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## **Chapter 4 Accruals and Earnings Quality**

### **4.1 Introduction**

In this chapter, I discuss the role of accruals for the determination of earnings quality. As discussed in chapters 2 and 3, accruals are used to give a better view of the performance of a company. The primary product of financial reporting is net income or earnings as a measure of performance, where earnings are the summary measure of firm performance produced under the accrual basis of accounting. However, accruals can also introduce a transitory element in earnings that reduces the use of earnings for the evaluation of future performance. As a result, accruals can affect the quality of earnings. In this chapter, I first discuss how the time-series properties of earnings can be used as a measure of earnings quality. Then, I discuss empirical evidence of the effect of accrual on one specific time-series property of earnings, the persistence of earnings.

### **4.2 Measuring Earnings Quality**

The purpose of financial reporting is to provide information that is useful for business decisions (Schipper and Vincent, 2003).<sup>18</sup> Given the focus on decision usefulness, the quality of financial reporting is of interest of those who use financial reports for contracting purposes and for investment decision making. A major interest in financial reporting is the earnings quality, which is part of the overall financial reporting quality.

There are several constructs that attempt to reflect earnings quality in accounting research.<sup>19</sup> One construct typically used in financial accounting research to examine earnings quality is related to the time series properties of earnings (e.g. Sloan 1996).<sup>20</sup> Lipe (1990) considers the autocorrelation in earnings to be the persistence in earnings: regardless of the

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<sup>18</sup> The Financial Accounting Standards Board's (FASB) Conceptual Framework states that the purpose of financial reporting is to provide information that is useful for business decisions (Concepts Statement No.1, FASB 1978, par. 34 and following), and considers decision usefulness the overriding criterion for judging accounting choices (Concepts Statements No.2, FASB, 1980, par. 30 and 32). Schipper and Vincent (2003) conclude that: "Decision usefulness thus presumably captures the intent of financial reporting standards (p. 97)".

<sup>19</sup> Schipper and Vincent (2003) distinguish two types of earnings quality constructs. First, there are earnings quality constructs that depend on both accounting treatment and underlying events and transactions, such as the persistence of earnings. Second, there are earnings quality constructs that depend primarily or entirely on accounting treatments, such as smoothing and abnormal or discretionary accruals.

<sup>20</sup> Other constructs that aim to reflect earnings quality are selected qualitative characteristics in the FASB's Conceptual Framework, the relations among income, cash and accruals, and implementation decisions (Schipper and Vincent, 2003).

magnitude and sign of an earnings innovation,<sup>21</sup> persistence captures the extent to which the current period innovation becomes a permanent part of the earnings series.<sup>22</sup>

Persistent earnings are often referred to as sustainable or core earnings, where sustainable earnings are considered high quality earnings. Penman and Zhang (2002, p. 238) for instance define earnings quality:

*“to mean that reported earnings, before extraordinary items that are readily identified on the income statement, is of good quality if it is a good indicator of future earnings. Thus we consider high-quality earnings to be “sustainable earnings” (..) Correspondingly, when an accounting treatment produces unsustainable earnings, we deem those unsustainable earnings to be of poor quality.”*

Persistent earnings are associated with larger investor responses to reported earnings.<sup>23</sup> This larger response is attributed to a larger valuation multiple attached to persistent earnings.<sup>24</sup> A higher persistent earnings number is viewed by investors as sustainable, that is more permanent and less transitory, so a given realization from a persistent earnings series is a readily usable shortcut to valuation, for instance by a price-to-earnings multiple (Schipper and Vincent, 2003).

It is commonly suggested in the accounting-finance literature that the time series behavior of earnings are well approximated by a "random walk" model, that is, changes in earnings cannot be predicted.<sup>25</sup> Freeman et al. (1982) is one of the first studies that examined and disputed this notion.<sup>26</sup> Freeman et al. (1982) note that the existence of vast differences in price/earnings ratios (P/E ratios) across firms at any given point in time suggest that future earnings are priced differently, i.e. investors indeed have different expectations for future earnings for different companies. Similarly, the P/E ratio of any given firm typically has substantial time-series variability. This suggests that if future expected earnings are of importance in security valuation, then firms with high P/E ratios would be expected to have relatively high

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<sup>21</sup> An earnings innovation is the deviation of the reported earnings from expected earnings, i.e. unexpected earnings.

<sup>22</sup> Other time-series constructs associated with earnings quality are the variability and predictability of earnings. See Schipper and Vincent (2003) for a discussion of these constructs.

<sup>23</sup> Earnings persistence is a value relevant characteristic of earnings as made explicit in the Ohlson (1995) valuation model (Barth and Hutton, 2004).

<sup>24</sup> Easton and Zmijewski (1989) call the slope coefficient in a regression of stock returns on the change and/or levels of earnings the Earnings Response Coefficient (ERC). The ERC reflects the dollar response on the stock price of 1 dollar of unexpected earnings, this reflecting the multiple investors assign to (unexpected) earnings.

<sup>25</sup> A random walk is highly persistent, opposed to a mean reverting series, which has no persistence.

<sup>26</sup> Studies before this paper include Beaver and Morse (1978) and Beaver, Lambert and Morse (1980).

expected increases in earnings compared to those firms with relatively low P/E ratios. The argument is consistent with existing empirical evidence. Beaver and Morse (1978) for instance showed that year-end P/E ratios are positively correlated with subsequent years' growth in earnings.

Freeman et al (1983) show that current book rate-of-return provides a basis for predicting future earnings changes. A relatively low rate-of-return implies that earnings are "temporarily depressed"; similarly, a high rate-of- return implies that earnings are "unusually good". The evidence thus suggests that, while the "random walk hypothesis" is quite robust with respect to past earnings, more successful predictions can be made by expanding the conditioning information set to include book value of net assets. Based on this information set, earnings are considered to be predictable.

Ou and Penman (1989) expand this analysis by showing that not only return-on-assets determines future earnings. Rather, a large set of financial statement items determine future earnings. They outline a method of financial statement analysis that extracts a summary value measure from financial statements. Specifically, they identify those financial statement attributes that are correlated with future payoffs and combine these into one 'positive-value' measure. This measure is an assessment of the relative ability of firms to generate earnings in the subsequent year. The measure is an indicator of the direction of future earnings. Their results indicate that the summary measure robustly predicts future stock returns. This suggests that future earnings can be predicted by analyzing financial statements.

### **4.3 Earnings Persistence**

In his seminal paper, Sloan (1996) follows up on Ou and Penman (1989) in examining financial statements for the determination of future earnings. Sloan (1996) examines the role of cash flows and accruals in the time-series behavior of earnings. He shows that the accrual portion of earnings is less persistent than the cash portion of earnings, leading to lower profitability in the subsequent period when the accrual reverses.<sup>27</sup> Persistence of earnings is measured as the persistence of profitability (i.e. ROA), since the metric used for measuring earnings persistence is earnings deflated by some measure of asset, for instance average total assets.

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<sup>27</sup> This has been interpreted as indicative of higher levels of accruals relative to cash flows foreshadowing a subsequent earnings reversal and thus signalling earnings management, or at least lower quality of earnings (FWY03b). For instance, Thomas and Zhang (2002) show that demand shift and earnings management cause the earnings reversal.

Sloan (1996) looks at the information contained in the cash flow component and the accruals component of earnings. Furthermore, he also examines whether the investors' expectations of future earnings, i.e. stock prices, reflect this information.<sup>28</sup> The results indicate that earnings performance attributable to the accrual component of earnings exhibits lower persistence than earnings performance attributable to the cash flow component of earnings. The common theme underlying this reasoning is that the accrual and cash flow components of current earnings have different implications for the assessment of future earnings. While both components contribute to current earnings, current earnings performance is less likely to persist if it is attributable primarily to the accrual component of earnings as opposed to the cash flow component. This is because accruals are less likely to recur in future periods' earnings. For example, high earnings performance that is attributable to the cash flow component of earnings is more likely to persist than high earnings performance that is attributable to the accrual component of earnings. Sloan (1996) actually shows that the persistence of current earnings performance is decreasing in the magnitude of the accrual component of earnings and increasing in the magnitude of the cash flow component of earnings.<sup>29</sup>

Sloan (1996) documents differential persistence in the components of current profitability for explaining future profitability. He shows that operating accruals are less persistent than operating cash flows for one-year-ahead earnings performance.<sup>30</sup> More recent research extends this finding to total accruals, suggesting that profitability attributable to either operating or non-operating accruals is less sustainable in the subsequent period than is profitability attributable to operating cash flows (Barth et al., 2001; Collins and Hribar, 2000; Xie, 2001).

Xie (2001) extends Sloan (1996) by suggesting that the lack of persistence, or one-year-ahead implications, and the overpricing of accruals are due to abnormal accruals. He concludes that the market fails to anticipate the future reversal of accruals that are the result of managerial

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<sup>28</sup> Research by Dechow et al. (2005) and Kraft et al. (2005) question the earnings fixation hypothesis. Dechow et al. (2005) show that the higher persistence of the cash component of earnings is attributable to net cash distributions to equity holders, and that investors correctly anticipate the lower persistence of the remaining cash component of earnings, contradicting Sloan's hypotheses that investors naively fixate on earnings. Kraft et al. (2005) argue that a selection bias causes the results. However, Lev and Nissim (2006) argue that the accrual anomaly continues to exist and appears to have become even more pervasive.

<sup>29</sup> Subsequent research (e.g. FWY, 2003b, Francis and Smith, 2005) shows that it is important to have a good understanding of how the various measures of accounting information are defined in accounting research, because using different measures lead to different inferences regarding the persistence of earnings.

<sup>30</sup> Ali (1994) shows that this relation might be non-linear. Using a different methodology than Sloan (1991), he shows that persistence of earnings, accruals and cash flows declines as the absolute value of changes in these numbers increases.

discretion. Xie (2001) thus provides evidence that the differential persistence of accruals and the subsequent mispricing is caused by earnings management.

Thomas and Zhang (2002) find that the negative relation between accruals and future abnormal returns documented by Sloan (1996) is due mainly to one specific accrual, namely inventory. They find that inventory changes represent the one component that exhibits a consistent and substantial relation with future returns. Finding this result for inventory changes is interesting, because in many instances, such as inventory acquisitions, there is no direct link between this accrual component and earnings (Thomas and Zhang, 2002, p.163). They suggest that earnings management is the cause of their results.

Beneish and Vargus (2002) provide further evidence on the effect of managerial discretion on the persistence of earnings by examining insider trading by the top executives of a firm. Beneish and Vargus (2002) propose that their trading is informative *ex ante* about their firm's earnings quality, since a firm's top executives likely possess private information regarding the underlying economic factors associated with the nature and persistence of accounting accruals. These managers make strategic operating decisions and will most likely possess private information regarding economic factors underlying the likelihood that accounting accruals will result in future earnings.<sup>31</sup>

If managers expect higher reported earnings to persist and lead to higher future stock prices, then they have incentives to purchase their firm's stock. Alternatively, if the income-increasing accruals arise because managers manipulate earnings to hide deteriorating firm performance, one can expect managers to act on their knowledge that the accruals are unlikely to persist and sell their firm's stock.

Test of earnings persistence reveal that income-increasing accruals are significantly more persistent for firms with abnormal insider buying and significantly less persistent for firms with abnormal insider selling, relative to firms for which there is no abnormal insider trading. In contrast, insider trading provides little indication of the persistence of income-decreasing accruals.<sup>32</sup>

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<sup>31</sup> For instance, an increase in accounts receivables causes an increase in earnings. Beneish and Vargus (2002) note that an increase in receivables could mean that sales are increasing and could point to solid future sales growth. On the other hand, increasing receivables could be the result of actions, such as relaxing credit checks or granting easier credit terms, taken to avoid reporting lower sales growth. Managers have the best information on which of these two scenarios are the cause of the increase in the accounts receivable accrual. It is therefore expected that managers have private information about the likelihood that income-increasing accruals will result in higher future earnings, and the likelihood that income-decreasing accruals will result in lower future earnings.

<sup>32</sup> Beneish and Vargus also show that the accrual mispricing phenomenon is primarily due to the mispricing of income-increasing accruals. It seems that investors price all income-increasing accruals as though they

The lower persistence of certain income-increasing accruals can be caused by either changes in the firm's economic environment that render accruals less informative about one-year-ahead earnings, or managers engaging in opportunistic earnings management. As Beneish and Vargus (2002) note, it is difficult to distinguish between these two possibilities. However, accruals that increase income in firms that have abnormal insider trading are most overpriced by the market, suggesting that managers of those firms have a better view on the reliability of those accruals than investors, suggesting some form of management discretion. Indeed, Beneish and Vargus show that firms with income-increasing accruals accompanied by abnormal insider selling have abnormal accruals suggestive of upward earnings management, a higher propensity to make income-increasing accounting choices, and a higher propensity to report profits and year-to-year increases in earnings. The evidence suggests that the lower persistence of income-increasing accruals accompanied by abnormal insider selling is at least partly attributable to opportunistic earnings management.

However, the lack of persistence of accruals does not necessarily have to be caused by earnings management. Dechow and Dichev (2002) (hereafter DD) show that it can also be caused by errors in estimation the accruals. DD look at the quality of earnings from the standpoint of the quality of accruals and the role of the estimation error. This paper suggests a new measure of one aspect of the quality of working capital accruals and earnings. One role of accruals is to shift or adjust the recognition of cash flows over time so that the adjusted numbers (earnings) better measure firm performance. However, accruals require assumptions and estimates of future cash flows. For example, recording a receivable accelerates the recognition of a future cash flow in earnings, and matches the timing of the accounting recognition with the timing of the economic benefits from the sale. However, accruals are frequently based on assumptions and estimates that, if wrong, must be corrected in future accruals and earnings. If the net proceeds from the receivable are less than the original estimate, then the subsequent entry records both the cash collected and the correction of the estimation error.

DD argue that estimation errors and their subsequent corrections are noise that reduces the beneficial role of accruals. Therefore, the quality of accruals and earnings is decreasing in the magnitude of accrual estimation errors. Their empirical measure of accrual quality is the extent to which working capital accruals map into operating cash flow realizations, where a poor match signifies low accrual quality. They derive an empirical measure of accrual quality as the residuals

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are of high quality. Investors fail to incorporate the information in insiders trading, because income-increasing accruals appear to be overpriced when managers engage in abnormal selling and rationally priced when managers engage in abnormal buying.

from firm-specific regressions of changes in working capital on past, present, and future operating cash flows. They also document that observable firm characteristics can be used as instruments for accrual quality (e.g., volatility of accruals and volatility of earnings).

Studies like Xie (2001) use models of “discretionary accruals” to investigate the manipulation of accruals to achieve earnings management goals. Studies that employ discretionary accruals models focus on the opportunistic use of accruals to window-dress and mislead users of financial statements. This stream of research suggests that managerial intent affects the incidence and magnitude of accrual estimation errors.

In contrast, DD argue that even in the absence of intentional earnings management, accrual quality will be systematically related to firm and industry characteristics.<sup>33</sup> This distinction is important because such characteristics are likely to be both observable and recurring (e.g., the volatility of operations is systematically related to the propensity to make estimation errors) as compared to the determinants of managerial opportunism that are often unobservable and/or sporadic (e.g., before stock offerings). They do not attempt to disentangle “intentional” estimation errors from unintentional errors because both imply low-quality accruals and earnings.

DD focus on working capital accruals and operating cash flows for tractability: the initiation and reversal of these accruals occurs within a year. The measure of accrual estimation errors is the residuals from firm-specific regressions of changes in working capital on last year, present, and one-year-ahead cash flows from operations. These residuals are unrelated to cash flow realizations, and include the estimation errors and their reversals. The standard deviation of these residuals is the firm-specific measure of quality of accruals and earnings, where a higher standard deviation signifies lower quality.

They illustrate the usefulness of their analysis in two ways. First, they explore the relation between their measure of accrual quality and firm characteristics. They find that accrual quality is negatively related to the absolute magnitude of accruals, the length of the operating cycle, loss incidence, and the standard deviation of sales, cash flows, accruals, and earnings, and positively related to firm size. Their results suggest that these observable firm characteristics can be used as instruments for accrual quality.

Second, they illustrate the usefulness of their analysis by exploring the relation between their measure of accrual quality and earnings persistence. Firms with low accrual quality have more accruals that are unrelated to cash flow realizations, and so have more noise and less

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<sup>33</sup> This line of reasoning is similar to Schipper and Vincent’s (2003) assessment that there are earnings quality constructs that depend on both accounting treatment and underlying events and transactions, where “the economics of some business models significantly reduce the predictive ability of earnings (p. 99).



persistence in their earnings. They find a strong positive relation between accrual quality and earnings persistence. However, their measure of accrual quality is theoretically and empirically related to the absolute magnitude of accruals, and Sloan (1996) documents that the level of accruals is less persistent than cash flows. Probing further, they find that accrual quality and level of accruals are incremental to each other in explaining earnings persistence, with accrual quality the more powerful determinant.

Their investigation of the interrelations between accrual quality, level of accruals, and earnings persistence suggests a reconciliation of the findings of Dechow (1994) and Sloan (1996). Dechow (1994) finds that accruals improve earnings' ability to measure performance relative to cash flows. Sloan (1996) finds that the accrual portion is less persistent than the cash flow portion of earnings, which suggests that firms with high levels of accruals have low quality of earnings. Their reconciliation is based on the observation that a high level of accruals signifies both earnings that are a greater improvement over underlying cash flows, *and* low-quality earnings. The reason is that accruals are largest when the underlying cash flows have the most timing and mismatching problems, so more accruals signify greater improvement over the underlying cash flows. However, this benefit comes at the cost of incurring estimation errors, and there will be a positive correlation between levels of accruals and the magnitude of these estimation errors. Thus, everything else equal, large accruals signify both low quality of earnings, and less persistent earnings.

Richardson, Sloan, Soliman and Tuna (hereafter RSST) (2005) also examine the relation between accrual reliability and earnings persistence, predicting that less reliable accruals cause the lower persistence of accruals. They categorize accruals on reliability, decomposing accruals along broad balance sheet categories and use knowledge of the measurement issues underlying each accrual category to make qualitative assessments concerning the relative reliability of each category. This is a different approach than Dechow and Dichev's (2002) method of determining accrual reliability. Where Dechow and Dichev (2002) determine the quality of accruals as the extent in which accruals map in cash flows, RSST (2005) look at the way accruals behave as to determine the reliability.

Another big difference is RSST's (2005) comprehensive definition of accruals. Following Healy (1985), a large body of research used a narrow definition of accruals that focuses on current operating accruals. Long- term operating accruals, such as capitalized expenditures on property, plant and equipment are ignored under this definition. Ignoring such accruals can result in noisy measures of both accruals and cash flows, since cash flows are typically computed as the difference between earnings and accruals. RSST (2005) shows that many of the accruals that are

omitted from Healy's (1985) definition are of low reliability, suggesting that accrual-based research should incorporate these omitted accruals. RSST (2005) defines accruals as the change in non-cash working capital ( $\Delta WC$ ), the change in net non-current operating assets ( $\Delta NCO$ ) and the change in net financial assets ( $\Delta FIN$ ).<sup>34</sup>

The results from the test on the persistence of these categories of accruals by RSST (2005) confirm that accruals with lower reliability cause the lower persistence of accruals. The coefficient on  $\Delta WC$  is significantly negative as is the coefficient on  $\Delta NCO$ . The coefficient on  $\Delta FIN$  however, is positive, and close to zero. These results do not only confirm the role of accrual reliability in earnings persistence, but also shows that researchers using accruals, for instance to measure earnings management, should consider broader measures of accruals to maximize the power of their tests.<sup>35</sup>

Hanlon (2005) examines the difference between financial reporting earnings (book earnings) and taxable earnings (tax earnings), i.e. the book-tax difference, and earnings persistence. She shows that the lower persistence of earnings is caused in part by the book-tax difference.<sup>36</sup>

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<sup>34</sup>  $\Delta WC$  represents the change in current operating assets, net of cash and short-term investments, less the change in current operating liabilities, net of short-term debt. These accruals form the core of the traditional measure of accruals used by Sloan (1996).  $\Delta WC$  is determined to have a rating a medium reliability.  $\Delta NCO$  is measured as the change in non-current assets, net of long-term non-equity investments and advances, less the change in non-current liabilities, net of long-term debt. It contains accruals that have generally been ignored in previous research.  $\Delta NCO$  receives a rating of low/ medium reliability.  $\Delta FIN$  is the change in short-term investments and long-term investments less the change in short-term debt, long-term debt and preferred stock. These accruals are determined to be measured with high reliability.

<sup>35</sup> For instance, non-current operating accruals were used to manage the earnings in the accounting scandal at WorldCom (i.e. operating cost were capitalized as long term). These accruals were excluded in Healy's (1985) definition of accruals, that was used in a lot of research on accrual based earnings management. Future research can use this new definition of accruals for earnings management research.

<sup>36</sup> Examining the book-tax difference in this context is interesting because it can reflect the discretion management has of financial reporting. Management calculates corporate income for two purposes each year. The first is for financial reporting purposes under Generally Accepted Accounting Principles (GAAP) and the second is done in accordance with the Internal Revenue Code (IRC) to determine the corporation's tax liabilities. Both book and taxable income are being prepared on an accrual basis. However, there will be differences between book and taxable incomes, both temporary and permanent. Permanent differences are items included in one measure of income but never included in the other, such as tax-exempt interest. Temporary differences between book and taxable incomes each year are changes in the firm's book-basis balance sheet relative to its tax-basis balance sheet. Basis differences arise because of differing requirements for the timing of recognition of income and expense items. For book purposes, revenue is recognized when earned and expense recognition is either matched against the related revenue or recorded in the accounting period in which the expense is incurred. GAAP provides managers with considerable discretion in their choice of accounting procedures. Managers may choose between different accounting methods, use varying periods and estimates for cost amortization (e.g., for depreciation and goodwill) and exercise judgment with respect to recording reserve allowances (e.g., bad debt allowances, warranty reserves, accrued compensation, etc.). For tax purposes, however, managers have less discretion. Revenue is generally recorded when cash is received: thus, deferred (or unearned) revenue does not exist under the

Given the relation between book-tax difference and persistence, Hanlon (2005) concludes that book-tax difference can be considered a measure of earnings quality (p. 139) assuming that there is cross-sectional variation in the ability of firm managers to manipulate financial reporting income, but that there is not cross-sectional variation in managers' ability to manipulate taxable income. As she explains, this does not imply that taxable income is a better measure of economic performance of the firm than is financial reporting income. Rather, in contexts where the divergence between tax and financial reporting income is large, earnings management is more likely and additional scrutiny is warranted.

The literature discussed so far examined the differential persistence in the components of current profitability for explaining future profitability. FWY (2003b), argue that most tests of the differential persistence of accruals and cash flows use dependent and explanatory variables scaled by a measure of contemporaneous invested capital. Thus the dependent variable is one-year-ahead operating income divided by one-year-ahead invested capital, or a measure of profitability. FWY (2003b) note that one-year-ahead profitability is affected by not only income in the numerator (income effect), but also by growth in invested capital (growth effect) in the denominator of the ratio. They find that operating accruals exhibit a stronger association with growth in net operating assets than do operating cash flows. In contrast, operating accruals are no less persistent than operating cash flows for explaining one-year ahead operating income. Thus, the documented lower persistence of scaled accruals could be due to one of two effects. First, it could be due to the lower persistence of unscaled accruals (a numerator effect), which is the commonly accepted explanation. Alternatively, FWY (2003b) suggests that the lower persistence of scaled accruals could be due to the relation between accruals and growth in the investment base (a denominator effect). The results are more consistent with the interpretation that operating accruals capture growth in net operating assets and that growth tends to cause profitability to converge to normal profitability levels (e.g., the effect of conservative accounting or diminishing/increasing marginal returns to investments). This implies that the accrual effect in

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IRC. In addition, for tax purposes conservatism is not an objective and thus an item may not be deducted until more stringent conditions are satisfied, reducing the level of discretion in the calculation of taxable income. Temporary book-tax differences include future taxable and future deductible amounts. Future taxable amounts create or increase deferred tax liabilities and require recognition of a deferred tax expense. In contrast, future deductible accounts create or increase deferred tax assets and require the recognition of a deferred tax benefit (credit to deferred tax expense). All else equal, an increase in deferred tax liabilities is consistent with a firm currently recognizing revenue and/or deferring expense for book purposes relative to its tax reporting (book income in excess of taxable income) (Phillips et al. 2003).

Sloan (1996) is at least partly due to the fact that accruals signify an increase in (less-productive) net operating assets (i.e. a balance sheet effect), signifying that accruals have both earnings and balance sheet effects.<sup>37</sup>

RSST (2006) tries to discriminate between the various explanations that have been presented for the differential persistence of accruals relative to cash flows. Specifically, they try to discriminate between the explanation by Xie (2001), that the lower persistence of accruals is caused by managerial discretion through the use of discretionary accruals, the FWY (2003b) explanation that not only working capital accruals are less persistence, but also other non-current operating accruals, and that this lower persistence is attributable to the conservative bias in accounting and/or diminishing returns on new investment opportunities, and the Dechow and Dichev (2002) and RSST (2005) explanation that the lower persistence is caused by the transitory estimation error in accruals. Their results indicate that diminishing marginal returns to new investment provides, at best, an incomplete explanation for the lower persistence of the accrual component of earnings, and that the transitory accounting distortions caused by the estimation error can also explain the lower persistence of the accrual component of earnings. Their results also suggest however that managerial discretion may also be the cause of the differential persistence of accruals relative to cash flows.

Francis and Smith (2005) reexamine the differential persistence between accruals and cash, focusing on two aspects of persistence that are crucial to determining its properties: time-specificity and firm-specificity. They observe that traditional measures of accruals are functions of current- and non-current-period transactions.<sup>38</sup> Persistence however, describes how current period transactions are related to next period income. The inclusion of non-current period transactions in accruals causes the contemporary relation between accruals and performance to be biased<sup>39</sup>. More specifically, Francis and Smith (2005) show that the lack of time-specificity in traditional accrual measures cause the persistence of accruals to be biased downward, and the

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<sup>37</sup> FWY(2003a) also suggest that the documented market mispricing of accruals may not be due to investors' inability to detect earnings management (e.g. Xie (2001), but rather to investors' inability to extrapolate growth rates or to consider the effects of diminishing marginal returns or conservative accounting on new investments (see also FWY, 2003b).

<sup>38</sup> For instance, Dechow and Dichev (2002) measure of accrual estimation error by examining the changes in working capital on last year, present, and one-year ahead cash flows from operations.

<sup>39</sup> For example, the ending balances of deferral accounts (unearned revenues and prepaid expenses) affect next period's income, and the beginning balances of accrual accounts (accounts receivable and warranty liabilities) affect last period's income. Hence, the accounting-based measures of cash and accruals do not align with current-period income (see Francis and Smith, 2005).

persistence of cash flows to be biased upwards. They develop “time-specific” measures of accruals and cash that capture current-period transactions only.<sup>40</sup>

Using this definition of accruals, Francis and Smith (2005) show the bias in persistence. The differential persistence between accruals and cash flows remains reliably positive using the time specific accruals, indicating that the Sloan’s (1996) result is robust to the time-specificity of Francis and Smith (2005). However, the magnitude of the difference is 70% to 88% smaller than the differential persistence using traditional measures of accruals.

Equally important is the firm-specificity of the differential persistence of accruals and cash flows. Given that prior research largely views the persistence of income as firm specific, it is reasonable to believe that the persistence of the accrual and cash components of income is also firm specific. Using firm-specific time-series estimations, rather than pooled or annual cross-sectional estimations, Francis and Smith (2005) show that over 85% of the firms in their sample do not exhibit lower persistence of accruals compared to cash flows. This result highlights the importance of firm specificity.<sup>41</sup>

Chambers (2005) further examines the firm-specificity of the differential persistence of accruals and cash flows. Using the Sloan (1996) definition of accruals, he shows that the difference between cash flow persistence and accrual persistence is highly variable across firm-years. He finds significant differences between low and high differential persistence firms. High differential persistence firms tend to be larger, have lower book-to-market ratios have less volatile cash flows, and have a lower correlation between accruals and cash flows. His results confirm that firm-specific information is an important determinant for the persistence of earnings.

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<sup>40</sup> Their measure of accruals uses the ending balance of asset accruals and the beginning balance of asset deferrals as the construct for the accrual component of income. In their measure of accruals, different types of accruals are treated differently depending on whether their recognition in current-period income precedes cash (an accrual account (A) e.g. accounts receivables, or follows, their cash consequences (a deferral account (D), e.g. unearned revenue). This definition of accruals essentially uses balance sheet accounts to reconstruct income summary journal entries. The current asset (CA) and current liability (CL) accounts exclude inventory and accounts payable, respectively, because the balances of these accounts do not map neatly into cost of goods sold (Francis and Smith, 2005).

<sup>41</sup> It should be noted that it is possible that the auto-regressive (AR) model does not fully capture the relationship between firm characteristics and earnings persistence. Baginski et al (1999) show that low order autoregressive integrated moving average (ARIMA) models do not measure the association between earnings persistence and economic characteristics as well as high order ARIMA models. It may very well be the case that firm characteristics, as opposed to economic characteristics, are understated in the model used to measure earnings persistence.

### **4.3 Summary and implications for this study**

In this chapter, the relation between accruals and earnings quality is discussed. There are several constructs that attempt to reflect earnings quality in accounting research. It is established that one way of measuring earnings quality is examining the persistence of earnings.

Empirical evidence on earnings persistence that is presented in this chapter shows that the cash flow component of earnings is more persistent than the accrual component of earnings. Research attributes this difference to specific accruals like inventory, earnings management, accrual quality, accrual reliability and book-tax differences. Further, it is shown that this difference is firm-specific.

It seems that the specific situation of the firm affects accounting on many level, among which the persistence of earnings. It therefore seems an interesting question to examine the effect of the state in which the firm is on its accounting. In the next three chapters, empirical examinations of the role of accruals in three different states of a firm are examined. The firm-specific nature of accounting and its effect on cash flow persistence is examined in chapter 6. In chapter 6, a firm-specific measure of accrual quality is employed that reflects the accounting state of the firm, i.e. whether the firm is in a volatile accounting state or a stable accounting state. I examine the effect of the accounting state of the firm on the prediction of future cash flows. In chapter 7, I examine the effect of growth on accounting accruals. Growth affects the perspective of accounting from a balance sheet perspective for low-growth firms to an income statement perspective for high-growth firms. In chapter 7, I examine how this affects the use of accruals. Finally, in chapter 8, I examine how the incidence of an accounting loss affects the role accounting conservatism. Loss firms have a different investor perspective than profit firms. I examine if having an accounting loss affect the role of accruals in financial reporting in terms of accounting conservatism.

