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Quality of earnings as an investment indicator - a literature review

**A minor dissertation for the completion of a Master of Commerce (M Com) in
Financial Management
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Abstract

This paper examines the characteristics of earnings quality, reviews the literature that assesses whether earnings quality does in fact affect market valuations and evaluates whether trading strategies based on this knowledge yield abnormal positive returns. This paper looks at why earnings quality should be an important consideration in evaluation a firm, then investigates research on the accounting effect on valuations, covering the accrual effect, the general growth effect and the value-glamour effect. Thereafter, other factors that can influence earnings quality are documented, from earnings manipulation to the effects of external factors on quality of earnings. The concept and measurement of economic profits are also examined. Lastly, trading strategies based on earnings quality are investigated to see if abnormal profits can be earned from such strategies.

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Introduction

Intuitively, one would think that a firm with superior earnings quality to another would be more successful and generate be able to generate more value for shareholders. It follows then that ideally investors should seek out firms that exhibit the traits that indicate this superior earnings quality and thereby enjoy stock returns that are better than the market return.

Earnings quality tends to be defined by the characteristics of what improves or detracts from the quality of earnings, but a useful starting point is to view earnings quality in the context of information risk. Francis et al (2004) note that information risk derives from imprecision in estimates of a payoff structure based on available information; any uncertainty with respect to returns to investors in the form of either dividends or capital gains (encapsulated by free cash flows to common equity) raises information risk. Therefore, the higher the information risk, the lower the earnings quality of a firm.

Francis et al (2004) identify seven earnings attributes that can be used as proxies for information risk: i) **accrual quality**, where accounting earnings that more closely resemble cash earnings are higher quality, ii) **persistence**: this is how repeatable or sustainable earnings are, the more repeatable, the more reliable they are, iii) **predictability**, the more predictable earnings are, the more valued these earnings are by investors, iv) **smoothness**, where Francis et al (2004) argue that earnings smoothing eliminates transitory fluctuations, v) **value relevance**, how much earnings explain variability of returns, with greater explanatory power having better information content, vi) **timeliness**, the explanatory power of a reverse regression of earnings on returns, vii) **conservatism**, how well accounting earnings explain economic profits or losses (stock price gains or losses). Schipper and Vincent (2003) use a similar framework in their discussion of earnings quality.

Earnings quality can therefore be defined as the extent to which cash earnings mirror accounting earnings, how likely this is to reoccur in future reporting periods, and how easy it is to know ex-ante what the magnitude future earnings will be. Because of this earnings quality is a measure of how well earnings explain stock price movements and also how volatile a firm's stock price is relative to its earnings. Lastly, earnings quality is a reflection of the economic profitability of a firm.

The purpose of this paper is to examine these characteristics of earnings quality, review the literature that assesses whether earnings quality does in fact affect market valuations and evaluate whether trading strategies based on this knowledge yield abnormal positive returns.

This paper looks at why earnings quality should be an important consideration in evaluation a firm, then investigates research on the accounting effect on valuations, covering the accrual effect, the general growth effect and the value-glamour effect. Thereafter, other factors that can influence earnings quality are documented, from earnings manipulation to the effects of external factors on quality of earnings. The concept and measurement of economic profits are also examined. Lastly, trading strategies based on earnings quality are investigated to see if abnormal profits can be earned from such strategies.

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Why is a focus on the quality of earnings important?

Earnings quality is certainly not a new concept. The subject has been investigated and discussed for over half a century and as such there is a host of interesting literature on the subject. Over time, the literature has incorporated changes in accounting treatments and in the trading environment. Sloan (1996) is the reference point for most of the subsequent work on the subject of earnings quality. After a quarter of a century of intensive work in the subject by many authors, this paper attempts to give a critical overview of the state of knowledge in the field for the purpose of making it more accessible to the interested reader.

Earnings figures are used by many investors and interested parties as a measure of how well a company has performed and how it might perform in the future. Much research has been published on the predictability of the cross-section of returns based on earnings or the use of earnings multiples like PE ratios (price per share / earnings per share) in attempting to explain the cross section of future returns (Basu (1983), Chan, Hamoa and Lakonishok (1991), Fama and French (1992)).

In their seminal work, Ou and Penman (1989) show that prices reflect information pertaining to future earnings that is in financial statements with a lag, and suggest in that it takes time for the market to appreciate both information about transitory current earnings (lower quality earnings) and about future earnings. Therefore, the market seems to underutilise the information in accounting statements about future earnings, and therefore doesn't assess the quality of earnings. Sloan (1996) added to this, indicating that the information available to investors to assist with forecasting/estimating future returns is not optimally or even correctly used. Investors tend to focus only on the isolated reported earning metric and fail to take cognisance of the quality of the number/metric.

Because of their importance to market participants, earnings should therefore have integrity and be reliable in order to give a investors a reliable gauge of the earning power of a firm. The comparison of firms' earnings on an even-footing is also important and is supported by Bernstein and Siegel (1979) who note that the consideration of various firms' integrity, reliability and predictability needs to be conducted on a relative basis when assessing a firm's earnings quality.

Because this one-dimensional metric is the function of many factors, it is worthwhile and prudent to assess the composition of this one number (earnings) to assess whether this performance is repeatable or the result of various one-off factors, events and/or actions (accounting changes and/or business decisions).

Richardson et al. (2006) support this view and suggest that it is important to analyse accounting statements in order to evaluate the financial performance of a firm. While accrual based accounting serves the purpose of improving the relevance of financial reporting it does sacrifice the reliability somewhat, hence the need for proper analysis.

By focusing only on earnings, investors will run the risk of falling foul of potential manipulation that might have occurred in order to produce the net income or earnings number. This has cost investors severely in the past, with high profile corporate failures like Enron, Tyco International and Xerox as examples of earnings being inflated through manipulation for long periods, ultimately resulting in large losses in value to shareholders. Consequently, Richardson et al. (2006) investigated the relationship between accruals and firms falling foul of the SEC for alleged earnings manipulation(s) and found high levels of accruals were present for firms with alleged earnings manipulation and that these accruals dropped to unusually low levels post these manipulations. Chan et al (2006) conclude that by focusing only on the bottom line (earnings) important information can be missed and therefore the evaluation of quality of earnings will be inadequate. Analysis therefore needs to be conducted on accruals in order to understand the magnitude of the gap between accounting earnings and cash flows. They show that when earnings rise concurrently with the recording of high accruals, i.e. low quality earnings, firms typically exhibit poor future returns.

Cornell and Landsman (2003) support this view, arguing that not one of the means of measuring earnings can be used in their condensed form for the purposes of making forecasts due to the poor informational content thereof. Therefore, any forecasts of future earnings, operating income or preferably cash flows of a firm, require knowledge and understanding of each of the components of a firm's financial statements

Earnings power is an important concept for investors and speaks directly to the concept of earnings quality. Earnings power is defined by Graham et al. (1962) as

the level of earnings an enterprise can be expected to sustain over the next five to ten years.

Earnings power is summarised by as Adjusted Earnings multiplied by the inverse of the current cost of capital ($EPV = \text{Adjusted Earnings} \times 1/R$) (Greenwald et al (2004)). The purpose of this valuation exercise is to arrive at an accurate estimate of the current distributable cash flow of a company. The quality of earnings is considered via a series of adjustments which include: i) removing one-off items or adding apparent “one-offs” that actually occur frequently, ii) adjusting reported depreciation and amortisation to the amount needed to restore a firm’s assets to the start of the year amounts from their year end balances, and iii) adjusting earnings based on the company’s position in the business cycle: down if at the peak, up if at the trough (i.e. normalised margins and earnings).

These adjustments therefore improve the quality of earnings. This is because the adjusted earnings figure is more reflective of the firm’s earnings power, which in turn is a reflection of how much these (adjusted) earnings reflect economic reality. The smaller this gap is, the better the earnings quality. This then gives investors and potential investors a better opportunity to value a company “correctly”. Cornell and Landsman (2003) conclude that in order for this to occur, investors must have adequate disclosure. This decreased information risk is achieved through improved clarity and an appropriate level of detail. Investors will then have the tools (information) available to aggregate this information into whatever earnings measure they might deem appropriate in order to make valuation assessments.

The cash conversion ratio, defined as cash flow from operations divided by EBITDA (earnings before interest, taxation, depreciation and amortisation) is another means of assessing the level of accruals and accounting “funnies” (changes in accounting treatment of items) that might be affecting the quality of earnings. Cash flows from operations being all operating income before interest charges, interest income, depreciation, amortisation, and all other non-cash charges (including share option expenses) and is after working capital changes. By excluding non-cash items, much of the potential manipulation of data is excluded, and by including working capital changes an assessment can be made as to how much of an accrual effect there is. A cash conversion ratio of 100% would indicate a greater quality of earnings than a ratio less than 100%, i.e. less of the earnings are as a result of accounting treatments and accruals and therefore the quality of earnings is good.

Cornell and Landsman (2003) question whether earnings quality is an issue or not. Their paper starts by looking at the use of *pro forma* earnings versus US GAAP earnings. The difference between the two is that companies motivate that *pro forma* earnings better reflect their true earning power as opposed to GAAP net income. The authors then go on to show that there is no standard composition of *pro forma* earnings. This makes comparability across firms difficult, which is an indication that *pro forma* earnings do not of themselves improve earnings quality.

Cornell and Landsman (2003) provide evidence that the use of one measure (be it earnings, EBITDA, etc.) is of little or no use in determining the future value of a company. The main thrust of their paper is that differing historic earnings are irrelevant in any form; hence any discussion around the quality of the earnings is also irrelevant. This, Cornell and Landsman (2003) note, is the earnings quality dilemma.

Cornell and Landsman (2003) look at the results of empirical studies that look at specific earnings measures and find that they are mixed owing to a dependence on the specific earnings measures that are compared, the time period over which such studies have been conducted, and the composition of the sample of companies. Because of these mixed results, Cornell and Landsman (2003) reach their conclusion of the earnings quality dilemma – that one number/metric cannot be used to summarise all historic performance of a firm and be used reliably to forecast future performance.

The criticism one can level at this point is that any discussion about earnings quality is precisely the opposite, financial information needs to be disaggregated in order to truly assess the quality of earnings of a firm. Individual (or a combination of) metrics can then be looked at to assess what is driving earnings quality positively or negatively.

Cornell and Landsman (2003) then tie the debate about the quality of earnings to one of the functions of capital markets, namely the efficient allocation of capital. Cornell and Landsman (2003) argue that for this to happen in an optimal manner, the market value of a firm should as much as possible reflect the “true” economic value of the firm. And, in order for this to be the case, any forecasts on which such market or economic values are based need to be as “accurate” as possible. This supports the arguments made earlier regarding assessing the true earning power of a firm.

The solution proposed by Cornell and Landsman (2003) is the use of “clean surplus accounting”. Clean surplus accounting means that income (however measured) is derived from any changes in the book value of a firm and the addition of net dividends. By using this method, the differences that might arise in the calculation of net income cancel out in the present value (PV) relationship. Cornell and Landsman (2003) point out that all measures of income are of equal quality in a forward-looking sense, as long as they satisfy the clean surplus definition and the PV model is used. This could be argued from a different perspective: a forecast of future earnings, cash flows, etc. would exclude any creative accounting or number manipulation, one-offs (unless 100% certainty of forecast) and therefore the forecast earnings would be of a higher quality than the historic earnings.

All this research points to the fact that one metric is not appropriate for valuation purposes and that a detailed analysis of the quality of earnings (and the components thereof) is necessary. The analysis of the multitude of components in financial statements and assessment of their quality provides a guide as to what is likely to occur in the future and what the risk (likelihood of forecasts not being close to actual results) is.

This then leads one to the concept of earnings persistence. The persistence of earnings (the likelihood that earnings are repeatable and a reliable indicator of future earnings potential) forms the foundation of all aspects and definitions of earnings quality. The unpacking and analysis of the single metric, earnings, in the context of persistence is at the heart of the research of this topic. This includes the assessment of the level of accruals, investigation into earnings manipulation, the cyclicity of a firm, and the competitive position it enjoys in an industry. The question then is whether earnings quality has an impact on investment performance or not, and if so over what time period is this impact significant?

Accounting influences on earnings quality and market valuations

The main areas of discussion can be divided into three areas. The first includes and continues the work of Sloan (1996) and focuses on the question of whether, and to what extent, accruals and cash flows affect the value of stocks. The second disputes this effect and aims to show that the effect has to do with the general growth effect. The third attempts to show that there is no accruals effect, but that this is in fact a value-glamour effect. The accrual effect is dealt with first, as Sloan (1996) is the reference point from which most of the modern literature relating to earnings quality either builds on and adds to, or seeks to disagree with. All three of these areas deal with the effect that accounting has on earnings quality, either through management choice or owing to prescribed accounting rules. The manipulation of earnings by management is dealt with separately later in this paper.

Accrual effect

Sloan (1996) is viewed as the seminal study in the field of quality of earnings in which he highlights the “accrual anomaly”. He shows that the cash flow component of earnings is more persistent than the accrual component of earnings. The anomaly is that investors do not seem to take this difference in persistence into account. Investors fixate on the current (inflated) earnings with more focus placed on the accruals than the cash flows, resulting in the observation that high accrual (low earnings quality) firms tend to exhibit poor performance in the future.

Sloan (1996) models the characteristics of the underlying accounting processes commonly used for financial statement analysis, assumes that investors might not fully discriminate between different components of earnings and then assesses the extent of the predictable returns consistent with the returns of the naïve earnings expectations model. Sloan (1996) points out that the results contradict Bernard and Stober’s (1989) findings and that the price of stocks *will* respond to information releases regarding the accrual components of earnings and cash flows systematically, and therefore the information content of these components are systematically different. Sloan (1996) looked at 30 years of financial statements (1962 – 1991) of NYSE and AMEX 40,679 firm-year observations of listed firms. This

excluded banks, life insurance, or property and casualty companies as the data source used, Compustat did not have sufficient financial statement data for the types of companies to calculate operating accruals.

Sloan (1996) addresses two interesting questions (and two corollary questions) that form the basis of much of the debate in future papers of whether earnings quality is a predictor of future earnings (and therefore share price) performance.

The first question asked is whether earnings have lower persistence given a higher accruals component and lower cash flow component (and vice versa). This tests whether current earnings are likely to continue/persist if these (current) earnings are as a result of accruals rather than actual cash flows. The results indicate that this is indeed the case. Mean reversion (moves in earnings that put them closer to actual cash flows) occurred in the ensuing years post measurement date, with earnings drifting lower (higher) toward the mean where high (low) accruals were present.

The second question consequently enquires whether the earnings forecasts (expectations) manifested as the market values of listed firms are fully reflective of the ratio of persistence of earnings between the higher persistence cash flows and the lower persistence accruals. This then looks to address the magnitude of any mispricing and the direction thereof. His finding suggests that that investors treat the accrual component as if it has higher persistence and the cash flow component as if it is less persistent. The magnitude of the mispricing, however, could not precisely be inferred as it was sensitive to model specifications.

Lastly, given the above one would expect the abnormal returns to occur once there is confirmation of the true quality of earnings. The question is then, are the abnormal returns more likely to be grouped around earnings announcement that occur in the future? The argument here is: given that any abnormal returns are a result of a delayed reaction to “predictable returns” then they should manifest when the information confirms this “predictable” change, for example future earnings announcements. Sloan (1996) cites the testing of post-earnings announcement drift by Bernard and Thomas (1990) who found that almost 40% of the drift is clustered around future earnings announcements, but finds that this is unique to quarterly earnings changes and that this does appear to be a post-announcement drift in annual earnings. Collins and Hribar (2000) confirmed, using quarterly data, that the market overprices total accruals. Livant and Santichia (2006) examined quarterly US

SEC data from 1991 to 2004 and confirmed that the accrual anomaly exists for quarterly accruals, observing that firms with extremely high accruals in a particular quarter experienced negative future abnormal returns in periods from two days after the SEC filing, and that this effect was evident for up to four quarterly earnings announcements post SEC filing.

While focusing on accounting accruals, the findings of Chan et al. (2006) confirm Sloan's (1996) findings that accruals are reliably negatively correlated to future stock returns. Chan et al. (2006) found that this holds true for longer periods. They looked at the share performance for one year after the announcement of financial results and found that accruals are reliably, negatively correlated to future stock returns for this period. In addition, Chan et al. (2006) found that average returns were disappointing for high accrual stocks in years two and three as well. Analysis was done at an industry level to make comparisons better. They also ran the tests on the UK stock market with confirmatory results.

Sloan (1996) found that listed firms that recorded high accruals, elevating earnings to a relatively high level compared to cash flows or put another way, where cash conversion is low, have lower returns in subsequent periods, and also underperform stocks that have low accruals (higher relative cash conversion). The stocks' poor price performance was found to not have been expected by investors or that information in accruals is ignored by investors, that is, that investors seem to "fixate on earnings" and that stock react prices react accordingly.

Xie (2001) expands on Sloan's (1996) work, going beyond total accruals and looks to see whether stocks are priced accurately to reflect earnings impacted by abnormal accruals (accruals attributable to managerial discretion). In other words, does earnings quality, viewed through the lens of abnormal accruals, have an impact on valuations?

Abnormal accruals are another term for discretionary accruals. Xie (2001) separates the abnormal accruals into those arising from discretionary management behavior (earnings management) and those that occur due to unusual business circumstances, i.e. those that are non-discretionary, unusual or due to mergers, divestitures and acquisitions.

Accrual quality is defined by Dechow and Dichev (2002) as the extent to which

accruals translate into the realisation of cash. Dechow and Dichev (2002) do not disaggregate management manipulation (intentional) and accounting (unintentional) errors, as they view both of these as low quality accruals and therefore low quality earnings. This then ignores Xie's (2001) conclusion that abnormal accruals (i.e. management intervention in accounting) negatively affect earnings quality. In addition, the view of Dechow and Dichev (2002) is that the quality of accruals are likely be affected by the volatility of the underlying operations and that this would create a greater proportion of estimation errors of accruals which are unavoidable. Higher earnings volatility therefore, decreases earnings quality. Dechow and Dichev (2002) focus on accruals pertaining only to working capital because the realisation of cash related to these accruals typically happens within one year of the accrual, making the empirical tests easier. Dechow and Dichev (2002) find that both earnings volatility as well as the volatility of accruals, are indicators of earnings and accrual quality. Dechow and Dichev (2002) also confirm that there is a positive correlation between accrual quality and earnings persistence.

An investigation by Chan et al. (2006) looked to gain understanding of the effects of specific accruals and hence looked at the components of accruals. Chan et al. (2006) find that changes to inventory have the most predictive power, while accruals arising from changes in accounts receivable and account payable had some ability to predict returns, but significantly less than inventory accruals. Building on Jones' (1991) work, Chan et al. (2006) examined non-discretionary and discretionary accruals. Non-discretionary accruals captured impact of business conditions (via the relation between changes in sales growth and working capital changes) while discretionary accruals are a reflection of managerial choices and/or manipulation.

Xie's (2001) study shows the ranking of items affecting persistence and therefore quality of earnings. Abnormal accruals are found to be less persistent than normal accruals, with cash from operations found to be the most persistent. This consistency is carried through to the conclusions on the valuation effect of abnormal accruals (degree of quality of earnings). The finding is that the market misprices these accruals. In other words, firms that have abnormally high accruals and therefore poor earnings quality, tend to be overvalued by the market. The results are consistent with Sloan (1996), and provide some granularity into the effects of earnings quality on valuation.

The persistence of both normal and abnormal accruals is overestimated and

therefore affected stocks tend to be over-priced. Given the ranking mentioned in the previous paragraph, abnormal accruals are overestimated more severely than normal accruals and therefore have a more pronounced effect on valuation with Xie (2001) concluding that the overpricing of normal accruals is not material while it is significant for abnormal accruals.

In a very roundabout way Dechow and Dichev (2002) confirm Sloan's (1996) finding that the accrual portion of earnings is less persistent than the cash flow component, and therefore firms with a high level of accruals will tend to have a low quality of earnings. They argue that while a high level of accruals improves earnings, versus purely recording cash flows, this high level of accruals creates a situation where these earnings are likely to be of low quality. This is because, by their nature, a high level of accruals would occur with different timing to actual cash flows. This mismatch between cash flows and accruals creates a strong likelihood of estimation errors. Dechow and Dichev (2002) find a positive correlation between the levels of accruals and the size of these estimation/mismatch errors. This then causes the earnings quality to be compromised, resulting in less persistent, and therefore low quality, earnings.

Richardson et al. (2006) build on the work done by Sloan (1996), Xie (2001) and Dechow and Dichev (2002) and look to show that the lower persistence in the accrual component of earnings was as a result of temporary accounting distortions. They define accruals more comprehensively than prior papers by including all operating accruals (both current and non-current excluding the more reliable (and therefore more persistent) financing accruals. Prior papers typically define accruals as the change in non-cash working capital less depreciation.

General growth effect

Fairfield et al. (2003) suggest that the Sloan (1996) accrual anomaly, where investors ignore what is implied by accruals and their impact on future profitability of a firm is a unique case of what is in fact the general growth anomaly: that the low persistence of accruals and the consequent mispricing thereof is rather due to the growth in net operating assets.

Fairfield et al. (2003) cite Ohlson (1995) and Feltham and Ohlson (1995) to support the view that the future profitability and value of a firm is reliant not only on current profitability (how this profit was generated) but also on the growth in the net operating assets of the firm. Assets are required to generate revenue and profits, but any growth thereof would result in diminishing marginal returns. Therefore they look further than the relationship between accruals (as defined as changes in non-cash working capital less depreciation) and cash flows from operations and their effects on profitability to the effects of accruals and growth in long-term net operating assets on growth in net operating assets (i.e. non-current balance sheet accounts). Profits are defined as the current period return on assets (ROA).

What this means is that, assuming current earnings of a firm, then one year ROA would be depressed by any growth in the net operating assets. Fairfield et al. (2003) explain that this is due to both conservative accounting principles as well as the diminishing marginal returns on increased investments that tend to reduce profitability for growing firms. Fairfield et al. (2003) show that this is the case: that one year forward ROA is negatively associated with the growth in net operating assets, both the growth in accruals (growth in current net operating assets) and the growth in long-term net operating assets.

Diminishing marginal returns on increased investment arise due to firms first undertaking the most profitable projects first (highest internal rate of return) and then will allocate capital in descending order until all projects with positive net present values have been taken advantage of. Therefore each incremental allocation of capital (increase in net operating assets) should generate a lower return than the prior project (diminishing marginal return).

Accounting conservatism results in more capital allocation being recognized up front. Therefore returns in the early part of a project will appear lower and in the latter stages of a project will expand. Therefore ROA in the first few years will be biased

downwards.

Fairfield et al. (2003) find that the market tends to overvalue both growth in long-term net operating assets and accruals (with no significant statistical difference between these two factors) as measured by these factors' effect on ROA. Fairfield et al. (2003) view this as a result of both conservative accounting and diminishing marginal returns on investment. This leads to their conclusion that Sloan's (1996) accrual anomaly effect is a special case of what can be viewed as a more general growth anomaly. The point to note here is that the market once again ignores the economic reality of reported numbers.

The view of Fairfield et al. (2003) is that the low persistence of accruals is less likely to be due to earnings manipulation by management but is rather due to an accounting distortion caused by the conservative bias in accounting principles as well as the interaction of firm growth with the lower rates of economic profits associated with diminishing marginal returns to increased investment. This then explains earnings quality in terms of both accounting distortions and economic growth.

Richardson et al. (2006) split accruals into a "growth" component and an "efficiency" component. The growth component was defined as the accruals that relate to growth in output. The efficiency component pertains to those accruals unrelated to the growth in output: the changes in the efficiency with which existing investments are employed.

They define total operating accruals (ACC) as the change in net operating assets (NOA) deflated by the lagged operating assets. Efficiency is defined in terms of the standard net operating asset turnover ratio (AT). The decomposition is shown algebraically below:

$$\begin{aligned} \text{ACC}_t &= \Delta \text{NOA}_t / \text{NOA}_{t-1} \\ &= \Delta \text{Sales}_t / \text{Sales}_{t-1} - \Delta \text{AT}_t / \text{AT}_t - (\Delta \text{Sales}_t / \text{Sales}_{t-1}) * \Delta \text{AT}_t / \text{AT}_t \\ &= \text{Sales growth} - \text{Change in Efficiency} - \text{Interaction} \end{aligned}$$

This formula allows one to see the two determinants of accruals. Firstly, sales growth directly influences accruals. The authors point out that if asset efficiency remains constant, then sales growth drives the increases in accruals. The second point they

make is that accruals are negatively related to efficiency. Without sales growth, a reduction in asset efficiency will lead to the proportional increase in accruals. The interaction term allows for situations where sales growth and efficiency changes are correlated; positive correlation would occur in instances of economies of scale while a negative is likely where new investment starts to generate diminishing marginal returns.

The purpose of isolating the growth component is to measure the effects of diminishing marginal returns on increased investment. Richardson et al. (2006) find that both the growth and efficiency components contribute to lower persistence in earnings (lower quality earnings) and conclude that these diminishing marginal returns to new investment do not provide a complete explanation for this lower persistence of accruals, contradicting Fairfield et al. (2003). Richardson et al. (2006) also conclude that accounting distortions play a significant role in explaining poor quality earnings.

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Value-glamour effect in disguise

Taking an opposite direction to Fairfield et al. (2003), Desai et al. (2004) look to see how the accruals anomaly introduced by Sloan (1996) is related to the value-glamour anomaly. Desai et al. (2004) then point out that market is unable to process accounting information in both anomalies, leading to mispricing of securities and therefore look to see whether there is commonality in these effects. This “anchoring” by investors does seem to be at the crux of the abnormal returns that can be earned by anticipating this behavioural bias, whether it be by looking at value stocks or looking at the earnings quality of a firm.

The value-glamour anomaly is the outperformance of value stocks versus glamour stocks. Value stocks are defined as those that have low fundamental to price ratios, for example low price-to-book (P/B), low price-to-earnings (P/E) or low price to cash flow (P/C) ratios. Firms exhibiting these traits (value stocks) tend to outperform firms with the opposite metrics, high P/E glamour stocks. One school of thought and research of the reasons for this effect suggests it is due to investors failing to appreciate and anticipate the mean-reversion of glamour stocks downwards, extrapolating the continuation of stellar returns and being negatively surprised. When value stocks deliver higher than expected returns the excess return is positive. Fama and French (1996) offer the alternate reason: that value firms outperform glamour firms because they are riskier, and therefore higher returns are received in order to compensate for this risk.

Desai et al. (2004) find, after controlling for the traditional four value-glamour ratios: sales growth, P/B, P/E, and P/C (where C is earnings after adding back depreciation), that accruals are related to future returns (in support of the evidence thus far in this paper). This is a positive correlation: low accruals are related to higher future returns, and high accruals tend to have lower future returns.

Desai et al. (2004) then look at a new variable, operating cash flows in relation to price (CFO /P). CFO is defined by Desai et al. (2004) as earnings plus depreciation less working capital accruals. They argue that the traditional P/C does not sufficiently exclude managerial discretion and that by factoring in the working capital accruals, this effect is further mitigated and therefore a more robust measure.

The results of Desai et al. (2004) lead them to conclude that CFO incorporates all the mispricing attributable to all the other value-glamour proxies and that after controlling for P/CFO, accruals are not related to future returns. This is certainly logical: sales growth is positively correlated with accruals, so a firm with a high level of accruals is likely to exhibit high sales growth, and therefore be viewed as a glamour stock (and vice versa). Accruals are negatively correlated with operating cash flows – so a firm with high accruals is likely to have a high P/C ratio and be view as a glamour stock.

Desai et al. (2004) offer two interpretations of their results. Firstly, if one rejects the expanded P/CFO measure, and prefers to use only the traditional P/C metric as a means of evaluating the value-glamour effect, then the accruals anomaly is not the value-glamour effect in disguise. Desai et al. (2004) submit that this then makes the P/CFO a comprehensive measure in predicting future stock returns, doing away with the need for assessing accruals and traditional value-glamour variable. The second interpretation Desai et al. (2004) submit is that if one accepts the P/CFO as a proxy for all other traditional value-glamour variables, then the conclusion is that the accruals anomaly is in fact this expanded value-glamour effect in disguise.

While the debate presented around the value-glamour effect is interesting, it is important to draw back to the title of this paper, quality of earnings as an investment indicator. The question at the essence of this is whether earnings are reliable, sustainable, repeatable and not as a result of external events.

The metric P/CFO proposed by Desai et al. (2004) certainly appears to capture elements of earnings quality by factoring in the effects of depreciation and working capital accruals. Desai et al. (2004) also do not disagree with prior research of the impact that accruals have on the quality of earnings and the interpretation by the market (or rather the lack thereof) and the subsequent abnormal returns that are on offer. So while Desai et al. (2004) offer an explanation in the context of the value-glamour effect, the results support the argument that earnings quality is positively correlated with a stock's performance.

Defining what can affect quality of earnings

Richardson et al. (2006) point out that the provision of useful information to investors is the primary objective of financial accounting. As shown in earlier parts of this paper, cash earnings have greater persistence than accruals and therefore are a better gauge of a firm's financial performance. However, accrual accounting is the method utilised in the presentation of financial statements under IFRS and GAAP, and has the purpose of matching revenues to expenses (matching principle) and on the balance sheet side, recording assets and liabilities via changes in non-cash assets and liabilities via the accruals. The goal is to reflect the economic reality of a firm. Richardson et al. (2006) criticise the current drive by those who set accounting standards toward "fair value" accounting. Their view is that the frequency and size of accounting distortions will be increased which will result in a reduction in the quality of reported earnings in the form of lower persistence and less reliability.

This is, however, an area where much manipulation can and does occur, which can lead to false signals about the financial performance, both historic and future, of a firm. As has been shown by Sloan (1996), Richardson et al. (2006), Xie (2001) and Chan et al. (2006), accruals are not interpreted correctly by market participants, thereby overvaluing firms with high accruals (poor quality earnings) and undervaluing firms with high quality earnings (low accruals).

This neatly frames the entire debate. A decrease in accruals quality must lead to a decrease in the quality of earnings in order for the formula to hold. This then justifies focus of the research on accruals as an indicator of earnings quality and where much of this literature review has concentrated. Typically these are influenced by management intervention, i.e. changes in accounting treatment. The other factor that can affect earnings quality is cash flow. This can be affected by changes in business decisions and external factors.

It is therefore worthwhile to examine what can affect the quality of earnings, how and if accruals are manipulated (whether poor accrual estimation or managerial manipulation) and other business or industry factors that might affect the earnings quality of a firm. In this literature review, an attempt is made to cover the main areas that can affect earning quality, namely i) changes in accounting treatment, ii) changes due to business decisions, and iii) external factors. It is recognised that this is not an all-encompassing list of factors, but rather those that are identified through

research, intuitively and through my experience as an investor as having influence on investment quality.

Changes in accounting treatment – earnings manipulation

Accounting treatments can be changed which will affect the quality of earnings: these include recognising revenues and expenditures either early or with a delay, or choosing a less conservative accounting method versus a more aggressive one.

By recognising for example, revenues early or adopting aggressive assumptions on say, pension fund liabilities, the downside risk would be increased, thereby reducing the quality of future earnings. If a construction company's project revenues are recognised in full before project completion, there is the likelihood that these will be reduced due to late delivery penalties. If the actuarial assumptions underlying the calculation of pension fund liabilities are too aggressive, there is a likelihood that the future liabilities will be underestimated, with the resultant negative impact on future earnings. Another example would be the lengthening a depreciation term versus industry norm for a particular asset or assets. These are all forms of changing accruals that affect the quality of earnings, which, as shown later in this paper, affect the future value of the firm.

Temporary accounting distortions are discussed by Richardson et al. (2006) and they show how these play a significant role on explaining poor quality earnings. Because accruals are a representation of the estimation of future benefits and obligations, an element of estimation error must exist in accruals that is far greater than the receipt or pay out of actual cash. They use the accrual of the allowance for uncollectible amounts on credit sales as an example. Only when actual collections are known, will the actual estimation error be known. The larger the accruals, the greater the estimation error, and therefore the lower the earnings quality will be. This temporary accounting distortion is an area where management manipulation of earnings is likely to be evident.

Chan et al. (2006) looked at earnings manipulation and the effect thereof on earnings quality and stock returns. Chan et al. (2006) find that there is asymmetry in earnings manipulation, i.e. there is more likelihood that accruals will be increased to temporarily boost earnings rather than an artificial lowering of accruals to dampen earnings.

Chan et al. (2006) show that extreme accruals tend to be reversed quite quickly in the following financial year with growth in sales and earnings slowing down (relative to total assets) a year after the corresponding extreme rise in accruals. Chan et al. (2006) caution that if there earnings improve at the same time as an increase in accruals (and the corresponding decrease in cash flows), then this should be taken as an advance warning that future operating performance will be compromised.

Interestingly, Chan et al. (2006) found that firms with low accruals do not appear to manipulate earnings lower as one might expect, i.e. write off bad debts and obsolete inventory when there is sufficient earnings to absorb these losses. The observation of Chan et al. (2006) is that unlike poor earnings quality firms, firms with the lowest accruals tended to exhibit declines in sales and earnings at the same time the low accruals. Chan et al. (2006) suggest that firms might be reducing their earnings (through lower accruals) when there is some certainty that the poor top line performance is nearing an end and that sales growth is likely to improve. By decreasing accruals (lowering earnings further) these firms will exhibit even more substantial improvements to future earnings. Once again it is shown that market participants do not anticipate this pick-up in earnings due to the accrual effect.

Richardson et al. (2006) looked at the relationship between accruals and firms falling foul of the SEC for alleged earnings manipulation(s). Richardson et al. (2006) show that such firms exhibit abnormally high levels of accruals at the time of the alleged earnings manipulations and unusually low accruals post these manipulations. The conclusion that Richardson et al. (2006) reach is that this is a reflection of management manipulation of earnings in order to discretionally distort the accounting records in order to inflate accruals (temporarily) and thereby inflate earnings. This finding provides an interesting instance of Xie's (2001) conclusion that the distortion of accounting items due to earnings management is found to cause the lower persistence of earnings.

This is further supported by Beneish and Vargus (2002) who show that firms where there is abnormally high insider selling, tend to have income-increasing accruals as a result of aggressive accounting choices, for example lower depreciation charges and lower bad debt expense than the norm.

As an example of management manipulation of earnings, Livant and Santiccha (2006) describe “channel stuffing”, a practice of inflating sales by sending more product to its clients than would ordinarily be required. This serves the purpose of inflating sales in the period concerned. Accruals would be inflated due to accounts receivable being abnormally high. The effect of this is either less stock being taken by clients in the subsequent period, or returns of stock, both of which would detract from earnings in subsequent periods due to sales being lower. This inflation of accruals (trade receivables) is clearly then an indication of poor quality earnings.

It is not necessarily only through the manipulation of the accounting that earnings quality can be negatively affected. From time to time discrete, one-off events that are not in the course of ordinary business occur and must be recorded. These include restructuring charges, write-offs, sale of a business unit, sale of assets, insurance claims, etc. due to their temporary nature, these would distort the earnings figure and therefore the quality of earnings.

Platikanova (2008) provides interesting evidence of earnings manipulation declining, earnings quality therefore improving, and a consequent positive effect on the market value of a firm. The study looks for reasons why, when companies are added to the S&P500, a significant, positive abnormal return is typically generated for the company concerned: “the index effect”. Platikanova (2008) looks at the earnings quality of companies pre- and post- inclusion into the S&P500 and find that discretionary accruals decrease after inclusion. The author concludes that this enhancement of earnings quality is a possible contributor to the positive price response

Changes due to business decisions (discretionary item changes)

Controlling net income through management action by increasing or decreasing discretionary expenses (deferring maintenance capital expenditure will decrease depreciation, deferring vehicle purchases, delaying repairs, reducing advertising and marketing expenditure, reducing training and development for staff, reduced research and development. These actions, while improving earnings in the short-term all would reduce the quality of earnings as they, are likely to reduce the likelihood of superior long term earnings (Bernstein & Siegel, 1979). Delaying repairs and maintenance could reduce production efficiency, negatively impacting return on assets. A reduction in research and development, advertising and marketing would

have a dampening impact on future sales and reduced training and development of staff is likely to reduce productivity and competitiveness of employees relative to competitors.

Livant and Santiccha (2006) give a good example of management action (not manipulation) that can have a negative impact on earnings quality. This is where management is overly optimistic about future sales growth and builds up very large inventory holdings. Because this is not expensed, earnings in the year this occurs will be artificially high. The degree to which future sales do not meet these inventory levels, will determine the amount of inventory write-down that needs to occur: the larger the mismatch, the greater the impact on earnings in future periods. This is the same as the concept of temporary accounting distortions raised by Richardson et al. (2006) which was discussed previously.

External factors: Variable and cyclical earnings

The ability to be able to forecast earnings with some degree of certainty is more desirable than trying to predict a volatile earnings stream. Firms that have no control over the price of their product and do not have a high degree of variable costs would generate an earnings stream of poor quality.

High levels of gearing will create volatility due to the effects of both positive and negative leverage. The potential for these swings therefore makes a firm with a high level of gearing have a lower quality of earnings than a lower geared firm.

Businesses that are in cyclical industries have lower earnings quality than those in defensive industries. Examples of cyclical industries would be those exposed to commodities or to interest rate moves.

Establishing historically the persistent portion of earnings for high growth companies is of marginal value according to Cornell and Landsman (2003). However, this does include an assessment of the quality of the earnings though. As long as one is able to separately value the persistent portion of earnings and understand what the value of the growth portion of a company is, then an understanding of the quality both the persistent and the growth earnings is important. An assessment of the quality of both these future earnings streams is crucial in understanding the variability of returns from both.

Economic profits as an indicator of earnings quality

Cornell and Landsman (2003) discussed the earnings quality dilemma. Their conjecture is that debate about earnings quality in fact targets a more fundamental issue: the efficient allocation of capital in a properly functioning capital market. Cornell and Landsman (2003) argue that for this to happen in an optimal manner, the market value of a firm should as much as possible reflect the “true” economic value of the firm. And, in order for this to be the case, any forecasts on which such market/economic values are based need to be as “accurate” as possible.

This then introduces the concept of earnings quality in the context of economic profits. Schipper and Vincent (2003) point out low quality earnings produce a defective resource allocation signal: economic growth will be reduced due to capital being misallocated to low quality earnings firms. Fairfield et al. (2003) reasoned that diminishing returns on net operating assets are a contributing factor to the low persistence in earnings as well as conservatism in accounting, manipulation of accounts and manipulation of earnings through the control of expenditure and capital expenditure.

The concept of diminishing marginal returns and true returns on true economic value leads one into the concept of economic profits as a tool to assess the quality of earnings. Schipper and Vincent’s (2003) discussion on earnings quality is framed within the economics-based definitions of earnings developed by Hicks (1939), where Hicksian income “corresponds to the amount that can be consumed (that is, paid out as dividends) during a period, while leaving a firm equally well off at the beginning and the end of the period”. In other words, this income is the change in net economic assets after transactions with shareholders. Earnings quality, under this framework, is evaluated by the degree to which earnings that are reported correspond to Hicksian income. This definition allows one to evaluate quality without the constraints of accounting rules and management manipulation.

This concept of economic profits is utilised in practice via, amongst others, Stern Stewart’s economic value added (EVA®), measured via ROIC, and HOLT’s cash flow return on Investment, CFROI®.

CFROI® is measure of the cash flow return on capital and is decomposed as follows:

$$\text{CFROI} = \frac{(\text{Adjusted EBIT} \times (1 - \text{tax rate}) + \text{Depreciation \& Other Non-cash charges})}{\text{Capital Invested}}$$

The adjustments made to EBIT are outlined below, but serve to reveal the true quality of earnings after adjusting for any expenses that are actually capital in nature and any financing expenses. Capital invested is discussed below.

EVA® is defined as Return on invested capital (ROIC) less cost of capital. Where ROIC is greater than cost of capital, positive economic profits have been generated, indicating a growth in the value of the firm. In the opposite case where ROIC is less than the firm's cost of capital, the economic losses would be destroying firm value. Put another way, in an economic loss situation, the quality of earnings can be said to be poor, i.e. assets are not generating sufficient returns.

Both these methods look to undo the conservatism in accounting and remove and manipulations that might have occurred in order to assess how well capital has been employed in an economic sense, which one would argue is a better measure of the quality of earnings. The intent and philosophy of both methods are similar, with the CFROI® methodology factoring in inflation on historical assets.

The formulae below link net operating assets to Invested Capital (IC).

$$\text{Net operating Assets (NOA)} = \text{Operating assets} - \text{Operating liabilities}$$

Operating assets includes both current assets (accounts receivable, inventory, etc.) and non-current operating items like property, plant and equipment. Both these items would have accruals as part of their composition. Excluded from operating assets would be financial assets like cash and long-term investments.

$$\text{Operating assets} = \text{Total Assets} - (\text{Cash} + \text{Investments})$$

Operating liabilities exclude the non-operating liabilities (financial liabilities) such as long- and short-term debt. Operating liabilities includes accounts payable and leases, where once again accruals and also accounting conservatism can play a role (through recording disproportionately more capital up front, depressing returns in the beginning and overstating them at the end of a project).

Operating liabilities = Total Liabilities – Total Debt

Substituting in the above:

NOA = Total Assets – (Cash + Investments) - Total Liabilities – Total Debt

Rearranging this:

NOA = Total assets – Cash – Investments – Total Liabilities + Total Debt

Since:

Total Assets – Total Liabilities = Shareholders' Equity

Then:

NOA = Shareholders' Equity + Total Debt – Cash – Investments

This is also referred to as Invested Capital (Damodaran, 2006).

The point of the decomposition of NOA is to highlight the areas where the quality of earnings can be affected through the balance sheet.

The ROIC® and CFROI® methodologies also make adjustments to the income statement items (the numerator) to better approximate economic profits and thereby improve the earnings quality.

As highlighted by Fairfield et al. (2003), accounting conservatism results in more capital allocation being recognized up front. Therefore returns in the early part of a project will appear lower and in the latter stages of a project will expand. Therefore ROA in the first few years will be biased downwards.

Richardson et al (2006) refer to this as a permanent accounting distortion, as it results from the consistent application of biased accounting methods. Richardson et al (2006) use the example of the requirement to expense research and development costs up front. An EVA® approach would reverse this and capitalize the research

and development cost, removing this distortion. Similarly, operating leases are capitalized.

Also, CFROI® (because of its inflation adjustment) allows comparisons across companies, industries, countries and different accounting methods, US GAAP and IFRS, thereby improving the quality of earnings.

The point to note with EVA®, is that while there is a positive correlation between EVA® and firm value, the relationship is not as clear between EVA® and market value changes. In the context of earnings quality as an investment indicator, this has some implications worth considering. The market value of a firm does not only reflect the expected EVA® of current operations and assets of a firm, but also the expected EVA® from future projects.

Market returns are determined by how much EVA is actually delivered versus how much EVA was expected by the market. Where this meets expectations, returns will not be greater than the market. Where EVA beats expectations, excess returns are likely, while a below expectation EVA would be a negative surprise and result in substandard market returns. The negative outcome could be in spite of a firm delivering positive EVA. The key determinant appears to be the non-meeting of expectations. The HOLT system attempts to quantify this market expectation in order for optimal investment strategies to be implemented.

There are also instances where EVA can be of low quality and therefore a poor indicator of future performance. Circumstances under which this would be the case include high growth firms, where most of the value is derived from future operations, cyclical companies, firms where leverage is not stable, and firms where management actions can alter the risk profile of the firm. These circumstances share commonality with factors that affect the quality of earnings of a firm.

Dividends as a indicator of earnings quality

Skinner (2004) looked to see if dividends provide information about the equality of earnings as measured by persistence of earnings. As has been shown already in this paper, greater persistence indicates greater earnings quality. Dividend theory would suggest that part of the basis for a firm's dividend declaration is an evaluation of how sustainable its earnings in the medium to long-term will be. Because high quality earnings would exhibit good persistence, it should follow that dividend policy and earnings should have a good correlation. The investigation by Skinner (2004) looks at long term S&P data from 1871 to 2002.

The results of Skinner (2004) indicate that dividends do provide information about future earnings. This informational content is in addition to any information that current earnings convey. Skinner (2004) finds that firms that pay dividends have a stronger relationship between current and future earnings, than firms that don't. The size of the dividend was also important: firms that pay large dividends tended to have higher earnings quality. The size of the dividends is measured as the pay-out ratio.

Skinner (2004) also finds a size effect: large firms that pay large dividends have higher earnings quality than either large firms that don't or smaller firms that pay large dividends. These results were valid for earnings one and two years into the future.

Does the market price for earnings quality?

As already pointed out in this paper, previous research suggests that one metric is not appropriate for valuation purposes and that a detailed analysis of the quality of earnings is necessary. The analysis of the multitude of components in financial statements and assessment of their quality provides a guide as to what is likely to occur in the future and what the risk (likelihood of forecasts not being close to actual results) is.

The question that then comes to mind is, how does one protect against future, unknown instances of sudden changes in earnings quality? A company that historically has made accounting adjustments, or made short-term business decisions to improve earnings, or is a business in a cyclical industry, is likely to continue with these practices. Therefore, while any forecast of earnings is likely to exclude these factors, the likely outcome is that actual future earnings are likely to contain one or more of these factors, thereby continuing the trend of poor quality earnings. The obvious place then to factor in this forecast risk is in the discount rate applied to the PV calculation.

One means of incorporating this risk in a valuation context would be through an appropriate risk-adjusted discount rate. An easy example of this would be a cyclical company. A cyclical company would have a higher beta than the market. Using CAPM, the cost of equity would be higher, resulting in the PV being lower, all other things equal, than a defensive company.

Academic support for this view is provided Francis et al. (2004). Their investigation of seven attributes of earnings: accrual quality, persistence, predictability, smoothness, value relevance, timeliness and conservatism found that companies exhibiting the negative or poor rating for each of these attributes, when examined individually, tend to have higher costs of equity. In particular, firms with poor accrual quality exhibit the largest effect of cost of equity (upward). Applying these higher costs of equity to a valuation model would result in a lower equity value, or put another way, poor quality earnings (via poor accrual quality) is negative for the valuation of a company.

Francis et al. (2005) looked at the market pricing of firms total cost of capital, both equity and debt, in relation to the earnings quality of a firm and found an inverse relationship. Low quality firms tended to have higher betas (a difference in spread of 0.23 to 0.51 between the lowest and highest quintiles) which translates to a 150-300 basis point higher cost of capital for poorer earnings quality firms. Low earnings quality firms also suffered from relatively lower debt ratings; firms with the lowest earnings quality tended to attract 80-160 basis point higher costs of debt relative to firms with the highest earnings quality. Evidence of the pricing of the systematic component of earnings quality is supported by the results of a study by Aboody et al. (2005).

Francis et al. (2005) do not separate the effects of management manipulation (on accounting or business decisions), the characteristics of a particular firm or industry or the effects of the economic environment on the business as the earnings quality metric used capture all these effects. Therefore, their results reflect the effect of the overall earnings quality of a firm, as allocated by the capital market. Their interpretation is that earnings quality is a non-diversifiable information risk factor, much the same as size or book-to-market factors and it is priced accordingly by investors.

These findings support a theme in this paper, that lower quality earnings are by their definition, more risky (less likely to be repeated) and have poor information content. The improvement of the information content of earnings through more precise accounting information and lower accruals (earnings approximate cash flows) will improve the equality of earnings and thereby lower the cost of capital for a firm.

Quality of earnings as valuation/trading strategy

Evidence of long-short strategies based on earnings quality investigated

Sloan (1996) enquires if earnings expectations embedded in stock prices fully reflect the higher earnings persistence attributable to the cash flow component of earnings and the lower earnings persistence attributable to the accrual component of earnings? This then looks to address the magnitude of any mispricing and the direction thereof. Sloan (1996) finds that investors appear to treat the accrual component as if it is more persistent and the cash flow component as if it is less persistent. The magnitude of the mispricing, however, could not precisely be inferred as it was sensitive to model specifications.

If this would hold true, would a trading strategy of taking a long position in shares that have low accruals and short positions in shares with high accruals generate positive, abnormal returns? Conversely, does a strategy of going long shares with high cash flows relative to earnings and short firms with low cash conversion generate positive, abnormal returns? This is an extension of the second question: what is the magnitude of mispricing due to accruals and the direction thereof? If investors fixate on current earnings and the current stock prices do not reflect the quality of earnings, then a simple long-short trading strategy should yield positive, abnormal returns. Sloan found this to be the case, even after accounting for the Fama and French (1992) variables of size, book-to-market, historical beta and earnings-to-price. Sloan (1996) does note, however, that there are practical hurdles to overcome in implementing such a strategy. These include information acquisition costs, processing costs, the limits due to price pressure effects and the potential that sufficient quantities of stock may not be available to optimise the strategy. He concludes that possibly the returns observed in the test just are the normal returns that an active investment strategy based on fundamental analysis might achieve.

If earnings quality provides useful information regarding future stock returns, would accruals have predictive power for stock returns? While focusing on accounting accruals, Chan et al.'s (2006) findings confirm Sloan's (1996) findings that accruals are reliably, negatively correlated to future stock returns.

Given Sloan's (1996) conclusion that a long-short strategy on high-low earnings quality shares would yield positive, abnormal returns, it would be logical to assume that market participants would engage in such strategies.

Richardson (2003), examined whether investors engage in the short-selling of listed firms with high accruals in order to profit from the predictable lower future returns (as per Sloan 1996). The sample Richardson (2003) used is of US traded firms from 1990 to 1998. The obvious criticism here is that the data is old, and possibly things have changed.

Surprisingly, his findings indicated that investors engaged in short-selling did not do so on the informational content of accruals. The interpretation of this is either "investors are ignoring important information" or the more likely conclusion that it is more expensive and far riskier to short-sell firms that exhibit high accruals.

In terms of this risk Richardson (2003) notes that firms exhibiting high accruals tended to have low book-market ratios and high sales growth as well as smaller market capitalisations. Because short-sellers carry unlimited risk on the upside, they would be nervous of shorting shares that have the potential for continued high growth. In addition, small market capitalisation shares tend to have lower liquidity which would in all likelihood make it too costly for short sellers to engage in the appropriate strategies. These factors might explain the Richardson (2003) findings that short-sellers do not exploit the information contained in accruals.

This preference for liquidity is supported by Desai et al (2006) who test the effects of firm size on short sellers' preferences with respect to accruals. Desai et al (2006) find that in firms with larger market capitalisation and therefore greater liquidity, there is a greater propensity for short-sellers to trade on the basis of the level of a firm's accruals / earnings quality. This is consistent with short-sellers preference, in general, for more liquid stocks as this reduces the likelihood of a short squeeze.

Richardson (2003) looks at the earnings restatements of both Enron and Worldcom. Richardson (2003) shows that in spite of the high level of accruals in the late 1990's, there is no evidence of short selling in anticipation of the problems associated with high levels of accruals. Richardson (2003) concludes that short-selling is only evident post the restatement announcement. Because these shares were large, actively

traded and well covered by analysts, Richardson (2003) concludes that costs would not have been an inhibiting factor for short selling.

By documenting the absence of a relationship between short sales and accruals, this paper provides further evidence to support the prior findings that the market does not factor in earnings quality information fully.

Evidence of short activity in firms with poor earnings quality?

An interesting study by Desai et al (2006) investigated how short-sellers behaved over the periods that firms make public and acknowledge material errors in their previously reported financial statements. Desai et al (2006) ask the question as to whether short sellers use accounting information in order to aid their identification of short-selling targets. Put another way, does poor earnings quality attract short selling?

The Desai et al (2006) paper looks to answer the following questions: i) Does the questionable financial reporting prompt short-selling; ii) Is there evidence of positions being taken by short-sellers ahead of the announcement of earnings restatements?; iii) Does the magnitude of the accruals affect short-selling?; iv) Does the degree of short interest pre- earnings restatements assist in predicting the subsequent (poor) performance of restating firms.

The results for the first two questions are as follows: short positions are taken up ahead of earnings restatements and these are initiated several months prior to such restatements. The research of Desai et al (2006) suggests that the motive for short selling appears to be related to questionable accounting practices and that these are identified by short-sellers prior to the public disclosure of such practices. This contradicts Bradshaw et al (2001) "... that the market, on average, and other informed market participants, such as analysts and auditors, fail to detect (or choose to ignore) such practices."

As to the magnitude of accruals, the authors find that the greater the accruals the higher the increase in short interest prior to the restatement announcement. Decomposing accruals into its components, the authors show that short sellers are particularly more active in firms with less reliable and less persistent accruals.

Combining these findings indicates that short sellers do target firms with low quality earnings.

Lastly, the study by Desai et al (2006) shows that where firms have attracted high levels of short interest prior to an earnings restatement tend to exhibit lower returns post the announcement and tend to exhibit a higher chance of delisting due to performance related issues.

The authors provide a useful comparison to Richardson's (2003) study discussed in the previous section of this paper. Desai et al (2006) show that isolate their sample to firms that are known, *ex post*, to have poor earnings quality and then study the short-selling behaviour. Richardson (2003) in contrast, uses a large sample of all firms on US stock exchanges to examine the relationship between accruals and short-selling, The difference being that in the broader sample, other factors might impact the motivation for short selling, or at least reduce the impact of the influence of accruals on short interest.

A criticism of the data used by Desai et al (2006) is that it is for a short period and is a small sample. The original sample consisted of 919 restatements between 01 January 1997 and 30 June 2002. After exclusions, final sample totalled 477. The authors also recognise that because the sample is chosen *ex post* there is a potential for selection bias and therefore it is not clear whether the results can be generalised.

Another point worth noting is that most literature focuses on current operating accruals. However, both Richardson (2003) and Desai et al (2006) include cash flows from investing activities (CFI). CFI includes accruals resulting from capital investments in physical assets or in intangible assets (e.g. software development costs). Richardson et al (2005) show that investing accruals, such as non-current operating asset accruals, are less reliable and are associated with lower earnings persistence and exhibit greater mispricing.

Insider trading and earnings quality

Managers of firms are in the position to make changes to both accounting or to operations that can affect the quality of earnings. These changes can be with the intent to mislead investors: manipulate the numbers to mislead investors about poor performance, or to provide a better reflection of the economic reality of a firm and the actual persistence of earnings. These managers therefore have more information

than the general market and any trades by them should act as a signal as to the quality of their respective firms' earnings.

This begs the question, does the trade by insiders provide any indication as to earnings quality? With this as the backdrop, Beneish and Vargus (2002) build on the Sloan (1996) research and show that insider trading information is useful in *ex ante* identifying the likely persistence (quality) of firms' income-increasing accruals. Beneish and Vargus (2002) find that the market does not misprice income-increasing accruals that are accompanied by insider buying – a signal of good persistence of earnings by insiders. However, consistent with, and adding to, the Sloan (1996) finding, the market misprices high-accrual firms even where there is insider selling. Specifically, Beneish and Vargus (2002) find that the trades of the top five executives of a firm provide the best signal with respect to the persistence of earnings quality and therefore the best signal to earn abnormal excess returns.

The concept of information asymmetry is utilised by Aboody et al (2005), with earnings quality as a proxy for information asymmetry, to investigate whether privately informed traders (insiders) earn abnormal excess returns where earnings quality is a significant risk factor. Earnings quality is defined as the absolute value of the abnormal component of accruals, i.e. the discretionary component. This is used because these are the accruals more likely to be affected by management discretion (manipulation) and therefore is less likely to be in the public domain prior to results announcements. In order to measure insider trading they examined all trades (both buy and sell transactions) by corporate insiders (officers, directors, and principal stockholders) that are subsequently publicly disclosed to the Securities and Exchange Commission (SEC) from January 1985 to November 2003.

Once again, the results are more pronounced on the buy-side of the transactions where the corporate insiders earned abnormal excess returns in low quality earnings firms. The weak results pertaining to insiders' selling (in the form of smaller, insignificant profits) is explained by the authors as follows: typically corporate insiders would have much of their wealth tied up in firms in terms of stock. Their motivation to sell then is more due to diversification or consumption reasons, rather than profit motive driven by non-public information. This supports the Beneish and Vargus (2002) interpretation that investors do not seem to understand or factor in the signals relating to earnings quality when there is insider selling. Beneish and Vargus (2002) also attribute this to the undiversified nature of typical corporate insiders' wealth, where most of this is tied up in the stock of their own company. Therefore the

motivation for insider selling is difficult to isolate. Investors cannot interpret whether the selling is for an anticipated poor future performance of the firm, or more due to individual needs (portfolio rebalancing, liquidity needs, tax issues, etc.).

Conclusion

The level of accruals are a reflection of the quality of earnings of a firm. This is true for whatever level of granularity, from current asset accruals, to abnormal accruals, to all accruals including non-current operating asset accruals. The review of the prominent literature on the topic of earnings quality all point to this “accrual anomaly” - that firms that exhibit high (low) accruals in one period tend to have a high (low) rate of return in that same period, but are likely to experience significant reductions (increases) in their rates of return in the subsequent period.

Given that earnings tend to affect valuations, it follows that companies with high accruals will have low quality earnings and therefore would have a negative impact on the valuation of the company. The literature reviewed indicates that this is indeed the case. These reversion effects have been found occur in periods ranging from immediately after an earnings announcement, to quarterly, and up to a year after a results release.

Accounting conservatism can also affect earnings quality. Conservative methods of accounting result in more capital allocation being recognized up front. Therefore returns in the early part of a project will appear lower and in the latter stages of a project will expand. Therefore ROA in the first few years of a project will be biased downwards, which will appear to negatively impact earnings quality initially, with stronger returns towards the latter stages of a project.

Other areas where the earnings quality of a firm can be affected include management window dressing/ manipulation, business decisions, level of gearing, the nature of the company (how firm is positioned in an industry) or the nature of an industry (cyclical versus non-cyclical).

Given the evidence of the “accrual anomaly”, that investors treat the accrual component as if it is more persistent and the cash flow component as if it is less persistent, a trading strategy of taking long positions in shares that has low accruals and short positions in shares with high accruals should generate positive, abnormal returns. The literature suggests that this should be the case, that accruals are negatively correlated to future share price returns. However, studies into what occurs in the market indicate that this strategy is not employed as fully one would expect.

One of the reasons for this is liquidity constraints; high accrual companies have a tendency to have lower market capitalisations. The other is that it can prove too costly to short-sell high-accrual shares as these tend to have high growth rates. The risk here is that the firm exhibits continued, longer than expected growth to which short-sellers have unlimited upside risk exposure.

It appears that the crux of the question as to whether earnings quality is a good investment indicator is that the market is unable to process accounting information. Market participants seem to extrapolate historic information into the future, ignoring what the accounting data is informing them. Therefore, high accruals (low quality earnings) are expected by the market to continue with no regard for mean reversion or the common business sense that should be applied for it, let alone the abundant evidence in financial literature to the contrary.

This “anchoring” or fixation by investors does seem to be the cause of the abnormal returns that can be earned by anticipating this behavioural bias whether it be by looking at the earnings quality of a firm or looking at value stocks or by some other measure.

Further work in this topic would be a replication of the studies mentioned in this paper on firms listed on the Johannesburg Stock Exchange.

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