts forward. This paper places the emphasis on ideas and how these forge links as opposed to a critical evaluation of the work that has been done (and how it perhaps could be improved). It applies to any accounting that satisfies the basic stocks-flows reconciliation built into accounting. Thus the paper tries to deal with questions of broad interest which hopefully should supply a conceptual foundation for those individuals who try to familiarize themselves with the literature, or who aspire to a better sense of what one may call the “big picture.” Following that, the paper discusses empirical questions related

<sup>1</sup> As an illustration of implementation “details”, in many studies earnings serve as an ingredient to measure either cash flows or accruals. The researcher must then decide on the earnings number to use: which, if any, special items should be excluded?

<sup>2</sup> This paper does not compile extensive references to the large literature, empirical and conceptual, that deals with accruals and linked topics. I should further underscore that there are really few new ideas in this paper and yet I have not tried to attribute various insights to originators as is commonly done. It would have been too difficult and thorny to develop the relevant citations. The topics covered – like the general idea of an accrual – have long histories with non-standardized terminology and an enormous number of applications in research. To get started on navigating the literature, the following papers should prove useful. Jones (1991) and Sloan (1996) have been mentioned in the main text’s first paragraph and thus they have a significant status as “classics”. With respect to textbooks, Penman (2009) provides an introductory discussion of the quality of earnings issue as it relates to accruals. See also the textbook by Easton et al. (2009). For a very broad perspective on the quality of earnings topic, see Dechow et al. (2009). Melumad and Nissim (2009) discuss quality of earnings specifics for numerous line items such as the accounting for pensions, inventories, deferred revenues, etc. Quality of earnings evaluations as it relates to changes in balance sheet conservatism can be found in Penman and Zhang (2002). Ohlson and Aier (2009) discuss what they refer to as modified cash accounting (“MCA”) earnings – a measure of cash earnings – as opposed to accrual earnings and they explain how MCA fits into the quality of earnings literature. The paper particularizes the cash assets/liabilities vs. other assets/liabilities dichotomy and it discusses the full range of judgment issues, including the use of footnote disclosures to measure cash earnings. Empirical work related to GAAP accruals – their reversal properties as well as trading strategy opportunities – Allen et al. (2009) summarizes what one may refer to as the most recent state-of-the-art of accrual research when it comes to empirical work. Richardson et al. (2009) review the literature on accruals and anomalies, and it lists just about all references that one can reasonably hope for.

<sup>3</sup> To be sure, the concept of an accrual as employed in this paper always refers to a (period’s) flow. The reason for noting this obvious convention here is that an often cited paper by Dechow et al. (2002) suggests that they have modeled accruals, which in my mind is unfounded insofar that they are actually dealing with stock variables. Specifically, in my reading of the paper, it has the flavor of a model of “errors” in balance sheet accounts – which are stocks and not flows. The errors pick up biases (upwards or downwards) as to the expected cash that will be realized at the end of the period. In my interpretation, therefore, rather than capturing accruals the model in question develops the consequences of fair market valuations when these can reflect an upward or downward bias.

to properties of accruals, including the question of how one can evaluate whether accruals are informative or not.

Because this paper deals with topics and themes that are by no means novel, much will be familiar to individuals versed in the literature. That said, how the various ideas connect with each other may be less so. As the links often involve subtleties, the paper envisions that one obtains a much better understanding of subject matter if one proceeds step by step without distracting discussions of empirical research papers and their findings. In sum, the flow and interdependence of ideas will be central.

To give the reader a sense of topics covered, the following supplies a list that the paper develops in some detail:

- The construct of an accrual depends solely on (consecutive) balance sheets and the classification of assets/liabilities into approximate cash assets/liabilities as distinguished from other assets/liabilities. The latter class of assets/liabilities can be thought of as those related to operations as opposed to financial activities.
- Conceptually and practically, to identify an accrual via cash flows statements combined with earnings confuses issues. Nor does it generally help to identify non-cash expenses such as depreciation if the focus is on a period's total accruals.
- In terms of economics, an accrual relates to the growth in operating activities alone. Under ideal circumstances the measurement of growth in operating activities and the accrual has a one-to-one correspondence. Financial activities do not influence the accrual measurement though these activities do of course reconcile with operating activities.
- The quality of earnings dependence on accruals is essentially independent of balance sheet conservatism; it is the change in the degree of conservatism that counts.<sup>4</sup> Similarly, the information content of accruals should not be conceptualized in terms of the extent to which operating assets/liabilities deviate from their fair market values.
- An informative accrual measures the growth in operating activities without a subsequent reversal: a serial correlation in total accruals is prima facie evidence of “bad” accounting.
- Dealing with the quality of earnings issue per GAAP reduces to attempts to come up with measures of growth in operating activities that are more informative than the accruals implied by GAAP. Such competing measure of growth in operating activities should facilitate the forecasting of future (operating) GAAP earnings. The growth of sales is potentially useful insofar that it generally ought to relate to growth in operating activities. As a practical matter, it leads to the hypothesis that the quality of earnings is low when the growth in sales is less than the growth in net operating assets.
- Traditional value relevance (cross-sectional) regressions – stock market returns on same-period accounting data – can assess the information content of accruals by putting it on the RHS with cash earnings. The methodology also permits a comparison of GAAP accruals to what one may hypothesize to be more informative measures of accruals. A particularly interesting question relates to the issue if one can construct an accrual that loads the same in the regression as cash earnings, in which case the two numbers aggregate without loss of information (in other words, on the regression's RHS one can add cash earnings and the accrual without significantly reducing the  $R^2$ ).

## 2. Basics: Accruals and financial statements

Without referring to any particular accounting principles, accounting introduces accruals because transactions may, or may not, have a cash component:

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<sup>4</sup> In the context of this paper, “quality of earnings” pertains to the idea that the current (net) accrual influences the forecasting of earnings in an upward or downward direction. If upwards (downwards) then the current earnings are of high (low) quality.

Cash Earnings + Accrual = Earnings.

This relation is definitional and thus not subject to challenge (the accrual, to be sure, is the total for the period.)<sup>5</sup> If the RHS is determined by GAAP (of any jurisdiction) and cash earnings are determined by some other accounting regime consistent with the term cash earnings, then the accrual is implied. More generally, any one of the three quantities can be inferred from the remaining two, of course. In the literature one finds a mixture of approaches though it does seem as if earnings (before or after some special items) are always taken as a given. But this observation about practice in empirical research should not be confused with some notion that the measurement of accruals or cash earnings *presupposes* an earnings number. Such thinking is unnecessarily rigid.

As a practical matter, one might well measure accrual earnings such that the number derives from two independently established components, cash earnings and an accrual. One can thereby think of accruals as having been measured independently of some existing balance sheets or an integrated set of financial statements. To consider the measurement of accruals without reference to earnings, balance sheets or cash flows is by no means fanciful. This approach becomes the *modus operandi* in the discussion of the topic “quality of earnings” as it relates to accruals. This paper revisits this idea in the discussion of this topic later. Before getting to that point the focus will be on cases when specific assets/liabilities and their carrying values are in place, i.e., what one might call “regular accounting.”

In regular accounting, start- and end-of-period balance sheets underpin earnings measurements. The claim applies no less to the measurement of cash earnings than to (accrual) earnings since both cases require that the flows reconcile with the beginning–ending stocks. Cash earnings and regular accrual earnings accordingly differ only in the listing of assets/liabilities (and their carrying values) that support the two earnings measurements. While the specifics of how one identifies the two sets of assets/liabilities raises its own issues, which will be discussed later, here we note that to conceptualize cash earnings independently of supporting balance sheets removes us from regular accounting.

Suppose next that, (i) the accounting satisfies clean surplus for both concepts of earnings, and (ii) the dividends and capital contributions are of a cash variety, i.e., the two accounting regimes treat these transactions the same. It follows that the accrual equals the difference between the two regime’s net worth changes (ending minus beginning balances).

The last sentence is awkward in its claim that the accrual derives from differences after having looked at changes over a period. Elementary algebra helps to communicate the statement. In the interest of simplicity, assume zero dividends and capital contributions. First note that one infers earnings from the clean surplus relation, i.e., the increase in net worth (or book value). Second, suppose that all asset/liabilities must be classified into one or the other out of two kinds:

ca = cash assets and the approximate equivalent of cash, positives net of negatives.  
 oa = other assets/liabilities, net.

Then

$$\{ca(t) + oa(t)\} - \{ca(t-1) + oa(t-1)\} = \text{earnings}(t)$$

<sup>5</sup> One can ask whether cash earnings and cash flows are two different labels for the same thing. The literature lacks a standardized terminology if and how one distinguishes between the two terms. Most papers (if not all) use the terminology “cash flows” and make no reference to cash earnings, explicitly or implicitly. In doing so it seems that one should not generally equate cash flows to cash earnings. Such is my judgment at least. It is mostly based on the fact that authors seem to have in mind that the cash flows in question pertain to *current* cash flows, with no adjustment for capital expenditures. Jones’s paper illustrates that; the average accrual is negative because it excludes the effect due to the average increase in PPE. Hence this paper does not embed a concept of cash earnings. Other papers deals with accruals much the same, though there are exceptions such as some of the more recent Sloan papers. It is my opinion that the cash earnings construct – with an emphasis on earnings – should serve as a starting point in any analysis of accruals, empirical or theoretical. Thus I maintain this perspective throughout, and I do not discriminate between cash earnings and cash flows.

The notation means that one identifies cash earnings as

$$ca(t) - ca(t - 1) = \text{cash earnings}(t)$$

One trivially infers that

$$oa(t) - oa(t - 1) = \text{accrual}(t)$$

In other words, the difference in non-cash assets (net of non-cash liabilities) identifies the accrual. As the last expression shows, it is inferred from assets/liabilities other than cash (and its approximate equivalents, positive or negative).

The above development disregards dividends and capital contributions. But such transactions do not change the analysis as long as both accounting schemes account for these the same. One modifies the definition of earnings by replacing  $ca(t)$  with  $ca(t) + \text{net dividend}(t)$ , keeping  $ca(t - 1)$ ,  $oa(t)$  and  $oa(t - 1)$  the same. (There are no apparent reasons why the accounting for dividends/capital contributions should not be the same for the two earnings measurements.)

A delicate point must be noted. Because the arrangement embeds clean surplus accounting, each of the earnings measurements must be comprehensive. Any alternative approach would have to re-define the three ingredients in the foundation equation.<sup>6</sup> For example, one can try to identify how “other comprehensive gains/losses” impact on the 3 elements in the foundation equation. It should be doable. (That said, the literature does not provide clear guidance as to whether this is the right way to proceed or not.)

Though the relations impose discipline on how diverse pieces fit together, nothing has been said about what characteristics should identify a cash asset/liability as opposed to “other” assets/liabilities. This practical, and essential, topic is dealt with later. But there is of course substantial agreement on the differing nature of the two classes of assets/liabilities. Consider, for example, a balance sheet comprising the following prototype assets/liabilities: (i) cash, (ii) liquid marketable securities, (iii) inventories, (iv) net property, plant and equipment, (v) accrued expenses, (vi) accounts payable, and (vii) bank loans. Most people would then surely agree that (i), (ii) and (vii) fall into the category of  $ca(t)$ . The liability (vi) may seem less than obvious, but it, too, should be part of  $ca(t)$  if it represents an outstanding liability as long as a definite amount of cash must be paid to extinguish the debt (in other words, its economic essence does not differ from a bank loan). The remaining assets/liabilities fall into the  $oa(t)$  category by necessity.<sup>7,8</sup>

The above development, simple as it is, lays bare that to add back depreciation and other so-called non-cash items to earnings are, at best, an around-about way when one construes cash earnings. The point reinforces that the *concept* of an accrual rests on a consistent classification of assets/liabilities in consecutive balance sheets, not on evaluating the line items in an income statement and finding their (non-) cash components. Moreover, to measure a GAAP accrual, there are no compelling reasons why one must turn to a statement of cash flows per GAAP. The simple balance sheet framework shows that an accrual construct hinges

<sup>6</sup> With the notable exception of Hribar and Collins (2002), the literature on accruals does not pay attention to this point. It leads to a slippery slope: the definition of earnings can vary widely across studies in their treatments of special items.

<sup>7</sup> To be sure, empirical studies that deal with accruals have often conceptualized measured accruals in ways that differ from the approach suggested in this paper.

<sup>8</sup> Textbooks, like Penman (2009) and many papers refer to NOA as representing “net operating assets”. Does it correspond to  $oa(t)$ ? The answer is a qualified yes. There are differences insofar that NOA tend to pertain to operations rather broadly, and thus it typically includes accounts receivable and payable plus even some portion of cash necessary to operate the business. I tend to think of  $oa(t)$  more narrowly like in Ohlson and Aier(2009). Now  $ca(t)$  includes ( $oa(t)$  excludes) all assets/liabilities that one can reasonably add/deduct from cash without losing information. Thus high quality accounts receivables and accounts payable are not treated as being accounted for via accruals. (The reader has to use his/her own judgment what makes the most sense.) At any rate, as Richardson et al. (2009) makes clear, many recent papers on accruals define the net accrual in terms of the change in NOA which of course in its essence does not differ from the accrual construct considered in this paper.

only on the idea that assets/liabilities can be split into two mutually exclusive yet exhaustive categories. To advocate otherwise at the very least demands some justification.<sup>9</sup>

The above assets/liabilities example illustrates what most accountants take for granted, namely that measurements related to cash assets/liabilities are less “ambiguous” than the remaining ones (*oa*). Cash assets/liabilities (*ca*) are relatively unambiguous insofar that their carrying values for (most) practical purposes approximate their market values. One can take this observation one step further and argue that cash assets/liabilities by definition are those assets and liabilities that generally match their market values. In contrast, all assets/liabilities falling into the *oa(t)* category have ambiguous carrying values: the accounting principles and their applications truly come into play (e.g., depreciation schedules, the equity method for unconsolidated subsidiaries, restructuring charges, pension liabilities, inventory accounting). There is no requirement that the carrying values of these other assets approximate their fair values or market values. In fact, the assets/liabilities comprising *oa(t)* would be no easier to deal with if one tried market (or fair) valuations because value-creating assets/liabilities are intrinsically illiquid. (At a minimum, one has to confront the relevance and practical meaning of net realizable value when the market is indistinct.)<sup>10</sup>

While the idea of splitting book value into *ca(t)* and *oa(t)* is predicated only on a basic understanding of accounting, implementations of the framework put the onus on judgments. To illustrate, consider accounts receivable. If these are of high quality – only an immaterial allowance for bad debts is needed – then they fit neatly into the *ca(t)* category. Under the circumstance they are in their economic essence similar to marketable securities; both can be sold with some ease for predictable amounts. A material balance in the allowance account relative to accounts receivable, in contrast, suggests that the net receivable is likely to be ambiguous; it naturally leads to an *oa(t)* classification. But the subjective nature of picking the appropriate cut-off point related to the percentage of allowance balance is unavoidable. Similar subjective judgments as to the *ca(t)* vs. *oa(t)* classification must be faced in case of assets such as finance receivables and more or less illiquid investments (like partnerships). Liabilities are no less problematic when it relates to cash estimates, such as obligations outstanding to employees and suppliers. An amount that seems relatively predictable tilts the classification in favor of a cash liability, of course.

### 3. The economics of accruals

The relations and observations so far deal solely with definitions, classifications and the structure of accounting. In no substantive way have we tackled what one may call “the information content” of accruals

<sup>9</sup> In much of the literature one finds that papers make no attempt at measuring the period’s accrual in its totality. Instead, the idea is to focus on something referred to as the “current accrual”. Thus one may consider the case when *oa* is split into two categories, {1, 2}. Let  $oa(1, t) + oa(2, t) = oa(t)$ , and similarly define  $accr(1, t) + accr(2, t) = accr(t)$ . One can then write  $ce(t) + accr(2, t) = earn(t) - accr(1, t)$  where one can interpret the accrual term on the RHS as the current accrual. With some slight abuse of language one can then refer to the RHS as a calculation of “cash flows”. Roughly, it can be thought of as corresponding to “cash provided from current operations” before depreciation and amortization. That said, one needs to keep in mind that it is implicit that there are other accruals that must be accounted for to derive cash earnings. (Just as one needs to keep in mind that it makes a difference if one considers comprehensive earnings as opposed to some other measure of earnings.)

<sup>10</sup> An elaboration of the word “ambiguity” helps to appreciate the operating vs. financial activities distinction. Ambiguous valuation of operating assets means that they interconnect and have a perceived value which is entirely idiosyncratic to a firm and depends on its strategic plan. These contextual use values are inherently very subjective. It leads to the imperative of transactions-contingent GAAP rules to generate carrying values for the balance sheet. Thus the income statement depends on the accrual – the change in the carrying values – though it is understood that the book values of operating assets do not in any real sense have much of a connection with the market values of operating assets, separately or in their totality. Cash assets and liabilities, in contrast, can be valued with less (or ideally no) ambiguity in that their use value and they are nowhere near as contextual and dependent on a firm’s strategy. Thus the use of the word “ambiguity” is not to be thought of as “arbitrary”, “non-nonsensical” or “best disregarded” or anything like it, but rather that contextual use values become exceedingly difficult to pin down from a balance sheet perspective. But that of course does not preclude that non-fair value rules can be quite useful in the measurement of earnings.

in combination with that of cash earnings. Interesting questions arise. What informational purpose do accounting accruals serve? Why recognize assets/liabilities with inherently ambiguous carrying values? Can one generally expect accruals to add to cash earnings without loss of information? Or are they more like apples and oranges?

Traditional accounting concepts speak to these kinds of questions by referring to two slightly different approaches: either one focuses on the end-of-period balance sheet or on the period's income measurement. Both approaches rely on the idea that accrual accounting countermands the deficiencies inherent in cash accounting when there are costly strategic activities that serve as the foundation for potentially creating value in subsequent periods.

From a balance sheet perspective, any reasonable concept of asset (liability) suggests that the lack of ambiguity of an asset's carrying value cannot be a requirement to recognize an asset. To invest in operations, firms must incur expenditures that are intrinsically difficult to value since their efficacy depends on the business strategy. But at least some of these expenditures offer expected future benefits in terms of subsequent sales, however ambiguous and hard to evaluate these connections may be. Such future benefits ought not to be dismissed and treated as a period expense if one looks for a more comprehensive picture of a firm's economic condition. In other words, assigning zero value to expenditures that generally enhance subsequent sales contradicts basic economics.

If one focuses on earnings measurement directly, then cash earnings alone mislead as a measure of performance when the company incurs expenditures that benefit the future. An adjustment in the form of a (net) accrual is now necessary insofar the firm has increased the size of its operations. After all, a firm cannot expand operations without disbursing cash or its approximate equivalent thereby reducing cash earnings; cash earnings decrease as the firm invests in the future in a one-to-one fashion if the presumption is the benchmark of zero NPV. In this way an accrual can be interpreted as having a one-to-one correspondence with growth. *More precisely, the  $oa(t)$ 's percentage increase equals  $accrual(t)/oa(t-1)$ ; it serves as a measure of a firm's growth in operating activities. The sign of the accrual, accordingly, determines if a firm expands or reduces its operating activities.*

There is a subtlety involved that needs to be underscored. Why does the measurement of growth center solely on  $oa(t)$  as opposed to the total book value,  $oa(t) + c(t)$ ? The answer requires an appreciation of traditional finance precepts with its demarcation of operating vs. financial activities. Within this framework other assets,  $oa(t)$ , stands for operating assets. These are the assets that pertain to ex ante value creation – an inherently subjective and uncertain economic activity when it comes to assessing the likelihood of future success – thereby causing the ambiguity in the valuation of such assets. In contrast, the assumption is that changes in cash assets/liabilities are objectively neutral when it comes to forward looking value creation – zero NPV is implied – which is precisely why they are comparatively easy to account for. Unsurprisingly, carrying values for the cash and cash equivalent assets are close to their fair (market) values. In the spirit of Modigliani and Miller, *one naturally defines the cash assets/liabilities as the financial assets/liabilities because of their value creation neutrality.* Hence the cash (equivalent) assets/liabilities, and their changes, cannot tell us anything about the growth of the value creating activities. Any change in  $ca(t)$  adjusted for the net dividend – cash earnings – is of course influenced by operating activities, but that aspect does not bear on the change in the operating activities per se.<sup>11</sup>

The above discussion hints at the possibility that the accrual's magnitude should bear on the subsequent expected cash earnings (or cash flows, to follow the literature). Is such the case? On heuristic grounds the answer would seem to be "yes." After all, the accrual captures a net incremental investment, and one can think of this investment as increasing the expected future sales. With an unchanged margin, it follows indeed that one should expect improved cash earnings. This argument permits tightening; one can develop precisely how

<sup>11</sup> One can reasonably claim that this paper stretches language-usage insofar that it equates the accounting for operating activities with accruals and financial activities with cash-equivalence. Such a one-to-one correspondence is at variance with text-books in some respects. But these exceptions are minor. Thus here the understanding is that the accounting for, say, the amortization of a discount related to a bond is not an accrual. It is also understood that there is no cash necessary for operating purposes. In the grand scheme of problems discussed in this paper we believe this is reasonable. That said, one can certainly entertain refinements of the framework laid out in this paper.



an accrual forecasts future cash earnings. This can be done without making any reference to future sales (though this helps to motivate the conclusion).<sup>12</sup>

Readers familiar with the concept of “Free Cash Flows”, FCF, may ask how a measure of cash earnings relates to FCF. To address this issue, two issues must be dealt with. First, FCF often classifies A/R and A/P as operating rather than financial. But this seems rather arbitrary, so one can assume that all qualifying cash assets/liabilities relevant for cash earnings coincide with financial assets/liabilities. Second, with this requirement in place FCF simply equals cash earnings adjusted for income/expenses related to financial activities. In particular, if one confines such expenses to interest items with a common interest rate, then *FCF equals residual cash earnings*.

#### 4. Linking growth to accruals: A model

This section presents a stylized model of “proper” accruals. It formalizes that growth and accruals constitutes two sides of the same coin. Points made in the previous section should thereby be reinforced.

Let  $ce(t)$  denotes the current cash earnings (flows) for the period  $t$  and assume that these are paid out in dividends (to keep matters simple). Students of finance then learn that under perpetual, geometric expected growth the value of the firm follows from the well-known formula

$$V(t) = ce(t)(1 + g)/(r - g)$$

where

$g$  = growth rate (e.g., 0.04% or 4%)

$r$  = discount factor (e.g., 0.1% or 10%)

$ce(t) = ca(t) - ca(t - 1) + \text{net dividend}(t) = \text{cash earnings}(t)$

Accountants differ from finance theorists in that they focus on earnings,  $ce(t) + \text{accr}(t)$ , as the key input in the valuation as opposed to future cash earnings. Under idealized circumstances they have complete confidence in the accrual – it comes with no error whatsoever – so the earnings are also error free. The accountant can therefore refer to earnings capitalization to value the future cash earnings:

$$V(t) = [(1 + r)/r][ce(t) + \text{accr}(t)] - ce(t)$$

<sup>12</sup> The literature suggests that a valid accrual should perform as a leading indicator of (or forecast of) subsequent cash earnings (or cash flows). The idea seems reasonable enough, though it's firming up is perhaps less so. Any modeling of how period  $t$ 's accruals lead to  $t + 1$  cash earnings must confront that the future cash earnings interact with the same-period expected accrual. The point cannot be finessed. Future cash earnings depend directly on future growth in investments in operating activities; in turn the latter investment determines the future accrual. It gives rise to the question: as a matter of concept, how does the current accrual relate to future cash earnings when one allows for growth in the accrual? To answer this question, we need (i) an assumption on the meaning of a valid (or “properly measured”, perfect) accrual, and (ii) an assumption on the significance of cash earnings in valuation. As to the latter, (ii), assume that the market value of operating assets is determined by the present value of cash earnings (to be sure, the market value generally differs from  $oa(t)$ ). To keep the modeling simple, assume that the cash earnings are paid out in dividends. With respect to the first assumption, (i), assume that a perfect accrual satisfies  $V(t) = [(1 + r)/r][ce(t) + \text{accr}(t)] - ce(t)$  and where thus, per (ii),  $V(t) = \text{PV}$  of expected cash earnings  $= \sum_{\tau \geq 1} (1 + r)^{-\tau} E_t[\tilde{ce}(t + \tau)]$ . (There is no need to specify the date  $t$  conditional information.) With these two assumptions in place, no more and no less, routine derivations lead to the dynamic  $E_t[(\tilde{accr}(t + 1) + \Delta\tilde{ce}(t + 1))] = (1 + r)(\text{accr}(t))$ . The expression shows that the current accrual forecasts the change in cash flows plus an adjustment for the future expected accrual. In the special case when the expected accrual in the next period is zero (a no growth setting), then, and only then, does the current accrual forecast the change in the expected change in cash earnings (deflated by  $(1 + r)$ ). More generally, denoting the growth rate in operations by  $g$  (which can be information dependent so we could actually write  $g(t)$ ), one obtains the answer to the question posed above:  $E_t[\Delta\tilde{ce}(t + 1)] = (r - g)(\text{accr}(t))$ . Note that at date  $t$  it may be the case that  $r = g$ . Now the RHS equals zero so that current cash earnings provide an unbiased estimate of next-period's cash earnings, regardless of the current accrual. A similar forecast also applies if the current accrual is zero, i.e., there has been no new net investment in operating activities. The concept of an accrual, as defined here, means the (net) accrual is equivalent to the (net) new investment in operating activities. To underscore this point, consider what explains the expected change in operating earnings: If  $ox(t + 1)$  denotes expected operating earnings (cash earnings plus accrual), then one readily shows that  $ox(t + 1) - ox(t) = r \cdot \text{accr}(t)$ . This relation is of course precisely what one should expect. One obtains this result without restrictions on the time-series behavior of  $\text{accr}(t)$ , the point being that the model embeds no such restrictions.

This formula corresponds to the one used to value earnings from a savings account: earnings capitalized by  $(1 + r)/r$  determine the cum-dividend value.

Can the accountant and finance student both be right? Yes: equivalence holds if and only if the accrual equals

$$\text{accr}(t) = g \times V(t)/(1 + g)$$

In other words, the accrual must emulate the growth in the expected cash earnings. (Routine algebra proves the equivalence). And note that as an approximation one can leave out  $(1 + g)$  so that  $\text{accr}(t)$  is approximated by  $g \times V(t)$ . (The inverse of  $(1 + g)$  is applied to  $V(t)$  to estimate the start-of-period value of  $V$ ,  $V(t - 1)$ .) The expression shows that the greater the growth, the greater the accrual and conversely.

Simple as the above model is, it does achieve the insight that, under idealized conditions,  $\text{ce}(t)$  and  $\text{accr}(t)$  add without loss of information. Knowing earnings suffices to infer the cum-dividend value of the firm, yet one cannot infer the accrual or cash earnings. (In general, the dividend need not equal the cash flow, in which case one cannot infer the two components of earnings.)

As an obvious implication of the model, *cash accounting measures earnings without error if and only if the firm is in a steady state*,  $g = 0$ . Thus one can think of a steady state as a condition when there is no need for an accrual. These observations build in the so-called cancelling error property: zero growth corresponds to no change in the  $\text{oa}(t)$  and hence the magnitude of  $\text{oa}(t) = \text{oa}(t - 1)$  itself is irrelevant when one measures earnings. As we will see in the following sections, the no growth benchmark can usefully guide practical financial statement analysis.

## 5. Accruals and the quality of earnings

While the above modeling may help us appreciate the economics of accruals, the real world is of course far messier. There is no such thing as a true and observable accrual, but rather a sense that an accrual can misinform as well as inform depending upon circumstances. Practical financial statement analysis has long recognized the problems inherent in GAAP balance sheets and the accruals embedded in income statements. Because the operating asset's carrying values are intrinsically ambiguous, there is undeniably a sense that GAAP accounting can result in distortions and misinformation. The reasons for potential misinformation are diverse. They include the sheer complexity of accounting rules, and perhaps even malevolent management intentions. In the latter case "earnings management" tends to be the standard terminology. Thus financial analysts become aware that "earnings management" can lead to misleading earnings through the accruals. In research one often finds references to "discretionary" accruals, which is of course what Jones's model aims at. But this behavioral aspect should not be exaggerated. No less important are GAAP-consistent non-recurring charges that can have a very material effect on current and subsequent accruals, especially when these charges involve no cash. (A write-off reduces the current accrual and increases subsequent accruals, of course.) Because of potentially inherent deficiencies in GAAP, misleading accruals should not be ruled out even in the case of honest managers. The point deserves pondering insofar that much of the literature puts the onus on managers when accruals have undesirable properties.

Early on the paper emphasized that accounting relies on accruals because at least some assets/liabilities do not adequately connect with (approximate) cash values or, as accountants tend to put it, fair values. This observation may suggest that the problems with accruals can be traced to the lack of fair valuations for all assets/liabilities. Such a claim, however, is at best misleading: deviations from this presumed ideal should not be thought of as the source of erroneous accrual measurements. Such reasoning puts us on the wrong track because it suggests that "good" accounting is founded on fair market valuation. Traditional accounting rejects this approach because of its emphasis on income measurement; it builds on historical cost accounting including its extensions that stipulate realization principles for revenues and profits.

Nor does the degree of (or lack of) balance sheet conservatism act as a material culprit when an accrual misleads. The substantive issue revolves around the extent to which there is a *change* (date  $t$  compared to date  $t - 1$ ) in the degree of conservatism. Increasing the *degree* of conservatism improves the quality of earnings and conversely when it is decreased.

Financial statement analysis teaches that overestimates of earnings tend to be followed by understatements and conversely. This observation in essence captures accrual reversals. It can also be thought of as being no different from overstatements and subsequent understatements of reported growth in net operating assets, which in turn reflects the “quality of earnings.” Thus it becomes clear that, (i) understanding the characteristics of the period’s accrual is necessary and arguably sufficient to understand a firm’s operating income, and (ii) one needs to focus on changes in the degree of conservatism not the degree of conservatism itself, a point developed below. And as one thinks about the quality of earnings one must always keep in mind that the relevant construct – the validity of the growth in  $oa(t)$  – disregards the cash & (approximate) cash equivalent assets/liabilities. This aspect appeals because such easy-to-value assets/liabilities cannot be a source of misleading accounting (assuming no auditing type problems).

Of course, the “correct”  $oa(t)$  are never observable, and more importantly, nor is the “correct”  $oa(t) - oa(t - 1)$  or growth in  $oa(t)$  observable. It still helps to conceptualize the ideas of quality of earnings and reversals in terms of the correct  $oa(t)$ . The motivating algebra runs as follows.

Suppose the  $oa(t)$  are correct and that these grow at a steady rate,  $g > 0$ . Consider next, two periods that end at dates  $t + 1$  and  $t$ , respectively. Now suppose the reported  $oa(t)$  exceeds the correct  $oa(t)$ . It follows trivially that the observed period  $t + 1$  growth is less than  $g$ , whereas the observed period  $t$  growth is larger than  $g$ . In this sense the low quality of earnings builds in a reversal in accruals. As an interesting special case, noted earlier, if the true  $g$  equals 0, then any accrual acts as “pure noise” and negative accruals are followed by positive ones and conversely. Thus one can safely say that the accruals should be regarded as uninformative. A steady state setting thereby serves as an easy to appreciate case when accruals are both non-informative and negatively serially correlated.

Balance sheet conservatism does not by itself bring on measurement biases, provided that the extent of conservatism has been consistently applied across dates and the focus is on growth itself. To demonstrate this, suppose one scales the  $oa(t)$ ’s with a constant,  $k > 0$ , which serves as index of lack of conservatism. In other words, write  $k \cdot oa(t)$  so that the accounting is more conservative in relative terms as one decreases  $k$ . It is readily seen that the growth rate in operating assets remains the same for all  $k$ , that is  $[k \cdot oa(t + 1) - k \cdot oa(t)] / k \cdot oa(t)$  does not depend on  $k$ . More generally, without resorting to an index scalar, the quality of (operating) earnings for period  $t + 1$  is poor if and only if the degree of conservatism has decreased, date  $t + 1$  compared to date  $t$ . This analysis changes somewhat if one shifts the attention from a growth perspective to one which scales the difference  $oa(t + 1) - oa(t)$  by a constant. Now there will be an effect: the accrual decreases as the degree of conservatism increases. However, within practical bounds this effect is relatively small (and the sign remains intact). Thus the substantive quality of earnings issue reduces to the extent there has been a change in the degree of conservatism from one period to the next.

## 6. How to conceptualize accrual biases as a practical matter

The notion of an under- or overstated accrual suggests, at least implicitly, that there is something like an accurate, or at least more accurate, accrual. The claim is awkward since the degree of accuracy in accruals is never observable, no matter how much time has passed. Shall we then overlook what good/bad accounting is all about and accept that one has to live with the accruals as provided by GAAP? The answer to this question, I think, must be a resounding “no”: practical financial statement analysis will always be concerned with accrual biases because over time overstated accruals reverse. It leads to the saying “the (operating) earnings reported for the current period can be a poor indicator of what will be reported in the future due to the current/past accruals.”

So, how do we assess the degree of bias, or the potential for future reversals, in any GAAP accrual? To answer this question one tries to make the most of the accrual and growth connection.

Two separate steps show the way to an estimate of a competing accrual. First, one estimates the current value of the firm’s net operating assets, which thus second guesses the actual accounting  $oa(t)$ . Let  $est\_oa(t)$  denote this estimate. Second, one estimates the current growth independently of the current growth in  $oa(t)$ . Independence is essential since the presumption is that the actual accrual,  $oa(t) - oa(t - 1)$ , may differ from its “true” measure. Let  $\Gamma$  denote an independently estimated growth in operations. The product of the two terms then yields an estimate of the “appropriate” accrual, which competes with the one implied by GAAP. Put

more bluntly, this two-step procedure is intended to second guess the GAAP accrual under the maintained hypothesis that this accrual could be misleading: the sign and difference between the estimated accrual vs. the GAAP accrual establishes the accrual bias or “the quality of earnings” conclusion.

As to the first step, the  $est\_oa(t)$  term, it may seem natural to estimate it using a firm’s market capitalization adjusted for  $ca$  (net financial position). But this approach has the drawback that it essentially presumes that the accounting is unbiased as opposed to conservative (from a balance sheet perspective). Under such circumstances the estimated accrual will not be directly comparable to a GAAP-based accrual since GAAP embraces balance sheet conservatism. In addition, one can also argue against this market value method because it presumes rational pricing (an “efficient” stock market); it puts the cart in front of the horse since the financial analysis tries to assess whether the price differs from the firm’s intrinsic value. These objections suggest that it makes more sense to use accounting based estimates of  $est\_oa(t)$ . Obvious candidates are GAAP’s  $net\ oa(t)$ , or some combination of  $oa(t)$  and  $oa(t - 1)$ . Of course these numbers can be viewed as being in error due to misapplications of GAAP, or problems inherent in GAAP itself, but the percentage error should generally be manageable in the scheme of things. The approach actually provides a more critical advantage. It addresses the quality of earnings issue solely focusing on whether the actual growth in  $oa$  is too large/small relative to an independent estimate of the growth in  $oa$ , namely  $\Gamma$ .

What about the second step, estimates of  $\Gamma$ ? Here the current growth in sales revenues serves as a natural candidate. It is reasonably similar in concept to the Jones model of non-discretionary accruals, which in turn originates from traditional FSA analysis: the growth in (operating) earnings is of low quality whenever it exceeds the growth in sales. In other words, generally speaking, an improvement in a firm’s profit margin does not give the same warm feeling as when a firm grows its sales, though both of these changes lead to improved earnings.<sup>13</sup>

Using sales growth as an estimate of  $\Gamma$  one can estimate a GAAP-competing accrual:

$$accr(t) = \text{growth in sales}(t) \times est\_oa(t)$$

where  $est\_oa(t)$  is either

$$oa(t)/(1 + \text{growth in sales}(t))$$

or

$$oa(t - 1)$$

or some weighted average of the two numbers.

To measure the growth in operating activities using sales growth does not necessarily work all the time, of course. A company that changes its marketing strategy from high margin/pricing to low margin/pricing will increase its sales without increasing its investments. So the idea of measuring growth via sales revenues is by no means perfect, and, in fact, somewhat arbitrary unless one believes that there has been no (material) change in the “true” profit margin. This observation concerning the limits to using sales growth suggests that it can be worthwhile to consider alternative methods that estimate  $\Gamma$ .

What are the alternatives to sales growth? Because  $\Gamma$  refers to growth of the operating business, one may consider the growth in capital expenditures as a growth anchor. This approach would seem to be quite workable as long as one can postulate that in the previous period the capital expenditures were normal relative to sales. But this presupposition may be hard to validate, and the capital expenditures in the previous year may have been exceptionally small in which case the estimated growth will be biased upwards. To handle this objection one may consider measuring growth by looking at capital expenditures (net, the current period) relative to the depreciation incurred. More general procedures that averages over the past capital expenditures and

<sup>13</sup> When it comes to accounts receivable, the so-called “modified Jones model” makes an adjustment in the major independent variable, change in sales (normalized by total assets) to recognize the potential accrual classification of accounts receivable changes. In paper after paper, the Jones model is reconfigured by deducting the change in accounts receivable from the change in sales. It seems like an odd reconfiguration; rather than taking the change in accounts receivable, and deduct from the change in sales, it should of course be the change in the change in accounts receivable if one wants to obtain the change in cash sales. (Analytically, the correction to change in sales should be  $(AR(t) - AR(t - 1)) - (AR(t - 1) - AR(t - 2))$ .) It also seems as if one ought to make an adjustment for deferred revenues.

depreciation charges can also be devised in attempts to measure the “appropriate” or “better” accrual via a measure of the underlying growth in the operating business.

The problem of second-guessing a GAAP-based accrual with one’s own measurement is an intrinsically hard problem. We can never know if we are coming up with something better. That said, sometimes we have good reasons to believe the GAAP accrual is potentially materially distorted, as is the case when we believe that the company is, or has been, applying so-called “big bath” charges. Now one’s own estimate of an accrual might well be an improvement. But ultimately this, too, is plain conjecture unless one evaluates its usefulness empirically.

## 7. A discussion of methodologies that assess accruals empirically: Stock price based approaches

Suppose we can agree on how to classify the assets/liabilities into their two kinds without controversy. Suppose further we have some measure of accruals, either via GAAP or, say, some estimating procedure like growth in sales times  $oa(t - 1)$ . Can we then evaluate if the accrual measurements are informative? I think the answer is a qualified yes. It has to be qualified insofar that one has to buy into some criterion as to what the desirable properties ought to be.

The accounting literature offers a number of possibilities as to how one assesses the usefulness of accruals. In the spirit of Sloan’s early paper, as a first possibility one may consider whether GAAP accrual measurements allow us to make money in the stock market. (One could also do this for non-GAAP estimates of accruals.) This criterion suggests the back-testing of portfolio strategies on the basis of accruals.<sup>14</sup> For example, one can calculate accrual-to-price ratios, keep cash earnings to price ratios constant, and then evaluate the returns for portfolio strategies that use this scheme to select long vs. short positions. As Sloan’s empirical results suggest, superior returns might well be available, and, if true, this state of affairs is obviously of great practical interest (to put it mildly).<sup>15</sup> From a more academic perspective, however, this approach seems doubtful insofar that it runs counter to the disciplining hypothesis that the stock market is efficient. A delicate issue lurks in the background. The possibility of making excess returns depends on the accrual being misleading so that the market potentially gets “deceived” and prices thereby become inefficient. But to say that an accrual is useful because others misinterpret the accrual does not deal with whether the accrual is informative in a more traditional sense that presumes homogenous and “accurate” beliefs.

There is no need to rely on investment strategies and the forecasting of returns to assess the utility or role of accruals, whether GAAP or not. The huge literature on “value-relevance” can also guide the research. Specifically, accounting researchers conventionally rely on (cross-sectional) returns – earnings regressions to examine the value-relevance of earnings and its components. (The returns, earnings and any other variables on the RHS, are contemporaneous; the start-of-period price scales the RHS variables.) Applying such value-relevance methodology, one can thus regress annual cross-sections  $r(t)$  (market returns) on two variables, cash earnings and the estimate of the accrual (or, as a competing alternative, the GAAP accrual). One can then declare a degree of success if both the estimated coefficients achieve statistical significance and they exceed one. Greater than one is essential since it shows that a dollar of cash and a dollar of earnings are at least worth a dollar in the market. An even better result is obtained if additionally the estimated coefficients are (approximately) the same for the two independent variables. Such a finding means that *the two earnings components aggregate without loss of information*, an essential feature of “good” accounting.

One can also consider an accrual construct based on a model that competes with a GAAP-based accrual. In such a regression the related two independent variables, cash earnings and the model accrual, one can hypothesize that the related  $R^2$  exceeds those that are associated with GAAP earnings or a regression with cash earnings plus GAAP accruals on the RHS. If significant, the result points toward the model accrual being more informative than the GAAP accrual. Yet another horse race between a model based accrual construct

<sup>14</sup> From this observation it should be apparent that one cannot practically distinguish the accrual anomaly from the so-called “investment anomaly”. Richardson et al. (2009) discuss the investment and accruals anomalies and their close connection.

<sup>15</sup> The growth-accrual connection makes its presence felt in evaluations of the (Sloan type) accrual anomaly: can it not instead be a growth stock anomaly? See in particular Fairfield et al. (2003) and the review paper by Richardson et al. (2009).

and GAAP accruals puts these two accrual variables combined with cash earnings on the RHS of the regression to explain returns. One then evaluates which of the two competing accruals contributes the most to the  $R^2$ .

Is it likely that model accruals work better than GAAP accruals in regressions explaining returns? It is hard to say, especially since there are more than a few devils in the details, i.e., how to measure the cash earnings and the estimated model accrual. There are also all kinds of specification issues, like the role of expectations and other potential confounding variables. But it certainly would seem to be worth a try to pursue these kinds of research hypotheses.

What about the possibility that the  $R^2$  is disappointing because the stock market happens to be, in fact, inefficient? To handle this problem one can simply add yet another RHS variable to the returns-earnings-accruals regressions, namely, the subsequent period's market return,  $r(t+1)$ . This additional variable will filter out the noise in the contemporaneous returns-earnings regression due to any market inefficiencies as manifest in the predictability of future returns.<sup>16</sup>

## 8. A discussion of methodologies that assess accruals empirically: Without reference to stock prices or returns

Sloan and others consider the problem of how one tests empirically whether (GAAP) accruals appropriately inform investors without referring to stock prices (or returns). He argues that GAAP accruals tendency to reverse requires a separation of accruals and cash flows when one forecasts subsequent earnings. Specifically, because accruals hypothetically have lower persistence than cash flows, in the forecasting equation the accrual should have a lower weight as compared to the weight on cash earnings. The idea exerts a pull in financial analysis since it suggests that accruals can misinform if added to cash earnings. Having said that, one still has to keep in mind that the setting is not as straightforward as one would like because a cross-sectional setting requires a deflation of the variables to adjust for size. Sloan picks total assets as the deflator variable. One can thus think of Sloan's approach as addressing a practical problem that forecasts ROA using two independent variables, current cash earnings deflated by total assets and the current accrual also deflated by total assets. As a drawback, the forecasting of ROA does not seem to be prominent in practice.

Focusing on practical problems, one may consider forecasting the change in firms' (operating) profit margins per GAAP. It is of obvious practical interest since analysts tend to forecast operating earnings via a forecast of sales growth combined with an (operating) profit margin. But this forecasting perspective also addresses the issue of the quality of (current) earnings. If current earnings can be identified as of poor quality, then such an evaluation leads to the forecasting of a decline in the future profit margin. Thus the operating profit margin can serve as a useful dependent variable because it confronts the quality of earnings issue head on yet it is also of practical interest. And now one naturally extends the analysis to check whether competing accruals (like those previously discussed) can aid in the forecasting of the change in the operating profit margin. To be specific, does the difference between a GAAP accrual and a model accrual facilitate the forecast of change in the GAAP profit margin?

## 9. Assessing reversals empirically

The profit margin comprises two parts: the cash margin (cash earnings scaled by sales) and the margin due to the accrual component. This simple observation suggests that one can evaluate whether the accrual component has a negative serial correlation, i.e., it reverses. (One can use a linear model or an  $n$  by  $n$  contingency table to evaluate this empirical hypothesis). This analysis looks reasonable enough, yet it is unsatisfactory in a cross-sectional setting. The reason is that for growing firms one should expect positive accruals to be followed by positive accruals; for non-growth firms low accruals should be followed, on average, by low accruals. This merely amounts to saying that the reversal property in the accrual margin does not fit a cross-sectional mode

<sup>16</sup> If one assumes market efficiency in its weak form – the market returns are serially uncorrelated,  $\text{corr}[r(t+1), r(t)] = 0$  – then  $r(t+1)$  on the RHS in the regression loads if and only if it correlates with the remaining variables (date  $t$ ) on the RHS. Hence the market is not efficient in the so-called semi-strong form since date  $t$  variables correlate with the subsequent returns. The general problem of value relevance and correcting for inefficient markets is extensively discussed by [Aboody et al. \(2002\)](#).

of analysis because there has been no adjustment for trends varying in the cross-section. In other words, looking at accruals over two adjacent years for a large number of firms cannot tell us much about reversals. Statistical power has been lost.

So what can be done if we want to analyze reversals in a cross-sectional setting? Answer: we need a model of what a firm's accrual *ought to be* in any given period. Thus, to implement the statistics, one relies on the observation

$$\{\text{accr}(t) \text{ per GAAP}\}/\text{sales}(t) \text{ minus } \{\text{accr}(t) \text{ per Model}\}/\text{sales}(t)$$

where the “per Model” corresponds to what was discussed in a previous section, namely, in a base case, put  $\text{accr}(t) \text{ per Model} = \text{growth in sales}(t) \cdot \text{oa}(t - 1)$ . In this way of looking at the problem, under the alternative hypothesis the reversal direction of the GAAP accrual can be assessed by looking at the sign of the actual accrual minus the model accrual; pluses are followed by minuses and conversely (on average). Now one has a framework to examine the reversal in a cross-sectional setting, but at the “cost” of having to maintain an assumption on how the “correct” accrual should be measured.<sup>17</sup>

Another, perhaps more direct, approach simply looks at the growth in  $\text{oa}(t)$  per GAAP and uses growth in sales as the benchmark. Thus the unit of observation for purposes of statistics reduces to

$$\{\text{oa}(t) - \text{oa}(t - 1)\}/\text{oa}(t - 1) \text{ minus } \{\text{sales}(t) - \text{sales}(t - 1)\}/\text{sales}(t - 1)$$

A hypothesis of reversals now implies that these observations have a negative serial correlation: negative values tend to be followed by positive values with a probability greater than 50–50. And this test can be applied for any 2 adjacent years in an  $n$  by  $n$  contingency table or, alternatively, as a simple (rank) correlation. This way of looking at reversals takes us back to very traditional FSA: The change in a firm's so called asset – turnover provides an indicator of the quality of earnings.<sup>18</sup> A drawback with this approach is that it may not work well when sales relative to  $\text{oa}$  is large; it could create excess volatility in the growth in  $\text{oa}$  as compared to the growth in sales. And of course, there are issues involved insofar the  $\text{oa}$ -growth should precede the sales growth; an assumption that the two growth measures should move contemporaneously may be too stringent.<sup>19</sup>

Should one conclude predictable, and material, reversals in GAAP's accruals reflect either earnings management (in the spirit of Jones's “discretionary accruals”) or poor accounting standards? As to earnings management, I think not. As to poor accounting standards, I think at most “maybe”. The point that needs to be appreciated is the possibility of non-recurring items (or special items to use a different jargon). These items can of course be present in both accruals and cash earnings (not to mention earnings), but there are good reasons to hypothesize that they are much more pervasive in accruals than cash earnings due to write-offs and restructuring charges. If such is indeed the case, then it makes sense to hypothesize that the non-recurring items have a material impact and possibly compel empirical results in favor of a reversal conclusion. But special items do not necessarily reflect earnings management since they generally are consistent with GAAP. And they reflect “bad” accounting only if one now buys into the prior proposition that GAAP is too lenient when it comes to the use of special items. Stated somewhat differently, if one makes the case that sound accounting should leave ample room for non-recurring items when one accounts for operating activities, then there are reasons to expect that the period's net accrual reverses.

## 10. Some implications for future research

As noted in the introduction, it is outside the scope of this paper to critically evaluate the (essentially empirical) literature on accruals. The task would have been as formidable as tricky insofar that it is all too easy to

<sup>17</sup> More generally, the probability of seeing a negative GAAP-accrual minus model accrual should depend on the extent to which there has been a positive observation not only in the previous period but also in periods prior to the previous one.

<sup>18</sup> Changes in ATO (sales divided by  $\text{oa}$ ) acting as a leading indicator of changes in earnings have been assessed by Fairfield and Yohn (2001). Again, many papers dealing with FSA issues can be thought of equally well as dealing with accrual reversals.

<sup>19</sup> One can ask whether reversals in accruals relate to Basu's concept of (conditional) accounting conservatism. Though the analysis needs to be worked out, it would seem so. The reason is that bad news tends to correlate with write-offs, and write-offs lead to significant negative accruals (on average), which in turn would clear the deck for subsequent positive accruals.

slip into discussions of issues that are relatively minor in the overall scheme of things. It is probably more worthwhile to look toward future research. In this spirit I will state what I view as some of the more significant implications related to previous discussions. I do not claim novelty; no doubt a careful literature review will find papers that come very close to making arguments not all that different to those stated below. My choice of points made depends primarily on the extent I believe they can usefully guide research on accruals without concern given to specific topics.

- In dealing with accruals it makes sense to always use, as a starting point, the framework that recognizes comprehensive earnings and (comprehensive) cash earnings as reconciling with the net accrual. To implement this approach it helps to clarify which particular assets/liabilities have been classified as cash vs. those that are operating. Following that a researcher may well introduce some measure of “cash flows” to distinguish these from cash earnings. Thus a researcher may, for example, concern herself with “cash provided by current operations” (as he/she chooses to define it) and in a complimentary fashion identify the related accruals. This approach should paint a coherent picture; it allows a reader to see more clearly the construct and measurements that motivate the research design. From a broad perspective, the issue at hand is: what should be the generally understood framework when dealing with accruals? If comprehensive earnings and cash earnings are not the core ingredients, then what makes more sense?
- Researchers help readers by making it clear whether they rely on the “apples” and “oranges” metaphor to set the stage for the research question. In other words, is it crucial that the accruals and cash earnings may not add because it would lead to significant loss of information? If this theme is expanded on, like in research settings that bear on value relevance or market inefficiency, a researcher can effectively communicate research objectives or maintained hypotheses. It also helps if the researcher spells out whether the apples & oranges dichotomy depends on a particular context (such as the presence of write-offs or a firm going to the capital market to obtain additional financing) or applies more broadly.
- In case there is a need to deflate/scale accruals or cash earnings, a firm’s sales revenue seems preferable to its total assets. The argument here is that a firm’s (operating) profit margin is of great interest in the financial community. The same cannot be said for ROA. Moreover, the forecasting of the profit margin, and its two components (cash margin and accrual margin), in terms of current accrual diagnostics can become part of quality of earnings research. It also naturally complements growth in sales which plays such a crucial role to understand the cash earnings/accrual mix.
- Research that concerns itself with “bad” accruals, such as “reversals” and “quality of earnings” issues, can help the reader by suggesting how one might measure an accrual so it becomes more informative. That is, this task addresses what effective financial statement analysis should look like as a practical matter. The research can also spell out why, or why not, it makes sense to evaluate competing accruals as to their information content or other properties.
- A researcher helps a reader by stating whether the setting invokes a perspective where the measured accrual corresponds to a measurement of the growth in a firm’s operating activities, and operating activities alone. It is a matter of avoiding confusion since one can reasonably argue that, in fact, there are accruals related to financial activities.
- Finally, given the enormous increase in the literature on accruals and the high likelihood of seeing no abatement in the future, it helps if the researcher spells out his/her concept of an accrual and how it may differ from alternative uses of the term. Nobody has a monopoly on how to use accounting jargon, and thus the need for clarity has escalated as the literature has grown.

## 11. Concluding remarks

Most discussions of accruals tend to have a negative tenor and rarely do they fail to mention the dangers of interpreting accruals as cash equivalents. In an extreme view accruals purportedly act as “noise” due to the arcane/arbitrary historical cost accounting rules inherent in GAAP: as a consequence accruals are best dismissed. Finance texts occasionally still espouse this view, though of course most accountants would argue



otherwise. While academic accountants generally admit that accruals can be misleading, on average accruals provide useful information as indicators of future cash flows and earnings that go beyond the information in current cash earnings. As Sloan and many others have argued, the-numbers-do-not-add qualifier means that financial analysis benefits from splitting earnings into their cash earnings and accrual components. That said, it is well to note that at least in principle one can visualize a third perspective, namely accruals that do not reverse; in other words under such idealized conditions accruals add to cash earnings without loss of information. How to implement such accounting is an open question, though I hope some of the points made in this paper provide a sense of direction about how it may be done. It goes to the heart of accounting when it works at its best: what does it take to ensure that the bottom line need not be split into components? The question would seem to be interesting not only as a matter of accounting theory but also as matter of dealing with quality of earnings issues. To appreciate this third perspective on accruals, one can even consider a fourth possibility which is rarely hypothesized. Under some circumstances one can argue that earnings should be split into its two components because a dollar of an accrual is worth *more* than a dollar of cash earnings.<sup>20</sup> This possibility arises in settings with conservative accounting and growth in expected operating assets.

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<sup>20</sup> Feltham and Ohlson (1995) provide sufficient assumptions.