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ON THE ANALYSIS OF FIRMS' CASH FLOWS

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ON THE ANALYSIS OF FIRMS' CASH FLOWS

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March 2007

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Overview

This paper revisits the whys and hows of cash flows analysis. The analysis maintains a strict common shareholders' perspective with an equity valuation focus. The paper argues that analysts turn to cash flows to evaluate the potential ambiguity inherent in accruals. The GAAP statement of cash flows, however, (i) relies on a too narrow concept of cash and (ii) lacks a clear bottom-line directly comparable to net income per GAAP. To circumvent (i) and (ii), the paper proposes a framework of Modified Cash Accounting (MCA). A MCA statement of cash earnings satisfies a crucial property: It works like a regular income statement yet eschews all accruals. The paper discusses not only how one motivates and develops a MCA statement of cash earnings, but also how it should be put to use. A crucial issue deals with how one compares the two bottom-lines -- GAAP income vs. that of MCA cash earnings -- given alternative growth scenarios. The paper shows how one can estimate a "normal accrual", which can be added to MCA cash earnings, given assumptions about the firm's growth.

I. Introduction

Analysts generally view the income statement as the centerpiece of financial reporting. It supplies the primary data in the forecasting of subsequent periods' earnings. To appreciate the primary data, the analyst must assess the impact of the underlying accounting principles on reported earnings: Not all components of earnings have the same predictive consequences. Of particular concern is the distinction between accruals vs. cash flows. Its mix influences the perceived "quality of earnings".¹ To sort out the effect of accruals vs. cash flows and the quality of earnings, analysts naturally refer to the statement of cash flows.²

When analysts undertake to evaluate GAAP's statement of cash flows, new questions arise. First, it is unclear whether GAAP's narrow concept of cash is relevant. For example, one can construct economically equivalent transactions leading to different treatments in the cash flow statement. Second, the dichotomy between operating and financial activities is arguably too arbitrary. For example, an increase in accounts payable could be viewed in substance as a financing rather than operating activity. Further, GAAP's way of assigning transactions to the three major categories (operating, investing, financing) can be challenged and second-guessed.³ Putting aside these classification problems, equity analysts still face a more basic issue. Unlike the income statement, the GAAP statement of cash flows lacks a bottom-line. While there seems to be a general consensus that "cash from operations" should provide the starting point, it is far from clear what analysts are supposed to do next. Neither text-books nor practice provide much of a guide. In other words, analysts lack access to a roadmap that takes them from the beginning of a cash flows analysis to the end. And the end ought to indeed correspond to a bottom-line, in a spirit no different from the way earnings correspond to a bottom-line for the income statement. With such a cash flow bottom-line one can proceed to assess the quality of earnings and estimate earnings on a recurring basis.

¹ Quality of earnings, as a term, lacks an agreed upon (clean) definition. (Dechow and Schrand, 2004 discuss various aspects of the term). The term is used as follows: Low quality of earnings corresponds to a setting in which, due to the accounting, it is unlikely that the firm can maintain its earnings if one assumes no change in operations. (The definition is basically no different from Dechow and Schrand's on page 5.)

² Analysts are increasingly issuing cash flow forecasts for firms with large accruals, volatile earnings and heterogeneous accounting choices (DeFond and Hung, 2003). A growing number of firms are also voluntarily providing management cash flow forecasts (Wasley and Wu, 2006).

³ Nurnberg (2006) provides an updated comprehensive discussion of problems associated with the GAAP statement of cash flows.

This paper proposes that the analysis and evaluation of cash flows is best done when based on what is referred to as Modified Cash Accounting (MCA). MCA's structural underpinnings rest on a "regular" financial reporting framework. That is, flows and changes in stocks reconcile through equity transactions. The critical attribute of MCA concerns the assets/liabilities recognized. MCA includes only cash and other assets/liabilities judged to approximate cash (or the negative thereof). Hence the word "modified" is shorthand for the idea that there can be assets/liabilities other than cash because these are sufficiently similar to cash. *This balance sheet foundation serves as a means to an end: The preparation of an income statement without accruals.*

MCA depends on which assets/liabilities qualify as approximate cash equivalents. This issue is discussed extensively and tied to GAAP disclosures. Though implementation of MCA starts out by qualifying assets and liabilities (per GAAP), the MCA cash earnings statement depends on other data as well. Some of these may be found in the statements of cash flows and changes in owners' equity. Though MCA is straightforward to implement, we underscore that MCA is not simply a "repackaging" of lines in the GAAP cash flow statement.

The proposed MCA cash earnings statement goes beyond providing a bottom-line, termed comprehensive net earnings on a cash and approximate cash equivalent basis. It also identifies various line items and sub-totals. Consistent with Financial Statement Analysis textbooks (e.g. Penman 2006), the MCA cash earnings statement dichotomizes between operating as opposed to financial activities. A key sub-total identifies earnings due to operations on a cash (and approximate cash equivalent) basis.

A direct comparison of GAAP earnings with MCA cash earnings highlights additional differences. Theoretically, the two bottom-lines should be the same if the firm is in a steady state. As a practical matter, one can think of a steady state occurring if sales and capital expenditures remain roughly unchanged. One can now obtain an assessment of the quality of earnings by looking at the difference in the two bottom-lines. More generally, the paper considers what happens in the case when growth is perceived to have occurred. The paper shows how one can estimate an ("appropriate") accrual due to growth. With this procedure in place, one assesses the quality of earnings by comparing the two bottom-lines after having added the estimated accrual to the MCA bottom-line. Though the methodology raises a number of conceptual and practical issues, the paper offers solutions to these.

II. Why an Evaluation of GAAP Earnings Motivates a Cash Flows Analysis

Analysts need to dissect the (bottom-line) earnings to estimate future earnings. As a first cut, they approach this issue by making an attempt to split net earnings into its recurring and non-recurring parts.⁴ This task meshes with the task of assessing the quality of earnings. Non-recurring expenses, if significant, virtually by their definition tell the analysts that the bottom-line is biased downward.⁵ The question arises: What to do next to adjust for this bias. No ready solution is available. One approach simply disregards the non-recurring items. But the conceptual drawback is obvious: The bias is now in the opposite direction, since, after all, the non-recurring expense ought to have (at least in general) some effect on the current period's income. There are other practical problems in dealing with non-recurring items. For instance, it is not clear which line items should be classified as non-recurring. Some line items, classified as non-recurring under GAAP, may be part of what is normally viewed as recurring items. Further, certain GAAP defined non-recurring items may occur with considerable frequency and should therefore be treated as part of regular expenses.⁶ Analysts clearly face a daunting problem when dealing with the current non-recurring items not only in terms of how they should be identified, but also as to their consequences on assessing the quality of earnings (recurring or the bottom-line).

Any comprehensive analysis of the quality of earnings must also consider past, as opposed to current, non-recurring items. Past non-recurring items have a feed-forward effect on the current income statement. Write-offs illustrate the phenomena; such charges reduce expenses like depreciation and cost of goods sold in the periods that follow. Hence various expense items in the current period may be biased downwards such that the quality of earnings is low. In analyzing the firm's current earnings, analysts have to consider how any such downward bias affects the firm's ability to grow its earnings in the future.

⁴ Analysts are adept at identifying persistent non-recurring items and incorporate them in their measure of street earnings (Gu and Chen, 2004).

⁵ In this paper, the term "non-recurring items" is used in a generic manner that corresponds to special items per Compustat. However for the purposes of this analysis there is no need for a specific definition.

⁶ Elliott and Hanna (1996) note an increasing trend of "recurring non-recurring" write-offs while Moehrle (2002) and Burgstahler et al. (2002) provide evidence of inter-temporal shifting of expenses. Firms may also attempt to improve core earnings and/or meet analyst forecasts by classifying regular expenses such as cost of goods sold and SG&A as special items (McVay, 2006).

The feed-forward effect of the non-recurring items has its most pronounced effect when accruals are involved. If cash is involved, such as the realization of gains on marketable securities, then one can argue that there is less of a problem insofar as the transaction cycle has come to an end. Accruals, like write-offs and (most) restructuring charges, cause more of a problem because they influence future periods no less than the current one. It raises the specter of how to deal with accruals more generally, including more or less deliberate end-of-period “adjustments” implemented by the firm to meet earnings targets (e.g., the accounting for the period’s tax expense).⁷ In a way, such issues can also be viewed as being part of non-recurring components of income, except that now the transparency is low if not non-existent.

An attempt to understand accruals in an income statement starts from the central equation

$$\text{earnings} = \text{cash flows} + (\text{net period}) \text{accrual}$$

One can think of accruals as the plug obtained by deducting cash flows – i.e., a measure of cash earnings – from the GAAP bottom-line (comprehensive) earnings. As the equation suggests, analysts should worry about the mix of the two components and whether the accrual has any bias (either upward or downward).⁸

Evaluating the GAAP statement of cash flows to acquire insights about accrual biases introduces its own problems, none of which have generally agreed-upon solutions. First, GAAP conceptualizes cash in very narrow terms. Cash in a literal sense must have been exchanged for an effect to take place in the statement. The issuance of shares in exchange for another firm’s equity, for example, has no effect on the statement although common sense economics would suggest that such a transaction has both an investing and a financing consequence. Second, there is no agreement on how to classify transactions into the three major categories, namely, (current) operating, investing, and financing. Two well-known controversies pertain to the treatment of (a) interest expense (operating per GAAP) and (b) marketable securities (investing per GAAP). But more subtle questions can also be raised. Why not, for example, treat changes in accounts payable as a financing activity? The same

⁷ Research on earnings management finds accrual manipulation to be the primary tool used by firms to i) show positive profits, ii) avoid earnings decreases and iii) meet or beat analysts’ forecasts (Hayn, 1995; Burgstahler and Dichev, 1997; Degeorge et al., 1999).

⁸ The two components of earnings also have differential predictive implications and this trait is documented as the “accrual anomaly” (Sloan, 1996). Sloan’s study shows that the accrual component of earnings is less persistent than the cash flow component. Subsequent studies find that the accrual anomaly is distinct from the post earnings announcement drift (Hribar and Collins, 2000), analyst forecast revisions (Barth and Hutton, 2004) and the value-glamour anomaly (Desai et al., 2004) and is mainly attributable to discretionary accruals (Xie, 2001). Fairfield et al. (2003) suggest that the low persistence of the accrual component is part of a more general growth related effect while Richardson et al. (2006) attribute the anomaly to temporary accounting distortions.

question applies to accounts receivable if these are of high quality and could be sold for face value just like marketable securities.

The above discussion highlights the underlying issues with the GAAP cash flow statement. Analysts and textbooks generally agree that cash provided by operations serves as a natural starting point. But what to do next introduces considerable ambiguity because there is no guiding principle or concept as to what needs to be accomplished. “Where should the analysis of cash flows begin and end?” is the question that must be answered in addition to the obvious fact that the notion of cash must be operationalized.

This paper argues that the question can be answered if one keeps in mind that a “cash based” income statement can be derived by simply changing the underlying asset/liability recognition principle. And the particulars of how one operationalizes “cash based” is a practical matter. The paper proposes such an approach and refers to it as Modified Cash Accounting because the concept of “cash” is broader than that of GAAP.

III. A Model of Modified Cash Accounting (MCA)

The word “modified” refers to the idea that the MCA model does not define “cash” in a strict, narrow sense. The concept of “cash” is extended to include a variety of assets and liabilities that are treated “as if” they were cash or the negative thereof, e.g., marketable securities, bank borrowings and accounts payable. Later in this section, this practical aspect of defining approximate cash assets/liabilities is discussed.⁹ An integrated framework supports MCA; the three basic statements (balance sheet, cash earnings statement and statement of changes in owners' equity) articulate via the clean surplus relation. The derivation of the bottom-line for the MCA cash earnings statement follows by taking the first difference in the (nets) of the two balance sheets, plus the net dividend (i.e., the dividend net of all capital contributions). Thus one obtains “Comprehensive Earnings on a Cash and Approximate Cash Equivalent Basis”, to use a long and awkward phrase. This bottom-line is referred to as MCA’s (net) comprehensive cash earnings.

The proposed model of MCA provides various line items and subtotals in its cash earnings statement (the balance sheets, being means to an end, do not classify items into groups). Specifically, as will be shown, the MCA cash earnings statement dichotomizes between operating and financial activities.

The remainder of this section describes how to implement the proposed MCA framework. The first part delineates the mechanics which convert basic input into the MCA cash earnings statement: A specific sequence of steps must be followed to derive one line item after another. The second part moves away from the mechanics to discuss the issues related to the basic input, namely, the operational definition of cash and its approximate equivalents as identified from a GAAP balance sheet. These issues are conceptual and judgmental. They address the question: Which line items in a GAAP-based balance sheet can potentially qualify as an approximate cash equivalent or the negative thereof?

The steps required to implement our MCA model are as follows.

1. Identify cash and approximate cash equivalent assets/liabilities to derive the net worth on a cash (and approximate cash equivalent) basis, for the starting and ending balance sheets.
2. Derive Comprehensive Cash Earnings, CCE, by taking the difference in the net worth on a cash basis and then adding the period's dividend distributions net of capital contributions and stock repurchases.

⁹ MCA differs from fair value accounting (FVA) in that the latter, in principal at least, assigns fair values to a potentially broader set of assets (like inventories) and liabilities.

3. Identify net financial revenues/expenses on a cash equivalent basis, net of taxes. These will primarily relate to marketable securities and financial obligations, such as interest revenues/expenses and gains/losses.
4. Derive operating earnings on a cash basis by adding the net financial expense to CCE.
5. Identify all the accounts that reflect transactions with customers. These include sales revenues, accounts receivables, allowance for uncollectibles, and deferred revenues.
6. Derive the top line in the MCA cash earnings statement -- cash and its equivalents received from customers -- by adjusting net revenues per GAAP. This adjustment hinges on whether the accounts receivables are viewed as cash equivalent. If they are, then no adjustment is needed.
7. Derive total sales sustaining expenses (SSE) on a cash basis by deducting cash operating earnings from the top line (cash received from customers).
8. Identify SSE with long term benefits such as capital expenditures (net of dispositions) and acquisitions of companies.
9. Derive the part of SSE that benefits only the current period by deducting those SSE with long term benefits from total SSE.

Table 1 formats the MCA cash earnings statement.

Table 1. MCA Cash Earnings Statement

		Steps
Cash Equivalent Collections From Customers	XXX	5, 6
Sales Sustaining Expenditure – Current Benefits	<XXX>	9
Current Operating Cash Earnings	XXX	
Sales Sustaining Expenditure – Long Term Benefits	<XXX>	7, 8
Operating Cash Earnings	XXX	4
Net Financial Expense	<XXX>	3
Comprehensive Cash Earnings	XXX	1, 2

The MCA cash earnings statement differs from the GAAP statement of cash flows. The concept of “cash” differs since this approach allows for approximate cash equivalents. MCA picks up on “as if cash were involved” transactions like the issuance of shares in exchange for an acquisition, which have no effect on the GAAP cash flow statement. Further, MCA’s notion of operating versus financial activities differs from that of GAAP. MCA, but not GAAP, includes interest (expense or revenue) and gains on marketable securities as financial items. MCA maintains a sharper distinction than GAAP regarding the effects of current versus non-current operating cash (and cash equivalent) flows. Research and Development expenses (R&D), for example, should be part of MCA’s SSE with long term benefits whereas GAAP makes them part of cash provided by operations. But these points are rather technical. On a more basic level, this paper’s approach focuses on deriving a cash earnings statement, with its related bottom-line, *which has eliminated all accruals*. The bottom-line can thus be juxtaposed and compared directly, not only to past MCA statements but, more importantly, to the GAAP bottom-line (comprehensive income) as well. The question “How much of GAAP earnings is due to accruals?” can be given a numeric answer.

Next, the paper analyzes the judgments necessary to implement MCA. The steps above capture the general framework and its broad objective, but, as is always the case for any practical accounting model, there will be more than a few devils in the details. In particular, one must consider the practical meaning of approximate cash equivalents, as well as the distinction between financial line items and the two kinds of operating line items. The accounting for transactions with owners also raises a few issues.

As to the starting point, the balance sheet and its recognized cash and approximate cash equivalents, Table 2 lists the candidates. It is important to note that these are *potential* assets/liabilities, and they may be pruned for MCA purposes because of facts, judgments and practical considerations. Materiality comes into play too; in this regard note that the correct dimension concerns the dollar change over the beginning and ending dates.¹⁰

¹⁰ As a first cut, for purposes of large scale data analysis, it suffices if one recognizes (changes in) cash, marketable securities, accounts receivable (most industries), loans and similar interest bearing debt (including preferred stock) and accounts payable.

Table 2. Potentially Qualifying Assets & Liabilities in the MCA Balance Sheet

Assets	Liabilities
Cash & Other Equivalents (per GAAP)	Loans and Similar Debt
Marketable Securities	Accounts Payable
Accounts Receivable	Current Income Taxes Payable
Financial Receivables	Interest Payable
Equity Method Investments	Bonds Payable
Pension Assets	Leases Payable
	Pension/post retirement Liabilities
	Preferred Stock

On the asset side the first two items are unambiguous, as long as the marketable securities are reasonably liquid and marked to market. These conditions should generally be in place. Note further that marketable securities could be long term as well as short term. The distinction between available-for-sale and other categories of securities owned should not be of any significance either since the focus here is one of cash equivalence. Derivative securities can also be included.

Accounts receivable qualify only if they are judged to be of high quality. This condition should generally be met if the allowance account has a small balance relative to the gross accounts receivable (less than 4%, say). High quality receivables differ little from marketable securities in terms of their economics; both are liquid and can be sold for values closely approximated by their carrying values. Hence they should be treated similarly and qualify as approximate cash equivalents. Low quality receivables, in contrast, lack liquidity due to inherent asymmetric information about their collectibility. Their net carrying value thus depends on a material and inherently ambiguous allowance estimate. The same comment applies to deferred revenues. One should adjust sales revenues if the deferred revenues are estimates of future outcomes rather than in the spirit of a financial obligation.

Financial receivables are conceptually about the same as accounts receivable. The relevant information, again, is a question of the history of collections and the use of allowances.

Equity method investments pose a non-trivial problem unless they can be marked to market in the MCA through use of footnote information found in GAAP disclosures. To the extent the company has disclosed market values, these could be used. Such an approach, however, has the disadvantage of

using potentially unreliable and infrequently disclosed data. Without market values, one can argue that the carrying value cannot be treated as appropriate cash equivalents and it seems more reasonable to disqualify such items. In general, the problem should be mitigated due to immateriality.

Pension assets, if liquid and properly disclosed, naturally qualify. The relevant information, the market value of the securities held in trust, can be found in the related footnotes. There are no compelling reasons that this inclusion/exclusion judgment should depend on the treatment of related pension obligations. For purposes of income measurement, as opposed to assessments regarding what may happen in the case of bankruptcy and reorganization, marketable securities for funding pension obligations are a perfect substitute for regular marketable securities. Hence their balances add to regular marketable securities.

Turning now to liabilities, the interest bearing debt items obviously qualify. This takes care of loans, bonds payable, and leases payable (unless the latter for some reason has dubious accounting). Preferred stock should be included whenever the accounting is from the perspective of common shareholders (which is the case in a context of equity valuation).

Current, but not deferred, income taxes payable can be viewed as a relatively clear-cut liability with few accounting problems. It is a “hard” liability that must be paid in the near future since it pertains to taxes actually owed to various governmental jurisdictions. Disclosures often seem to be less than satisfactory for this item, but that is a different matter (10-Qs seem to be particularly problematic).

Accounts payable should be straightforward and involve few estimation issues. A possible exception occurs when the payable has to net out material estimates or product-returns to suppliers.

Interest payable obviously qualifies. Such items are rarely material, however.

Pension obligations, and similar compensation related benefits, require some tricky judgments not easily resolved. One argument is simply to dismiss them because the underlying estimation procedures are inherently too subjective and arbitrary; the accounting for projected benefit obligation has a somewhat less than stellar reputation. On the other hand, one may argue that such is not the case for the accumulated benefit obligation, which is available in the footnotes at least on an annual basis.

Having completed the discussion about practical balance sheet issues, the cash earnings statement comes next. Cash earnings must be sliced into its components. (Comprehensive) net cash earnings is taken as a given, by steps 1 and 2, and two SSE items, 7 and 9, derive as “plugs”. Hence one needs to discuss the financial expense, the top line sales, and the operating expenditures with long term benefits.

Starting with the net financial expense, this item includes interest revenues (and dividends) and expenses related to the recognized underlying assets/liabilities, i.e., marketable securities and interest bearing debt. These pose no conceptual problems. The same can be said for the realized and unrealized gains/losses related to the underlying securities. Further note that the occurrence and magnitude of these gains/losses have no effect on the cash earnings due to operations. Hence the fact that bonds payable have not been marked to market does not affect the operating earnings; an “error” in the bottom-line is offset by an identical “error” in the financial item.

So far the financial items have been straightforward. The income items, all effectively cash equivalent, pose no problems for marketable securities and borrowings. But one may also consider the possibility of imputing an interest expense related to recognized obligations such as accounts payable or pension liabilities (assuming they are recognized). Such thinking is standard in economics in that all borrowings (and even cash) build in an implicit interest. This captures the broad spirit of MCA: One can think of all recognized assets/liabilities as defining the financial assets /liabilities.

The financial item, whether positive or negative, should be shown net of taxes to clearly distinguish between operating and financial activities. Given current tax laws, which give few breaks on “regular” financial activities, it seems sensible to apply the statutory rate to financial activities. It is important that one keeps in mind that MCA is a way of measuring cash earnings given certain asset/liability recognition rules. There is no requirement per se that the line items in the cash earnings statement must describe the cash flows in a narrow and precise sense.

To determine the top line, cash (and its approximate equivalents) received from customers, the GAAP total sales revenue provides the starting point. Thereafter one adds any increase in deferred revenues. Whether one deducts the increase in the accounts receivable (net of allowances) depends on the status of the accounts receivable in the MCA balance sheet: If accounts receivable do *not* qualify as a MCA asset, then, and only then, must the increase in accounts receivable be deducted from sales revenues (per GAAP). Other measurement problems would seem to be rare in the context of the MCA top line. A possible complication occurs if estimates of return of products affect GAAP revenues.

Given that cash operating earnings and the top line have been determined, what is referred to as total sales sustaining expenditures, SSE, falls into place as a plug. The terminology reflects that a firm’s operating expenditures exist for the purpose of generating sales for both current and future periods. Some of these expenditures can even be due to sales made in the past. Thus SSE ends up as an amalgam of all sorts of expenditures that can be vastly different. It includes diverse items such as the final payment on an operating lease that has expired, acquisition of a subsidiary, purchases of

inventories, legal fees, payments to employees in a restructuring situation, environmental cleanups, etc. There can also be inflows of cash (or its approximate equivalents) due to transactions other than those related to customers. Sale of property provides the most common example. These inflows are of course netted against the outflows to derive the total SSE.

Because a rich variety of transactions fall into SSE, it tells us nothing about the proportion that belongs to SG&A, or any other specific category encountered in a GAAP based income statement. Nonetheless, SSE is of interest because it is a crucial element of a firm's periodic performance which has now been measured uncontaminated by the ambiguities inherent in the use of accruals for cost of goods sold, depreciation, impairments, etc. The trade-off in terms of useful information in a GAAP income statement vs. an MCA cash earnings statement becomes apparent. The accrual approach permits a much richer set of interpretations as to what has occurred, but only at the cost of depending on inherently ambiguous numbers. MCA rests on "harder" data and facts -- as opposed to conjectures -- but much of the potentially useful information inherent in accruals, has been left out in the MCA framework.

To enhance the usefulness of the MCA cash earnings statement, it helps if one identifies those SSE with "long term benefits" and then let the remainder represent those SSE with "current" benefits. (The elaborate term "SSE with current and past benefits" is perhaps more descriptive). In this spirit one measures SSE with long term benefits by adding up (i) capital expenditures net of dispositions, (ii) acquisitions of firms, (iii) R&D and (iv) advertising & brand maintenance expenditures. Such numbers are readily extracted from firms' financial reports.

Because the step 2 computation relies on a measurement of dividends net of capital contributions, the paper next makes a few comments about the statement of changes in owners' equity. In general, MCA conforms to that of GAAP as long as the transactions only involve cash dividends, treasury stock transactions and the issuance of shares. An exception occurs for changes in minority interest which should not be included because the MCA accounting focus is from the viewpoint of common shareholders. Also, any preferred stock dividends and changes in the balance of preferred stock are part of financing activities, not equity. A more subtle issue emerges because MCA requires that approximate cash equivalent estimates be used for equity transactions. This measurement attribute rules out "pooling of interest" accounting for acquisitions, which is no longer permitted in the United States. The issue of accounting for compensation related stock options, however, cannot be avoided. In the MCA framework, stock options should be accounted for using exercise-date accounting, in which case the capital contribution is measured by the market value of shares issued at the exercise date (net

of a tax-effect, similar to GAAP). In other words, this part of the MCA accounting picks up on how the tax law accounting works for options. From this perspective it is indeed straightforward. Table 3 summarizes the schedule that must be implemented for this MCA accounting.

Table 3. Statement of Changes in Cash Equivalent Stockholders' Equity

Δ Cash equivalent assets	XXX	
Δ Cash equivalent liabilities	<XXX>	
Δ Common stockholders' equity		XXX
Cash dividend	XXX	
Stock issuances for cash or other assets	<XXX>	
Treasury stock purchases	XXX	
Treasury stock reissues	<XXX>	
Employee stock option exercises (net of tax benefits)	<XXX>	
Comprehensive Cash Earnings		<u>XXX</u>

IV. The MCA Cash Earnings Statement and Quality of Earnings Analysis

This section looks at the uses of the MCA cash earnings statement. The statement can be viewed as a complement to better understand the GAAP income statement. Possibilities to do so are innumerable if one includes all sorts of contextual information, inside and outside the financial reports (such as management turmoil or a recent history of SEC investigations). The discussion is confined to make general points that are helpful in the assessment of any firm's performance. These bear on the quality of earnings. The idea is that a firm's reported earnings can be misleadingly high (or low) because the periodic total (net) accrual is excessive (or deficiently low). The words "misleading" and "excessive", as used here, indicate that the firm's current earnings are unlikely to be sustainable if the underlying operating economics of the firm remains roughly the same. Distortions may be intentional and might even violate GAAP, or they may be inadvertent and due to the arcane nature of implementing GAAP. As a first cut of financial analysis, this motivational aspect is of no significance when one tries to assess a firm's quality of earnings.

The concept of quality of earnings is best appreciated if one initially considers a steady state setting. Without loss of generality, it also helps if one disregards the financial items so that the bottom-line (GAAP or MCA) is solely due to operations. Steady state means no growth and the firm's economics remain unchanged from one period to the next. Under such stylized conditions, it is well-known that cash accounting works at least as well as accrual accounting. Cash accounting and accrual accounting will result in the same, inter-temporally unchanging, net income. That said, it should be noted that the claim is valid for accrual accounting *only if* the accounting principles are applied consistently over time. (One can think of lack of consistency as being due, to say, an occasional arbitrary impairment charge and subsequent reduction of regular expenses). It follows that cash accounting works better than accrual accounting if the latter allows for some discretion in its implementation, leading to inconsistencies across periods. The average accrual will be zero, but in some periods the accrual will be positive (negative), while in others reversals must take place and the accrual will then be negative (positive). Positive accruals thus correspond to low quality earnings given the underlying assumption of the firm being in a steady state.¹¹

¹¹ This observation about a firm's steady state can be viewed as an application of the "cancelling error" concept pertaining to two consecutive balance sheets. That is, given a steady state one can reasonably hypothesize that the "true missing values" in the two balance sheets are roughly the same and, thus, to a corresponding degree there will be no impact on the measurement of earnings.

Firms cannot exist in a steady state because of uncertainties in the economic environment. But the concept can be exploited as a practical matter if it is invoked cautiously as an approximation. The question arises under what circumstances the no growth approximation is practical. It goes without saying that judgments will be involved. As a first cut, the top line supplies a useful indication, i.e., no growth in sales revenues suggests an approximate steady state setting. One may also check that the net capital expenditures have not changed (much) either. Lack of growth in both variables would seem to be reasonably sufficient conditions for a steady state. With these conditions in place, one should then expect the net accrual to be zero *as a practical matter*. That is, if the GAAP bottom-line exceeds that of MCA then one might infer poor quality earnings. It raises the possibility that there will be a reversal in the accrual in subsequent periods. This “red flag” can then direct analysts to check if there is some more concrete explanation for the difference, such as a history of past write-offs or a change in the firm’s operations. While this approach to the quality of earnings problem is based on an approximate steady state judgment, with all its inherent subjectivity, it has the advantage of being not only easy to apply but relatively easy to justify. Analysts can thereby make a cogent case as to how they arrived at their “quality of earnings” conclusion.

How does one modify the analysis if the firm has experienced growth? To answer this more general question in terms of concepts, the paper initially assumes that the growth rate is a “known” constant. In that case it makes sense that “good” accounting ought to result in a positive (net) accrual for the period. The other side of the coin is that growth represents an increment in those assets/liabilities that did *not* qualify as assets/liabilities in the MCA. These are referred to as net operating assets or by the acronym NOA. For the time being, assume we know what this quantity should be at the beginning of the period. It follows that¹²

$$\text{Net accrual}_t = \text{growth rate}_t \times \text{NOA}_{t-1}$$

Now one can derive the “ideal” measure of earnings using the equation

$$\text{Net earnings on an accrual basis}_t = \text{net accrual}_t + \text{cash earnings per MCA}_t.$$

A practical application of the above two-stage approach requires a specification of “growth rate_t” and “NOA_{t-1}”. How to do this requires some judgments.

¹² Two fundamental principles of value, when combined, imply the imputed accrual concept: Accrual = growth x value. First, the present value of cash flows determines value. Second, the capitalization of a perfect measure of earnings also determines value. The formal argument runs as follows. Let g, c, V, acc, r denote, respectively, growth, cash flows, value, accrual, and a discount factor. The first principle implies $V = c/(r-g)$. The second implies $V = (acc+c)/r$, where acc+c defines perfect earnings. Combining these two expressions leads to $acc = gxV$. Note that in this context, V and r are notional accounting constructs as opposed to market related quantities.

The first quantity, growth rate, can be estimated using either growth in sales, or growth in (net) capital expenditures, or perhaps some (subjective) combination thereof. As to NOA_{t-1} , we note first that

$$\text{Book value}_{t-1} = NOA_{t-1} + \text{net financial assets}_{t-1}$$

where the second term on the right hand side is defined by the net of MCA recognized assets/liabilities. Thus, if for Book value_{t-1} one uses the GAAP book value (or common shareholders' equity) then one obtains NOA_{t-1} as the residual in the equation.¹³ The above strategy puts all the pieces together as a practical matter. By comparing the GAAP (comprehensive) net income to the implemented measure of "Net earnings on an accrual basis" one obtains a diagnostic of the quality of earnings.¹⁴

In addition to assessing a firm's quality of GAAP earnings, one can also attempt to estimate a firm's recurring earnings using the MCA cash earnings statement as the main source of data. Changing the objective of the analysis does affect the need for an adjustment due to growth in sales or growth more generally. The discussion in the previous paragraph is as valid as ever. But the focus on estimating recurring earnings from the MCA cash earnings statement raises an additional problem: Just like the GAAP statement line items, some of the MCA line items can include non-recurring items. A litigation settlement is one example; cash inflow due to property dispositions is another. However, non-recurring items in the MCA cash earnings statement should be nowhere near as material as non-recurring items in the GAAP income statement. Non-recurring accruals are pervasive in GAAP. Discontinued operations, restructuring charges, inventory write-downs, goodwill and other impairments, pension adjustments, etc. illustrate such non-recurring (operating) accruals. The case for MCA becomes even stronger if one considers non-recurring financial items. Financial non-recurring items in MCA can generally be estimated without much difficulty. A simple and direct approach can estimate the recurring part by applying some average normal income/expense rate to the net financial asset/liability. In sum, one can estimate recurring earnings by adding three numbers: Operating cash earnings, plus an accrual due to (sales and capital expenditures) growth, plus an estimate for recurring

¹³ Starting from MCA, Ohlson (2006) develops a full-fledged accounting model which includes accruals and satisfies clean surplus. The basic idea is that SSE with long term benefits can be (i) capitalized each period and (ii) also for each period, a certain amount is passed on into the income statement as a period expense (which of course can differ from the debit to the account). The credit to the account is obtained via a rule that matches an appropriate expense to sales. The scheme exploits concepts inherent in inventory accounting.

¹⁴ The construct of earnings defined by MCA's bottom-line plus the estimate for the accrual can be evaluated, as a practical matter, for its value relevance. That is, one can evaluate the usual kinds of (cross-sectional) regressions, returns on earnings. One can also split the earnings variable into its two components to check under what circumstances the two regressors end up with the same coefficients. If they do end up being the same, then it can be said that they add without loss of information. Such an outcome argues for a claim that the measurement of earnings, in particular the accrual, satisfies a desirable property.

financial items. The resulting bottom-line potentially provides a better indication of a firm's ability to create wealth for the common shareholder as compared to the GAAP income statement, especially if there has been a history of non-recurring items.

Capital expenditures and other similar transactions deemed to have long term benefits (LTB) impact negatively on the current period's cash earnings. This inherent consequence of MCA suggests a danger of using such a statement to estimate earnings on a recurring basis. Cash earnings may look high simply because the capital expenditures (and other LTB expenditures) have been relatively small. To assess whether such a hypothesis makes sense in a particular case analysts can compare SSE-LTB in the current period with those of prior periods. SSE-LTB can also be normalized by the top line and then compared across periods to inform on whether the current SSE-LTB has aided or depressed the bottom-line. Another angle to the same problem works with the assumption that the accrual in question -- depreciation expense -- is more informative than the capital expenditure. All of these modes of analysis should allow analysts to make some reasonable adjustments to SSE-LTB to better estimate earnings on a recurring basis. The difficulties and complex judgments involved are not obviously worse than relying on GAAP earnings after having stripped out those line items judged to be non-recurring.

V. The GAAP Statement of Cash Flows and the MCA Cash Earnings Statement

It goes almost without saying that one can start from the GAAP based cash flow statement to estimate the bottom-line of the MCA cash earnings statement. Reconciliation along these lines is not difficult for anyone who knows his/her GAAP accounting. If one makes sufficiently simple assumptions about the firm's transactions and the MCA-qualifying asset/liabilities, then the two approaches to the bottom-line yield identical results. As a practical matter, however, differences arise for a number of reasons. These should not be dismissed as generally immaterial. Consider possibilities such as acquisitions financed by issuing shares, financial leases, the conversion of bonds and preferred stocks, and unrealized gains/losses on marketable securities. Transactions like these affect the MCA cash earnings statement, yet they leave no trace in the GAAP cash flow statement because of GAAP's narrow definition of a cash flow. The word "modified" in MCA can indeed be consequential.

The above observation may seem relatively minor. One can still start with the GAAP statement of cash flows since it can be modified as needed. But this re-configured cash flows approach misses the key aspect of MCA. MCA starts from the balance sheet to set the stage for a derivation of its cash earnings statement. Everything hinges on the operational definition of "approximate cash and cash equivalents", and this aspect of the problem requires judgments that may depend on the firm's specific circumstances. Stated somewhat differently, the practical construct of an "accrual" is not preordained. Thus the analysis benefits from asking the right question as early as possible: Which assets/liabilities do not depend on relatively subjective implementation of accounting principles? Using the GAAP statement of cash flows as a starting point does not facilitate the analysis insofar that the question requires an answer. And there are no apparent reasons suggesting the mechanics of MCA is any more difficult or time consuming than the mechanics that start from the GAAP cash flow statement.

Analysts often need to communicate how they justify their stock recommendations. Schedules prepared by analysts demand straightforward explanations of their purpose and their underlying assumptions. An MCA cash earnings statement meets both of these requirements better than an analysis based on the GAAP statement of cash flows.

VI. Concluding Remarks

This paper has developed the proposed MCA from the perspective of someone who wants to apply it using actual financial reports. Depending on the degree of detail and accuracy desired, this can generally be done fairly quickly. Hence analysts have an additional tool available to better understand the effects of non-recurring items and, more broadly, the effects of accruals on a firm's reported measures of earnings. This can be helpful in an equity valuation context as a practical matter. That said, the analysis raises a question that bears on a decision accounting regulators seem to face every decade or so: Given that users of financial statements demand a statement that describes a firm's cash flows, how can such a statement best be structured? The answer to such a question depends, of course, on why such a statement fills a need. If, in fact, the demand for the statement reflects users' queasiness with accruals and the difficulty in estimating a firm's recurring earnings, especially on an operating basis, then it follows logically that the statement should be organized and conceptualized like any income statement. Analysts can then assess immediately what a firm's performance looks like when all accruals have been eliminated. Such a statement has the virtue of being easy to understand and it brings directly to bear on how the GAAP income statement may be biased due to accruals.

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