Earnings Quality Associations with Firm Fundamentals and Future Growth

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Abstract

This study provides evidence documenting 'earnings quality' links to firm fundamentals and conditional associations with future growth that may assist in the interpretation of commonly used measures of earnings quality. Our study is motivated by concerns that earnings quality research does not distinguish economic fundamentals effects impounded in earnings from the specific effects of interest to the researcher (e.g., Dechow et al., 2010; Dichev et al., 2013). We employ measures of the firm's life cycle stage to proxy for differences in the firm's economic fundamentals. We first predict and find higher earnings quality for the mature firm life cycle relative to introduction, growth and decline firm life cycles, and distinguish the proxies unambiguously signaling earnings quality. Next we document that industry adjusted future firm growth is associated with a lower level of earnings quality for the growth firm life cycle compared to the other firm life cycles. Our study sheds light on the economics of earnings quality which may be useful to researchers and analysts (e.g., *higher earnings persistence* reflects the mature firm life cycle with positive operating cash flows and negative investing and financing cash flows, reflecting a mature production function with stabilizing growth). Additional analysis for a restatement sample suggests accounting quality measures for restated data do not convey fundamental information as theorized and observed empirically in the primary sample.

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1.0 Introduction

This study examines the association between commonly employed proxies for earnings quality and future firm growth. Earnings quality is defined by Palepu and Healy (2008) as the extent that accounting measurement processes and their implementation by the firms captures the firms' underlying economic fundamentals. We conduct our investigation in the context of the firm's life cycle stage with the objective to provide new insights on the earnings quality arising naturally from the firms' growth stage.

The research question we address is whether commonly employed proxies for earnings quality are predictably associated with firm fundamentals and future firm growth. Motivating this research is the focus of capital market participants on earnings and the associated importance of understanding how to interpret the commonly employed proxies for earnings quality in evaluating the firms' future prospects. The benefits thought to flow from higher quality earnings are often attributed to the 'quality' of the firm's accounting system. Lower levels of the proxies for earnings quality have been attributed to accounting failures (i.e., intentional earnings management or unintentional failures) with adverse consequences for the cost of capital, investment efficiency, and future growth (Bharath, Sunder and Sunder, 2008; Biddle, Hilary and Verdi, 2009; Li and Shroff, 2010). However, some researchers argue the earnings quality studies may not distinguish earnings naturally flowing from the firm's economic fundamentals from the specific earnings effects of interest to the researcher (Dechow et al., 2010; Dichev et al., 2013). The objective of this study is to provide new insights on this issue in the decision context of evaluating future firm growth.

The contribution of this study is twofold. First, earnings quality and growth estimates are central to financial statement analysis and valuation, and the accruals in earnings (giving rise to

differences in earnings quality) are related to growth in assets and sales (Sloan, 1996; Fairfield, Whisenant and Yohn, 2003; Allen, Larson and Sloan, 2013). Because accrual earnings related to growth are less persistent than other accruals and cash flows, and therefore less useful for forecasting, differences in the growth stage of the firms will naturally lead to differences in earnings quality. However, these latter differences in earnings quality are not due to a failure of the accounting system or earnings management but instead are a function of differences in the firms' fundamental stage of growth. Evidence documenting the earnings quality links to firm fundamentals and earnings quality conditional associations with future growth assists researchers and market participants to interpret earnings quality measures more accurately. Second, the literature includes many studies of the consequences of earnings quality (e.g., Bharath, Sunder and Sunder, 2008; Biddle, Hilary and Verdi, 2009; and Li and Shroff, 2010).[1] Our evidence builds on the 'consequences' literature to suggest that anchoring earnings quality analyses on differences in the firms' fundamental stage of growth may sharpen the insights available on the benefits of earnings quality.

Empirical analyses are conducted for a sample of United States firms for the period 1998 to 2011. We employ the theoretical foundation from the firm life cycle literature as developed in Dickinson (2011) to capture differences in the firms' stage of growth and hence variation in the naturally occurring component of earnings quality.[2] Earnings quality is measured as in the accounting literature to include earnings persistence, changes in accruals, earnings backed by cash flows, the persistence of deviations between earnings and cash flows, and the firms'

[1] For example, Li and Shroff (2010) conclude that earnings quality arising from superior accounting systems is a facilitator of higher industry growth in uncertain sectors because earnings quality reduces information asymmetry and enhances resource allocation efficiencies.

[2] Dickinson (2011) develops a five-stage firm life cycle classification using economic literature on life cycles and production functions: introduction, growth, mature, shake-out, and decline.

deviations of earnings and sales from industry peers (Dichev et al., 2013). We define future firm growth to include industry-adjusted growth in sales, assets and the market value of equity.

We first hypothesize and find evidence that the proxies for earnings quality generally exhibit higher levels on average for the mature firm life cycle, compared to introduction, growth and decline firm life cycles. The theoretical basis for this prediction is that steady state earnings growth is observed on average for maturing companies which is accompanied by lower uncertainty about earnings realizability. The accounting system deals with the uncertainty of future earnings by delaying recognition of revenue and assets (Penman and Regianno, 2013). Penman and Yehuda (2015) show the effect of delayed accounting for revenues under uncertainty, and subsequent recognition as uncertainty resolves, is that financial statements reflect the riskiness associated with the earnings stream across the companies' growth stages. The results from tests of our first hypothesis document this phenomenon: levels of earnings quality are higher on average for the mature firm life cycle, reflecting less risky earnings compared to the earnings of firms at the introduction, growth or decline stages of growth.

Second, we confirm the fundamental expectation that the growth firm life cycle generally has the highest explanatory power for future growth. Third, we hypothesize that industry adjusted future firm growth is associated with a lower level of earnings quality for the growth firm life cycle stage compared to the other firm life cycle stages. Using three measures of future growth (sales growth, asset growth, and market value growth), we test Hypothesis 2 by conditioning the association between industry adjusted future growth and the measures of earnings quality on the five measures of firm life cycles. The tests support Hypothesis 2, documenting the growth firm life cycle exhibits the lowest earnings quality for many of the earnings quality proxies. The analysis also demonstrates the consistency of fundamental

information embodied in some earnings quality proxies (e.g. earnings persistence, the Dechow and Dichev (2002) 'residual' measure, and deviations from the mean industry sales). The results also highlight the ambiguity surrounding the interpretation of some earnings quality proxies as discussed in the theory (section 2) (particularly 'earnings backed by cash flows' measures).

Conclusions from the tests of Hypotheses 1 and 2 are robust to industry and year fixed effects, robust regression techniques, and alternative explanations for the level of accounting quality and future growth including variations in performance and bankruptcy risk as proxied by Altman's Z-Score, expected growth and accounting conservatism as proxied by the market-to-book ratio, and corporate governance oversight as proxied by auditor quality. Additional analysis for a restatement sample of firms further suggests how the fundamental information conveyed by the earnings quality measures might be impacted by incentives for aggressive accounting even after the accounting data has been restated.

Evidence from this study highlights the importance of considering the effects of the firms' fundamentals on earnings quality when studying the association between earnings quality measures and other variables of interest (i.e., determinants or consequences of earnings quality). Penman and Yehuda (2015) show financial reports convey additional information about future growth over and above the firm's expected future cash flows. More specifically because earnings recognition is delayed under uncertainty (until cash or an accounts receivable is recognizable), earnings-based measures of accounting quality convey information about both expected future cash flows and the uncertainty of expected future cash flows. Consistent with this intuition, we present evidence on earnings quality measures that convey growth stage relevant information, and distinguish the proxies unambiguously signaling earnings quality. The paper also provides theoretical and empirical insights on the contribution of the earnings-based measures of

accounting quality to the explanation of future growth, for cohorts of firms with different expected cash flows and different levels of uncertainty associated with the expected cash flows with application to the financial statement analysis literature.

The remainder of the paper proceeds as follows. Section 2 reviews the related literature and develops the hypotheses. Section 3 describes the sample data and research design. Section 4 reports the main results and additional tests. Finally, section 5 concludes the study.

2.0 Prior Literature and Hypothesis Development

2.1 Background Literature on Earnings Quality

A number of earnings quality definitions and measures exist in the accounting literature. The most widely observed definitions relate first, to the extent that earnings capture the firm's economic fundamentals (Palepu and Healy, 2008), and second, to the persistence of earnings and usefulness for evaluating the firm's future performance (e.g., Penman and Zhang, 2002).[3] Some researchers interpret variation in definitions and measures of earnings quality as indicative of 'broad disagreement about how to define and measure' the quality of earnings (Dichev et al., 2013, 2). Another perspective is different measures of earnings quality commonly observed in the literature capture partially different underlying constructs (Dechow et al., 2010, 344). Nelson and Skinner (2013) suggest disagreement on the definition of earnings quality appears to center on two earnings quality attributes: the ability of accounting information to reflect the firms' fundamentals and the persistence of earnings.

We view the different earnings quality definitions as sub-sets of the wider definition (the extent earnings capture the firm's economic fundamentals) adopted by Palepu and Healy (2008).

[3] Other definitions include the timeliness of loss recognition in earnings (Basu, 1997) and accounting conservatism that delays the recognition of assets under uncertainty (Penman and Reggiani, 2013).

This view assumes the firm's business activities are the first order inputs to an accounting system implemented by the firm using generally accepted accounting principles (GAAP). Our perspective accords with the FASB's statement of the objective of general purpose financial reporting (SFAS No. 8) to generate accounting numbers that *reflect the firm's economic fundamentals* on average so that investors and others can evaluate the firm's future prospects and make investment decisions.[4]

The accounting literature has focused on management incentives to manipulate earnings as a determinant of low earnings quality, and the consequences for firms and investors.[5] Managerial incentives to manipulate earnings are linked to weak firm performance, high debt levels, internal control deficiencies, pressure to meet or beat earnings targets, and external factors such as tax regulations and macroeconomic conditions (e.g., Defond and Jiambalvo, 1994; Keating and Zimmerman, 1999; Roychowdhury, 2006; Doyle, Ge and McVay, 2007; Kim and Qi, 2010).

Benefits thought to flow from higher quality earnings are often attributed to the 'quality' of the accounting system (Dechow et al., 2010). Lower earnings quality from intentional earnings management and unintentional errors is assumed to increase information asymmetry between the firm and capital market, increase the cost of capital, lower the firm's investment efficiency, and lower future growth due to resource allocation problems (e.g., Bharath, Sunder and Sunder, 2008; Biddle, Hilary and Verdi, 2009; Li and Shroff, 2010). [6]

[4] Financial Accounting Standards Board's (FASB) Statement of Financial Accounting Concepts No. 8 (2010, 1-2).
[5] Dechow et al., (2010, 379) classify the 'determinants' literature into six categories relating to managers' exercise of accounting discretion: firm characteristics, financial reporting practices, governance and controls, auditors, equity market incentives and external factors of capital raising, political processes, and regulation. They identify nine categories of literature on the consequences of low or high earnings quality: litigation propensity, audit opinions, market valuations, real activities including disclosure, executive compensation, labor market outcomes, firm's cost of capital, firm's cost of debt, and analysts' forecast accuracy.
[6] Lambert, Leuz and Verrecchia (2007) argue earnings quality that more accurately reveals a firm's future cash flows leads to a lower cost of capital. Biddle, Hilary, and Verdi (2009) and McNichols and Stubben (2008) posit higher earnings quality lowers information asymmetry, constrains accounting manipulations, and leads to a positive

Conversely, other studies find 'earnings quality' is not economically significant independently of the firm's fundamental (innate) factors (Francis, LaFond, Olsson and Schipper, 2005; Core, Guay and Verdi, 2008). Francis et al., (2005) study the market's pricing of accruals quality using proxies computed from discretionary accruals models and controls for firm characteristics. They conclude that for 'broad samples [of firms] over long periods the quality of earnings is impacted more by 'management's long term strategic decisions that affect intrinsic factors' rather than 'management's short-term reporting choices' (Francis et al., 2005, 298). They find discretionary accruals (proxying for earnings quality) have a weaker pricing effect compared to the innate accruals component. Armstrong, Foster and Taylor (2015) revisit the finding in the literature that initial public offering companies exhibit abnormally high accruals in the listing year attributable to opportunism. Armstrong et al., (2015) find the abnormal accruals of newly public companies are attributable to investments in working capital rather than systematic opportunism and low quality reporting. Donelson, Jennings and McInnis (2011) also present evidence that economic factors are first order drivers of earnings quality measures. Cohen (2008) argues a failure to control for firm characteristics such as the demand for capital, firm performance, information environment, and litigation costs may lead researchers to incorrectly attribute cost of capital benefits to information quality rather than the firm's characteristics. Dechow et al., (2010, 3) conclude the literature 'often inadequately distinguishes the impact of fundamental performance on earnings quality from the impact of the [accounting] measurement system'. They note relatively little evidence documents how fundamental

earnings quality link to investment efficiency. Bharath, Sunder and Sunder (2008) and Garcia-Teruel, Martinez-Solano and Sanchez-Ballesta (2010) argue higher earnings quality embeds superior estimates of future cash flows and therefore relates to the choice of private or public debt and the design of debt contracts. Li and Shroff (2010, 1) posit 'financial reporting quality facilitates economic growth'. They conclude high information uncertainty industries grow faster in countries with 'high reporting quality'.

performance relates to earnings quality despite earnings 'quality' depending on both firm performance and the accounting measurement system. Our paper focuses on this issue.

2.1 Earnings Quality Associations with Firm Fundamentals

Our first research question examines the association between firm fundamentals and measures of earnings quality. Fundamentals in this study comprise the firm's growth stage determined by reference to the *firm's* life cycle stage.

The economic life cycle literature has focused on *product* and *technology* life cycles to study industry and technological innovation evolution (e.g., Kuznets, 1930; Utterback and Abernathy, 1975; Abernathy and Utterback, 1978; Gort and Klepper, 1982; Winter, 1984; Jovanovic and MacDonald, 1994; Klepper, 1996). Gort and Klepper (1982) and Klepper (1996) documented the now widely accepted regularities of a product life cycle for which the labels 'product' and industry' tend to be used interchangeably. In parallel, researchers at the interface of economics and strategy developed 'organizational' life cycle models and evidence of 'predictable pattern[s] across discrete stages of [firm] development over time' (Rumelt, 1974; Kimberly and Miles, 1980; Quinn and Cameron, 1983; Dodge, Fullerton and Robbins, 1994). Mills and Friesen (1984, 1161) empirically document the predicted organizational stages using a five stage classification developed from the theoretical literature: (1) birth, (2) growth, (3) maturity, (4) revival (or shakeout), and (5) decline.[7]

Stage 1: Firms of typically smaller size undertake product or service development and marketing to initiate growth;
Stage 2: Firms invest heavily to grow and attain a minimum economic scale for survival;
Stage 3: Ongoing investment but some firms move to a steady state of growth at maturity;

[7] Mills and Friesen (1984, 1161) employ fifty-four 'strategy, structure, environment and decision making style' variables, based on theories outlined in their paper, and present evidence consistent with predicted inter-stage differences across the five firm life cycles.

Stage 4: Stabilization of growth is followed by a shakeout 'exit' stage for the firms with inefficient cost structures and/or unviable scale and market share; and
Stage 5: Declining performance and eventual takeover or exit occur for some firms unable to maintain/rebuild competitive advantage.

The only Mills and Friesen finding departing from maintained assumptions in the literature is that firms do not follow the same sequence through the life cycle stages. Firms sometimes stay in a firm life cycle stage indefinitely or jump backwards and forwards between the stages. Economists provide explanations for this phenomenon. Agarwal and Audretsch (2001) report the *firm's* development stage interacts with the stage of development of the industry and technology area(s) to which the firm's investments and operations relate.[8] From the industry (product) life cycle perspective, factors that vary across industry life cycle stage and/or industries and interact with the firm life cycle attributes include 'the level of competition, the predictability of demand, and the rate and form of technical change' (Agarwal and Gort, 2002, 184). From the firm's perspective, Agarwal and Gort (2002, 185) suggest three attributes inherent in *firm* life cycle stages 'learning by doing, differences in the quality of initial endowments, and changes in endowments as a result of investments (net of obsolescence)'.

The concept of a *firm* life cycle recognizes that development and sales of technological innovations and products by enterprise depends on strategic actions of *people in firms* in response to perceived external opportunities, manifesting in financing, investing and operating activities (Alchian, 1984; Dosi, 1988).[9] Consistent with the concept of firm life cycle tracking firm growth through the strategic actions of people in firms, Dickinson (2011) uses the signs of

[8] e.g., change across firm life cycle includes innovation (Koberg, Uhlenbruck and Sarason, 1996), management accounting systems (Moores and Yuen, 2001), and patterns of innovative activities (Malerba and Orsenigo, 1996).
[9] Alchian (1984, 47) remarks, 'even if the number and name of firms in an "industry" didn't change, that would tell nothing about the effectiveness of competition - for it tells nothing about the changing content and actions of any of the firms'.

financing, investing and operating cash flows to develop a proxy for firm life cycle using five firm life cycle stages: introduction, growth, mature, shakeout, and decline. Although Dickinson's paper refers to the product life cycle classification legitimized by Gort and Klepper (1982), her *firm* life cycle stage is consistent with the *firm* life cycle classification synthesized from the literature and empirically tested by Mills and Friesen (1984).

Dickinson (2011) provides evidence that accounting numbers tend to reflect the development stage of firms.[10] She shows profitability is highest in the mature stage, profit margins are highest in the growth and mature stages, growth in sales and capital expenditures decrease monotonically across the life cycle stages, the market-to-book ratio is increasing through the growth life cycle then decreasing thereafter, consistent with the realization of expected growth for the surviving firms, leverage increases up to the growth stage and then declines, and dividend payout maximizes at the mature life cycle stage.

We first hypothesize that 'earnings quality' as captured by commonly-employed earnings-based measures is higher for firms in the mature firm life cycle stage compared to firms in the introduction, growth or decline stages. Lower 'earnings quality' for introduction, growth and decline firms reflects the higher risk of growth and declining competitive advantage, respectively. The accounting system deals with the uncertainty of future earnings for growth firms by delaying recognition of revenue and assets (Penman and Regianni, 2013). Penman and Yehuda (2015) show the effect of delayed accounting for revenues under uncertainty, and subsequent recognition as uncertainty resolves, is that financial statements reflect the riskiness associated

[10] Dickinson's findings are consistent with Jovanovic's (1982) 'learning model' that predicts firm growth rates decrease with firm age, and other empirical evidence firm growth rates decrease in firm age and firm size (Kumar, 1985; Evans, 1987; Hall, 1987). She reports results for firm age and size consistent with other evidence that younger and older firms have different types of advantages conditional on their industry and technological choices (Gort and Klepper, 1982; Agarwal and Audretsch, 2001), rendering age and size noisy indicators of firm life cycle stage.

with the earnings stream across the companies' growth stages. Delayed accounting for revenues under uncertainty, and the subsequent recognition of realized earnings as uncertainty resolves, leads to lower *current* book value of equity and earnings and higher book value and *future* earnings as uncertainty resolves. 'Earnings quality' measures that are based on earnings, accruals and operating cash flows, therefore reflect the underlying cash flows as well as the firms' accrual recognition decisions arising from the (riskiness of the) firms' stage of growth. The rate of growth and riskiness of earnings stabilizes as (if and when) the firms' production function matures, leading to stabilizing operating cash flow and earnings streams and 'higher quality' levels of commonly used proxies for earnings quality. Accordingly, we expect the earnings quality to be greater for the mature life cycle (already grown) firms, compared to the higher 'future earnings realizability' risk embedded in earnings for firms in the other firm life cycles.

Hypothesis 1: Higher earnings quality is associated with the mature firm life cycle stage compared to the introduction, growth and decline life cycle stages.

The shakeout firm life cycle stage is characterized by high competition and material heterogeneity (Spence, 1979; Jovanovic, 1982; Black, 1998). Hence, we do not have a specific prediction for the shakeout life cycle firms that are heterogeneous by definition.

2.2 Earnings Quality Associations with Future Growth

The second research question examines the association between industry adjusted future growth and the measures of earnings quality conditioned on the five measures of firm life cycles. The baseline expectation is that the growth firm life cycle has higher explanatory power for future growth compared to the other firm life cycles. Specifically, growth rates tend to mean revert (Nissim and Penman, 2001). We therefore expect that mean reversion of the rate of growth

for firms already grown (i.e., mature, shakeout and decline firm life cycles) leads to stronger links between future growth and the growth life cycle compared to the other firm life cycles.

The amount of earnings realization risk embedded in earnings by the accounting system is expected to determine the conditional associations between the measures of accounting quality and future firm growth (Penman and Yehuda, 2015). Specifically, the higher the embedded risk, the lower the 'earnings quality' in terms of accruals recognition, earnings persistence, earnings backed by cash flows, the Dechow and Dichev (2002) absolute 'residual', and the deviations of the firm's earnings and sales from the mean industry earnings and sales (earnings quality measures are elaborated in detail in section 3.3). The highest levels of embedded risk are expected on average for the growth firm life cycle. Therefore, industry adjusted future firm growth is expected to be associated with a lower level of earnings quality for the growth firm life cycle compared to the other firm life cycles.

Hypothesis 2: Industry adjusted future firm growth is associated with a lower level of earnings quality for the growth firm life cycle compared to the other firm life cycles.

Additional information could be embedded in earnings through the firm's exercise of managerial discretion. The accounting literature tends to focus on managerial incentives to manipulate earnings (Healy and Wahlen, 1999). Chaney, Jeter and Lewis (1998, 104) provide evidence for a large cross section that the firms tend to smooth reported earnings 'around their assessment of the firms' permanent earnings'. Dechow et al., (1996) find firms appearing to bias accounting information have relatively higher external financing needs. Firms incentivized to impute earnings (and earnings quality proxies) with distortions may reduce the predicted associations between future firm growth and the earnings quality measures. We conduct additional analyses for a sample of restatement firms to investigate this possibility.

3.0 Research Design

3.1 Sample and Data

The sample is based on Compustat firms for the period 1998 to 2011 with some variables requiring lagged data from 1997. Firms in the public sector, finance and real estate are excluded due to specific industry and accounting regulation pertaining to their business activities. The sample is further restricted to firm-years with the required Compustat data items. The final sample comprises 40,827 firm-year observations. All continuous variables are winsorized at the top and bottom 1%. Table 1 presents frequency distributions of the sample firms by year.

PUT TABLE 1 ABOUT HERE

Table 2 provides the sample distribution across industry groups and firm life cycle stages. The sample is fairly evenly spread across the industry groups while the distribution of firms across the firm life cycles is most frequent in the mature life cycle followed by the growth life cycle consistent with Dickinson (2011).

PUT TABLE 2 ABOUT HERE

3.2 Firm Life Cycle Stages

Dickinson (2011) uses cash flow patterns to identify five firm life cycles: introduction, growth, mature, shakeout and decline. As discussed in section 2.1, she validates the measurement approach with a series of hypothesis tests relating to the behavior of a range of financial ratios and firm characteristics. Following Dickinson (2011), our sample firms are classified into introduction (I), growth (G), mature (M), shakeout (S), and decline (D) firm life cycles.

As illustrated using Dickinson's diagram above and developed in Dickinson's (2011) paper, patterns of the positive and negative *signs* of the firm's operating, investing and financing cash

flows provide an economic indicator of the stage of development of the firm's production function. Alternative approaches to identify firm life cycles that sort on the level of a variable (e.g., size, age, sales growth, capital expenditures or a combination of these) require uniformity assumptions about firm behavior that tend to be inconsistent with economic theory (as briefly discussed in section 2.1).

	Introduction	**Growth**	**Mature**	**Shake-out**			**Decline**	
Operating Cash Flows	-	+	+	-	+	+	-	-
Investing Cash Flows	-	-	-	-	+	+	+	+
Financing Cash Flows	+	+	-	-	+	-	+	-

Source: Dickinson (2011, Footnote 7)

3.3 Earnings Quality Measures

The earnings quality measures we employ all relate to earnings or earnings components. The intuition behind the interpretation of the measures as lower or higher earnings quality generally refers to the survey evidence in Dichev et al., (2013). They find chief executive officers describe *higher* quality earnings as sustainable earnings (e.g., consistent with the focus on persistence of Penman and Zhang, 2002), earnings backed by cash flows, earnings reflecting consistent reporting choices over time, and earnings minimizing the noisy effects of long-term estimates. The three most common *earnings management* indicators according to the chief executive officers are persistent deviations between earnings and the underlying cash flows, deviations from industry and other peer experience, and large and unexplained accruals and changes in accruals. As noted by Dechow et al., (2010), measures relating to earnings quality do not capture exactly the same construct and predicted signs are developed below.

Persistence (PERS) *and changes in total and current accruals* (ΔTACC and ΔCACC)[11]: Following Dichev and Tang (2008) and Beatty, Liao, and Weber (2010), persistence of earnings (PERS) is calculated as the slope coefficient from the regression of current earnings on the previous period earnings. Accrual earnings related to growth are less persistent than other accruals and cash flows, and less useful for prediction of future performance (Sloan, 1996; Fairfield, Whisenant and Yohn, 2003; Allen, Larson and Sloan, 2013). Richardson et al., (2005) show long-term accruals in earnings relate to greater persistence than short-term accruals and financial accruals are more persistent than operating accruals. In the firm life cycle context, there are large positive short and long term accruals for firms raising funds to grow in the introduction and growth firm life cycles. The growth in short-term accruals stabilizes but the growth in long-term accruals continues through the mature firm life cycle while the firm builds an efficient scale and cost structure (Grant, 1991, 154). *Earnings persistence* is predicted to be lower for the introduction and growth firm life cycle stages and *peaking in the mature life cycle* as long-term investment and revenue growth move to steady state, and decline thereafter as special items reduce the persistence of earnings (Fairfield et al., 2003; Nissim and Penman, 2001; Allen et al., 2013). *Changes in current accruals* relate to sales growth and are expected to *peak in the growth firm life cycle*. *Change in total accruals* (measure used by Healy, 1985; Jones, 1991; and Dechow, Sloan and Sweeney, 1995) are more ambiguous. Total accruals should be increasing up to the maturity firm life cycle. However, the Richardson et al., (2005) evidence points out the different properties of short and long-term accruals and operating and financial accruals. We posit the *mature firm life cycle* is the *peaking point* for total accruals because delays in revenue and asset recognition in earlier firm life cycle should now be resolved.

[11] Accruals measured using balance sheet numbers better match investing cash flows because the assets from mergers and acquisitions and other non-cash transactions go straight to the balance sheet and not through the statement of cash flows (Dechow et al., 2010, 353). We measure the accruals using balance sheet numbers.

Coefficients from regressions of earning and earnings changes on cash flows and changes in cash flows from operations (ECFO and ΔEΔCFO), *and the correlation coefficient between earnings and cash flows from operations* (CORR): According to the literature, higher values of earnings backed by cash flows (ΔEΔCFO, ECFO and CORR) indicate higher earnings quality (e.g., Dechow, Kothari, and Watts, 1998; Dichev et al., 2013)) because the earnings are less likely the result of accruals manipulation. Operating cash flows tend to be negative as firms grow their operating assets and then become positive in the late growth or early mature life cycle. Earnings recognition is also delayed by the accounting system until uncertainty is resolved (Penman and Reggiani, 2013). The coefficients from regressions of earnings on cash flows from operations, and earnings changes on changes in cash from operations, are expected to *peak in the mature firm life cycle* as cash from operations and earnings are both positive and tending to move together in steady state. The simple correlation coefficient between earnings and cash flows from operations reflecting the extent the items move together is also expected to *peak in the mature firm life cycle*. A potential confounding factor is that earnings changes (but not cash from operations) arise from both operating, investing and financing cash flows, which may mean the 'high quality' prediction of a large coefficient cannot occur because the measure is confounded. In that case the interpretation of the cash flow backed by earnings measures would be ambiguous.

Dechow and Dichev (2002) measure of discretionary accruals: The deviation between earnings and the underlying cash flows is proxied by the absolute value of the residuals from a regression of earnings on past, current, and future cash flows ($|RESID|$). Greater deviation between earnings and cash flows as indicated by a larger value of the absolute residuals is interpreted as lower earnings quality due to either earnings management or unintentional effects. The absolute

residual is expected to be *relatively larger for the growth firm life cycle* and then decrease in size as sales and investment growth stabilize in the mature life cycle.[12]

Firms' deviations from the industry average earnings and sales: Lower levels of deviations of earnings and sales from their industry averages (| DEVE | and | DEVSALE |) have been interpreted as indicators of lower earnings quality (Dichev et al., 2013). The absolute deviation of *sales* from the industry average is expected to be higher for earlier firm life cycles (introduction and growth) and *peak in the growth firm life* cycle. Whether we observe systematic behavior for the absolute deviation of *earnings* from the industry average across firm life cycles is more difficult to predict. Current earnings are boosted by aggressive accounting in any firm life cycle and muted by conservative accounting, and both these policies can be legitimately implemented within GAAP. Hence, we cautiously predict larger earnings deviations in the earlier and later firm life cycles (introduction, growth and decline).

Summary of Earnings Quality (EQ) Measures' Predicted Signs for the Firm Life Cycles

	EQ	**Fundamental EQ Predictions Across Firm Life Cycles**	**Higher EQ Predictions from the Literature**
Persistence and sustainability of earnings	PERS	M>I, G, D	Higher EQ = Higher PERS
Avoid one-time item Consistent reporting choices Small changes in or unexplained accruals	ΔTACC	M> I, G	Higher EQ = Lower ΔTACC
	ΔCACC	M<I, G	Higher EQ = Lower ΔCACC
Earnings backed by cash-flows Avoid long-term estimates Low persistent deviations between earnings and the underlying cash flows	ΔEΔCFO	M > I, G	Higher EQ = Higher ΔEΔCFO
	ECFO	M > I, G	Higher EQ = Higher ECFO
	CORR	M > I, G	Higher EQ = Higher CORR
	|RESID|	M<I, G, D	Higher EQ = Lower |RESID|
Smaller deviations from industry peers	|DEVE| |DEVSALE|	M < I, G, D	Higher EQ = Lower |DEVE| and |DEVSALE|

[12] This measure has a look-ahead element because it uses information that is only known in the future. Therefore, we estimate additional measures, first, regressing earnings on current and the last two years of cash flows to obtain an exante measure (| RESID2 |); and second, following Francis et al., (2005) we include changes in revenue and property, plant and equipment (| RESID3 |). We obtain similar results using these adjusted measures.

The variable definitions are summarized in Table 3.

PUT TABLE 3 ABOUT HERE

3.4 Empirical Models

Hypothesis 1 predicts higher earnings quality is associated with the mature firm life cycle. The predicted relation is tested using the following regression.

$$\text{Earnings Quality} = \alpha_1 I_i + \alpha_2 G_i + \alpha_3 M_i + \alpha_4 S_i + \alpha_5 D_i + \alpha_{i,j} \text{Controls} + \delta_i \qquad (1)$$

The binary variables I, G, M, S, and D refer to the Introduction, Growth, Mature, Shakeout and Decline life cycle firms, respectively. No intercepts are included in the estimations to enable the regressions to be estimated including all five categories. The specific sign predictions for the different measures of earnings quality are summarized in section 3.3. Wald tests are conducted to test whether the estimated coefficient for the mature firm life cycle is significantly different in the predicted direction to the estimated coefficients for the other firm life cycles.

For Hypothesis 2, we start by estimating equation (2) (below) to obtain a benchmark for the signs and significance of the earnings quality measures relative to the expected signs: i.e., we expect the growth firm life cycle with the generally lower accounting quality to best predict future growth and hence the expected earnings quality signs would be those posited for the growth firm life cycle.

$$\text{Future Firm Growth (Industry adjusted)} = \alpha_0 + \alpha_1 EQ_i + \alpha_{i,j} \text{Controls}_{i,j} + \delta_i \qquad (2)$$

Future growth is measured as the firms' industry adjusted firm growth in future sales (G_Sales), future total assets (G_Asset), and future market value of equity (G_MVE). Hypothesis 2 is tested using equation (3).

$$\text{Future Firm Growth (Industry adjusted)} = \alpha_0 + \alpha_1 EQ_i + \alpha_2 I_i + \alpha_3 M_i + \alpha_4 S_i + \alpha_5 D_i + \alpha_6(EQ*I)_i + \alpha_7(EQ*M)_i + \alpha_8(EQ*S)_i + \alpha_9(EQ*D)_i + \alpha_{i,j} Controls_{i,j} + \delta_i \quad (3)$$

To test Hypothesis 2, equation (3) drops the growth firm life cycle category (G) to allow the *intercept* to capture the growth firm life cycle effects. The firm life cycle categories I, M, S and D are thus *measured relative to the G category* (as captured by the intercept) with the G category acting as a default reference category. Accordingly, the coefficient estimates for I, M, S and D and the associated t-statistics provide a test of the direction and statistical significance of differences relative to the G firm life cycle for explaining future growth.

The baseline expectation is the growth firm life cycle will have relatively higher explanatory power for future growth. Interactions between EQ and the I, M, S and D firm life cycles are included in equation (3) to test Hypothesis 2. Our test compares the interactions with the EQ variable which captures EQ for the G category. The interaction coefficients, t-statistics and significances indicate the sign and significance of the growth firm life cycle EQ compared to the EQ interactions with I, M, S and D. Hypothesis 2 predicts the industry adjusted future firm growth is associated with a lower level of earnings quality for the growth firm life cycle compared to the other firm life cycles.

Equation (3) is re-run for the restatement sample. This GAO restatement sample includes firms known to have undertaken aggressive accounting and restated the reported numbers. We focus on the restated numbers with the expectation that self-selection by restaters will leave a trail, leading to differences in the results for this sample compared to the primary random sample. Given aggressive accounting tends to focus on assets, liabilities, accruals, and earnings (e.g., Nelson, Elliott and Tarpley, 2003), we expect any differences for the restatement sample are likely for persistence and total accruals, and not the measures dominated by cash flows from

operations (e.g., Dechow and Dichev, 2002 residual) or working capital accruals related to growth, both of which we argue are more difficult to distort.

The controls employed relate to current performance, future expected performance, and governance. For current performance, the Altman's Z score (ZSCORE) provides a composite indication, using firm level profitability, liquidity, and investment growth variables, of the firm's current performance level and proximity to bankruptcy. The market-to-book ratio (MTB) proxies for the firm's expected future earnings realization relative to the current book value of equity. Higher market-to-book ratios indicate earnings realizations are in the future and are risky (Penman and Reggiani, 2013). A dummy variable for Big 4 auditors (BIG4) is employed. According to the literature, Big 4 auditors exhibit superior audit quality and greater incentives to mitigate misstatements because they have more to lose from litigation and reputation loss (e.g., DeAngelo, 1981; Franco, Gavious, Jin and Richardson, 2011).

We estimate generalized least squares panel regressions to test Hypotheses 1 and 2. The tests are conducted using seemingly unrelated regressions, with panel corrected standard errors to provide robust standard errors, and generalized least squares cross section weights to allow for the differences in variance across the firms and years. Wald statistics are used to test Hypothesis 1. Descriptive statistics for the firms by the five firm life cycles are reported in Table 4.

PUT TABLE 4 ABOUT HERE

Mature firm life cycle in unreported statistics exhibit the highest average performance as measured by return on equity, return on assets, and retained earnings. As expected, the mature firm life cycle has the highest mean earnings persistence, lower change in current accruals (ΔCACC) compared to the growth firm life cycle, lowest mean Dechow and Dichev (2002) residual ($\left|\text{RESID}\right|$), and the lowest deviations from the average industry earnings and sales

(|DEVE|, |DEVSALE|). In contrast, the introduction and decline stages have the lowest mean earnings persistence and the highest mean Dechow and Dichev (2002) residual. The introduction and growth firms have the highest industry-adjusted growth in future sales (G_Sales), total assets (G_Asset) and market value of equity (G_MVE). The decline firms have the lowest mean ZSCORE reflecting the declining performance of this group on average. Overall, the general tenure of the descriptive statistics is consistent with the theory in section 2.

PUT TABLE 5 ABOUT HERE

The correlations reported in Table 5 show the mature life cycle has the highest earnings quality as predicted for five of the nine EQ measures compared to the introduction, growth and decline firms including higher earnings persistence (PERS), lower changes in current accruals (ΔCACC), lower Dechow and Dichev (2002) residual (|RESID|), and lower deviations from the mean industry earnings and sales (|DEVE|, |DEVSALE|).

The correlations for 'earnings backed by operating cash flows' measures (ΔEΔCFO, ECFO, CORR) are less obvious in their relations with the firm life cycles. The coefficient from earnings regressed on operating cash flows (ECFO) and the simple 3 year earnings-operating cash flows correlation (CORR) are negative (and most negative) for the mature life cycle. The change in total accruals (ΔTACC) correlation peaks in the mature firm life cycle, which may reflect peaking of long-term accruals in this stage. However, working capital accruals (ΔCACC) are negative in the mature life cycle consistent with the sales growth rate stabilizing in this stage. The market-to-book ratio correlation is highest for the introduction and growth firm life cycles, while the Z score correlations are negative for the introduction and shakeout and decline firm life cycles and positive for the growth and mature firm life cycles.

4.0 Results

4.1 Earnings Quality Associations with Firm Fundamentals

Table 6 presents the results for Hypothesis 1. Equation (1) estimates are provided along with Wald tests for significant differences as summarized in section 3.3. The columns of Table 6 present estimates from Equation (1) for the proxies for earnings quality as defined in Table 3: PERS, ΔTACC, ΔCACC, ΔEΔCFO, ECFO, CORR, |RESID|, |DEVE|, |DEVSALE|. Hypothesis 1 predicts higher earnings quality is associated with the mature firm life cycle compared to the introduction, growth and decline firm life cycles. The signs differ across the EQ proxies, as summarized in the third row of Table 6 Wald tests (and summarized in section 3.3). The second row of Table 6 Wald tests provides the earnings quality interpretations for each EQ proxy from the literature.

PUT TABLE 6 ABOUT HERE

Consistent with Hypothesis 1, the Wald tests reported in Table 6 suggest the mature life cycle has a significantly higher coefficient for the first measure of earnings quality, earnings persistence (PERS), compared to the other firm life cycles. The literature interprets higher persistence as higher quality earnings (e.g., Dichev et al., 2013). Our evidence suggests mature firm life cycle fundamental performance is a significant explanatory factor for persistence. The *interpretation of higher persistence as higher earnings quality* thus refers to the earnings of mature firms with positive operating cash flows and negative investing and financing cash flows (Dickinson, 2012) reflecting stabilizing sales growth, ongoing investment in long term assets, and generating enough cash to pay back debt.

Table 6 Wald tests also reveal lower earnings persistence associated with the introduction and decline firm life cycles. Accruals improve the persistence of earnings for high accrual firms

(mature firm life cycle firms) but reduce persistence for low accrual firms (introduction, growth and decline firm life cycle firms) (Dechow and Ge, 2006). Short-term accrual growth experienced by introduction and growth firms are less persistent than the longer-term accruals that dominate for the mature firms as sales growth stabilizes (Richardson et al., 2005).

Positive changes in total and current accruals are associated by some corporate executives with lower quality earnings where there are changes in or unexplained accruals and/or inconsistent reporting choices (Dichev et al., 2013). However from a fundamentals perspective, *larger* changing total accruals and particularly larger changing *current* accruals are associated with sales growth. Collins, Pungaliya and Vijh (2012) show the effect of sales growth on accruals measurement dominates the effects of other firm characteristics found to be related to accruals (operating performance, market value of equity, market-to-book, and earnings-to-price). Our Wald statistics for Table 6 suggest changes in total accruals (ΔTACC) are significantly *larger* for the mature firm life cycle compared to the other firm life cycles, which we argue (in section 3.3) is observed because long-term investment continues for the mature firm life cycle before stabilizing.[13] This fact is corroborated by the negative investing cash flows categorizing the mature firm life cycle. Mature firm life cycle maintain investment to work towards a minimum efficient scale for the purpose of cost structure control in the face of competition. Conversely changes in current accruals (ΔCACC) are significantly *smaller* for the mature life cycle as expected, compared to the growth and introduction firm life cycles which are generating large changes in current accruals as part of their growth phase (e.g., Dechow et al., 1998).

[13] In unreported tests, we also examine special items as a measure of low accounting quality. More negative special items can serve as an indicator of lower earnings quality as management tries to classify items with negative income effects as one-off (McVay, 2006). Consistent with Hypothesis 1, unreported Wald tests suggest the differences between lower special items for mature firms compared to other firm life cycle stages are statistically significant. These results corroborate the persistence and accrual findings. Dechow and Ge (2006) conclude special items identify the end of negative price momentum cycles reflecting actions by firms to remedy unsuccessful strategies.

A stronger mapping of earnings into cash flows is viewed in the accounting literature as higher earnings quality. For example, corporate executives interviewed by Dichev et al., (2013) believe higher earnings quality encompasses higher earnings backed by cash flows, earnings avoiding long-term estimates, and low persistent deviations between earnings and cash flows from operations. We capture these latter effects with three variables: estimated coefficient from a regression of change in earnings on change in operating cash flows (ΔEΔCFO), the three year correlation between earnings and operating cash flows (CORR), and the estimated coefficient from a regression of earnings on operating cash flows (ECFO). The Wald statistics support the prediction that the measure, ΔEΔCFO, is significantly larger for the mature firm life cycle compared to the introduction and growth life cycles. In fact, the ΔEΔCFO coefficient for the mature firm life cycle is significantly larger than all of the other firm life cycles.

Higher levels of CORR and ECFO are interpreted as reflecting higher earnings quality in the literature (Dichev et al., 2013). In section 3.3 we predicted the mature firm life cycle will have higher levels of CORR and ECFO compared to the introduction and growth firm life cycles. We find the mature firm life cycle has significantly lower levels of CORR and ECFO compared to the other firm life cycles, opposite to the prediction. We flagged the possible confounding effects of earnings impacted by operating, investing and financing cash flows in contrast to the operating cash flows. We conjecture the differencing of the ΔEΔCFO variable components may serve to reduce the effects of confounding factors compared to the CORR and ECFO variables which are fully exposed to mismatches and shocks. These factors appear to render the CORR and ECFO measures more difficult to interpret as earnings quality signals.

Deviations between earnings and cash flows are also measured using the absolute value of residuals from the Dechow and Dichev (2002) regression (|RESID|). Lower levels of

|RESID| are interpreted as higher earnings quality. Given we expect higher quality earnings for the mature firm life cycle, the mature firm life cycle is expected to have the lowest level of the residual (|RESID|) compared to the other firm life cycles. This expectation is confirmed in the Table 6 Wald tests with the mature firm life cycle exhibiting the most negative association with the residual and the coefficient is significantly different from the absolute residual of the other firm life cycles. These results are consistent with Hypothesis 1.

Finally, the results for the 'deviations from industry peers' measures that have been employed as 'earnings management red flags' (Dichev et al., 2013) are also consistent with Hypothesis 1, indicating these measures of earnings quality signal fundamental elements of the firm's economics. As predicted, the mature firms have the lowest coefficients for deviations of earnings and sales from industry peers (|DEVE| and |DEVSALE|) relative to the other firm life cycles. Wald statistics suggest the differences between the respective |DEVE| and |DEVSALE| coefficients for the mature firm life firms relative to the other firm life cycles are all statistically significant. Eyeballing the coefficients in the last two columns of Table 6 suggests intuitive, non-linear patterns across the firm life cycles. The coefficients are largest at the introduction firm life cycle for both |DEVE| and |DEVSALE|, decreasing through the growth stage with the ensuing decline in the coefficients at the statistically lowest level in the mature firm life cycle before increasing again through the shakeout and decline stages.

For the control variables, we find higher (lower) Z score is significantly associated with persistence, change in current accruals (ΔCACC), ECFO, CORR and |DEVSALE| (change in total accruals (ΔTACC), ΔEΔCFO, |RESID| and |DEVE|). Higher market-to-book ratio is significantly related to lower persistence and |DEVE| and positively related to all other EQ

variables. The BIG4 auditor quality indicator is significantly positively related to persistence (PERS), change in total accruals (ΔTACC), change in current accruals (ΔCACC), and negatively related to ECFO, |RESID|, |DEVE| and |DEVSALE|. The Hypothesis 1 results are robust to the control variables, industry and year effects, and robust regression methods.

The results overall are consistent with Hypothesis 1 and the intuition that some commonly used measures of earnings quality predictably signal differences in the firms' fundamentals. The earnings backed by cash flows measures (CORR and ECFO) are difficult to interpret as fundamental signals. This evidence speaks to Dechow et al., (2012) who argue relatively little evidence documents how fundamental performance relates to earnings quality.

4.2 Earnings Quality Associations with Future Growth

Table 7 Panels A and B report estimates from equation (2) for each EQ measure, in groups of three columns for industry adjusted future growth measures (G_Sales, G_Asset, G_MVE). Equation (2) regresses future growth on EQ and the expected signs for the EQ variables are the lower quality signs (opposite the summary in section 3.3) given the dependent variable is growth, and we learned from Hypothesis 1 that the growth stage tends to have lower EQ. Predicted signs are given in Table 7 row 2 in brackets.

Beginning with Table 7 Panel A, the persistence estimates are in the first three columns. PERS has the expected negative and significant sign in each of the three regressions (future sales growth, MVE growth and asset growth) indicating lower earnings persistence is associated with higher future growth. This result is consistent with the persistence measures reflecting firms' fundamentals. It is inconsistent with earnings management, and also the argument that higher persistence indicates higher earnings quality that leads on to lower cost of capital so that the higher 'earnings quality' causes higher firm growth as argued in Li and Shroff (2010). Change in

total accruals (ΔTACC) has a negative rather than predicted positive sign. As discussed in section 3.3, this result likely reflects accounting conservatism that delays recognition of revenues and assets relating to growth until uncertainty is resolved (i.e., the growth is in the future and growth is risky as shown by Penman and Reggiani (2013)). We observe the expected positive sign for change in current accruals (ΔCACC) (see section 3.3) in the sales and asset growth regressions but not market value growth. The likely explanation is firms growing sales and assets do not all generate future value through MVE increases.

The cash backed by earnings EQ variables, ΔEΔCFO, ECFO, and CORR, all have positive rather than the predicted negative signs, suggesting more earnings backed by cash is associated with growth. As discussed in the previous section, these variables (particularly ECFO and CORR) are ambiguous in their interpretation, with a potential mismatch between earnings and operating cash flows. The positive relations are consistent with an earnings management argument that higher earnings backed by operating cash flows is perceived to reflect higher earnings quality leading to lower information asymmetry/cost of capital, and thus higher growth. Alternatively, the growth and mature stages both exhibit positive operating cash flows as do two of the three groups in the shakeout stage, which might dominate the associations between future growth and the cash backed by earnings variables, ΔEΔCFO, ECFO, and CORR. Whichever explanation is descriptive, the 'cash backed by earnings' variables are difficult to interpret as signals of earnings quality. The Dechow and Dichev (2002) residual (⎪RESID⎪) and the deviation from mean industry sales (⎪DEVSALE⎪) both have the predicted positive signs and are generally significant. However, the deviation from mean industry earnings is significant with the expected positive sign only in the market value growth regression (⎪DEVE⎪). Overall, almost all EQ

measures have significant coefficients while four out of nine EQ measures have the predicted 'lower quality' signs in this initial analysis.

PUT TABLE 7 ABOUT HERE

Table 8 Panels A-C report the results for tests of Hypothesis 2 from equation (3). To recap on the interpretation of the Table 8 results, equation (3) drops the growth firm life cycle category (G) so that the intercept captures the growth firm life cycle effects. The firm life cycle categories I, M, S and D are thus measured relative to the G category. Accordingly, the coefficient estimates for I, M, S and D and the associated t-statistics provide a test of the direction and significance of differences relative to the G firm life cycle for explaining future firm growth. Coefficients and p-values are reported.

PUT TABLE 8 ABOUT HERE

The baseline expectation is the growth firm life cycle will have the highest explanatory power for industry adjusted future growth, which is what we generally observe in Table 8 Panels A, B and C. The only exception relates to the introduction firm life cycle consistent with (a not unexpected) overlap in growth firms across the introduction and growth firm life cycles (the difference between the cash status is the introduction stage still has negative operating cash flows while the growth firm life cycle operating cash flows have become positive). Table 8 Panel A (G_Sales) reveals an introduction firm life cycle coefficient that is significantly larger than the growth firm life cycle coefficient estimates in five of the nine regressions. In Table 8 Panel B (G_Assets), the introduction firm life cycle is not significantly different from the growth firm life cycle coefficient estimates in four of the nine regressions. In Table 8 Panel C (G_MVE), the coefficients for the growth and introduction stages are generally not significantly different and tend to jointly have the highest explanatory power for industry adjusted future growth.

Accordingly the evidence is consistent with the baseline expectation that operating, investing, and financing activities at the growth life cycle are generally significant signals of industry adjusted future growth.

Hypothesis 2 predicts industry adjusted future firm growth is associated with a lower level of earnings quality for the growth firm life cycle compared to the other firm life cycles. We compare the sign and significance of the EQ coefficient estimates to the EQ interactions with the other firm life cycles. In Table 8 Panel A (G_Sales), as predicted the growth firm life cycle has significantly lower persistence and higher ΔCACC, compared to the mature firm life cycle, and overall higher |RESID|, |DEVE|, and |DEVSALE|. The growth firm life cycle ΔTACC is significantly smaller than the introduction firm life cycle level but is not significantly different from the rest of the firm life cycle levels. The growth firm life cycle ECFO is significantly smaller only compared to the shakeout stage ECFO, confirming the ambiguity of this measure as a signal of earnings quality. Overall, the results for the G_Sales support Hypothesis 2 for persistence (PERS), ΔCACC, |RESID|, |DEVE|, and |DEVSALE|.

In Table 8 Panel B (G_Assets), as predicted the growth firm life cycle has significantly lower persistence, higher ΔCACC, and higher |RESID| and |DEVSALE|. The deviation from industry mean earnings (|DEVE|) interactions for introduction, mature and shakeout stages are not significantly different to the growth stage EQ for this measure. For the earnings backed by cash flows variables, ΔEΔCFO, ECFO, CORR, we predicted earnings quality conditioned on the firm life cycle would be lower for growth firm life cycle manifesting as lower levels of these variables. We find the measure ΔEΔCFO is lower for the growth stage compared to the introduction stage, but the coefficients are not significantly different for ΔEΔCFO conditioned on the mature, shakeout and decline stages. For the ECFO interactions, the only

significant difference is the ECFO interaction with decline is significantly lower than the growth stage level of ECFO. The CORR variable is significantly lower than the growth stage CORR for three firm life cycles, introduction, shakeout and decline. These results for ΔEΔCFO, ECFO, CORR are not consistent with our predictions and we again conclude these earnings backed by cash measures are difficult to interpret as signal of earnings quality. Overall the results for the asset growth regressions provide support for Hypothesis 2 for persistence, higher ΔCACC, and higher |RESID| and |DEVSALE|, and highlight the EQ variables less informative for signaling differences in earnings quality arising from fundamentals in the future asset growth context (i.e., |DEVE|, ΔEΔCFO, ECFO, CORR).

In Table 8 Panel C (G_MVE), as predicted the growth firm life cycle has significantly lower persistence (relative only to mature stage), higher ΔCACC relative to the introduction stage and lower ΔCACC relative to the shakeout and decline stages, lower ΔEΔCFO (relative to shakeout and decline), and higher |RESID| (except relative to introduction), higher |DEVE| relative to the shakeout and decline but not mature stage, and higher |DEVSALE| relative to all other firm life cycles. The growth stage ECFO is not significantly different from the introduction and mature stage ECFOs but is significantly higher than the ECFO of the shakeout and decline stages. There are no significant differences between the growth and the mature, shakeout or decline life cycles for ΔTACC, while the growth stage CORR is significantly larger than the introduction and the decline stages. Overall the results for the market value growth regressions also provide general support for Hypothesis 2. One difference observed in the G_MVE regressions is a lower propensity for significant differences across introduction/growth stages (no differences in PERS, ΔEΔCFO, ECFO, |RESID|, |DEVE|) or growth/mature

stages (no differences in ΔTACC, ΔCACC, ΔEΔCFO, ECFO, CORR, ⎪DEVE⎪) in respect of fundamental EQ and the links to future growth in market value.

In Table 8 Panels A, B and C, we observe the regressions are all significant but vary in their explanatory power for industry adjusted future growth according to the specific growth measure and EQ measure included, as given by the R squared. This observation corroborates the Dechow et al., (2012) point that EQ measures overlap but do not measure the exact same construct. We observe some EQ relate more robustly in the predicted manner to sales growth (⎪DEVE⎪ while others relate more strongly to asset growth (lower persistence, higher ΔCACC), while some EQ measures are equally robust across both future sales and asset growth (⎪RESID⎪, ⎪DEVSALE⎪). The future market value growth regressions while robust, exhibit the lowest R squared indicating other factors not in the models also explain future industry adjusted growth in market value. The control variables exhibit generally significant positive relations between the Z SCORE, market-to-book ratio and the future growth measures, while the sign and significance of the governance variable, BIG4, varies in the sales and asset growth regressions but is always significant and negative in the market value growth regressions.

4.3 Earnings Quality Associations with Future Growth for Restatement Sample

Equation (3) is re-run for a sample of restatement firms using the 2002-2006 GAO Financial Restatement Database. By definition, the GAO restatement sample has a self-selection bias and the firms have had systematically lower earnings quality. It is conceivable the restated accounting numbers remain lower quality compared to a random sample of companies. Plumlee and Yohn (2010) report the restatement firms' own most often attributed cause of restatements is basic internal company errors, and we posit underlying 'incompetencies' and incentives are unlikely to be resolved rapidly.

We re-run equation (3) for the restatement sample to provide insights on the predicted fundamental relation in Hypothesis 2 for reputation compromised firms using their restated data. Table 2 Panel B provides the distribution of restatement firms across firm life cycles. The firms are distributed similarly to the primary sample except the shakeout restatement firms comprise 13% of the restatement sample and 9.94% of the primary sample.

In Table 9 Panels A, B and C, we first look at the fundamental expectation that the growth firm life cycle will have the highest explanatory power for industry adjusted future growth, which we generally observe for the primary sample in Table 8 Panels A, B and C. In Table 9 Panel A (G_Sales), the expected result that the growth firm life cycle will have the highest explanatory power for industry adjusted future growth is observed (similar to the primary results in Table 8 Panel A (G_Sales)). We conjecture this reflects a low likelihood that a lower level of earnings quality for the restatement firms relative to a random sample is concentrated in the sales area. For example, Nelson, Elliott and Tarpley (2003) report the most common earnings management technique is recognizing too much or too little reserve, and the second most common focuses on expenses associated with long-term assets.

In Table 9 Panel B (G_Assets), the introduction firm life cycle has the highest explanatory power for industry adjusted future growth with coefficients significantly larger than those of the growth firm life cycle coefficients *for all but two regressions*, the ECFO and |RESID| regressions, for which the introduction and growth stage coefficients for explaining future growth are not significantly different from each other. By comparison in Table 8 Panel B (G_Assets), the growth stage has the highest explanatory power for future growth. We posit this difference between the primary and restatement sample may lay in the self-selection bias. That is, introduction stage firms under the Dickinson (2011) classification have negative operating and

investing cash flows and positive financing inflows, thus comprising very risky growth firms that are potentially failing to grow. This notion is corroborated by evidence from Richardson, Tuna and Wu (2002) that restating firms have lower debt, higher earnings growth, are raising capital, and are attempting to show a longer sequence of earnings growth than non-restatement firms. To show a longer sequence of growth, the firms would need to be prematurely recognizing risky revenue and assets in an aggressive manner. Our conjecture is thus consistent with the focus of the GAO restatement sample on aggressive accounting practices.[14]

In Table 9 Panel C (G_MVE), the shakeout stage has the highest explanatory power for industry adjusted future growth in *eight of the nine* restatement sample regressions (excretion is CORR regression). By comparison in Table 8 Panel C (G_MVE), the growth stage has the highest explanatory power for future growth in the primary sample. Based on Dickinson's (2011) classification, the shakeout stage includes three firm types: *exiting or acquisition target* firms that have negative operating and investing cash flows and are paying back financing, *innovators* intent on future growth with positive operating and investing cash flows that are raising capital, and *cash cows* that are mature with stable earnings stream and market share with positive operating and investing cash flows and paying back financing. Hence, for the restatement sample with a potential self-selection bias to highly risky growth firms that have possibly failed to grow with incentives for aggressive accounting, we observe departures from the baseline expectation that the growth stage has the highest explanatory power for industry adjusted future growth for both the future asset and market value growth measures. For the restatement sample, the firm life

[14] The GAO explains that 'Consistent with our prior reports, we generally specified financial reporting fraud and accounting errors—previously referred to as accounting irregularities in the 2002 report—to include so-called "aggressive" accounting practices, intentional and unintentional misuse of facts applied to financial statements, oversight or misinterpretation of accounting rules, and fraud.' http://www.gao.gov/assets/100/94420.pdf Accessed 30 April 2015.

cycle stage that does grow future value is in the shakeout stage, not the growth firm life cycle as observed for the primary sample.

PUT TABLE 9 ABOUT HERE

Turning to the EQ measure differences across the restatement and primary samples in respect of Hypothesis 2, the discussion focuses on the main differences for brevity. In Table 9 Panel A (G_Sales), the growth stage has significantly *higher* earnings persistence (PERS) for the restatement sample. This result is opposite the lower persistence predicted and observed in the primary sample. One interpretation of this result is that earnings persistence conditioned on firm life cycle is useful as an indicator of aggressive accounting for cohorts where earnings management is suspected.

In Table 9 Panel A (G_Sales), ΔTACC for the growth stage in the restatement sample is robustly *smaller* than all but the introduction stage. In contrast for the primary sample, the growth stage ΔTACC is not significantly different for the growth, mature, shakeout and decline stages. For the restatement sample, the growth stage coefficient for ΔEΔCFO is larger than the introduction stage coefficient and the same as the mature stage coefficient, contrasting sharply with the primary sample in which the growth stage coefficient for ΔEΔCFO is smaller than the more mature firm life cycle stages as would be expected. The growth firm life cycle earnings backed by cash flow measures (ECFO and CORR) for the restatement sample tend to be larger than other life cycles, suggesting a more positive association between earnings quality and future sales growth for the growth stage than is predicted. In contrast, the growth stage ECFO and CORR tend not to be different from the more mature firm life cycle stages in the primary sample. These results suggest the relation between the earnings backed by operating cash flows variables is different for the restatement sample compared to the primary sample.

In Table 9 Panel B (G_Assets), the growth stage has significantly *higher* earnings persistence compared to all other firm life cycles for the restatement sample. In contrast, the growth stage earnings persistence for the primary sample is significantly *lower* compared to the mature, shakeout and decline stages. In Table 9 Panel B (G_Assets) for the restatement sample, the growth stage deviation from mean industry earnings (⎪DEVE⎪) is significantly larger than the introduction and mature firm life cycle levels of ⎪DEVE⎪. However, for the primary sample the growth stage deviation from mean industry earnings (⎪DEVE⎪) is not significantly different from those of most other firm life cycle levels. We concluded from the primary sample tests that the deviation from mean industry earnings tends to be an ambiguous indicator of earnings quality, and conjecture aggressive accounting may still be present in the growth stage group in the restatement sample.

In Table 9 Panel B (G_MVE) for the restatement sample, changes in total accruals (ΔTACC) for the growth stage are larger than that for the mature and shakeout firms, whereas this variable tends to be relatively lower for the growth stage in primary tests. The ΔCACC is robustly larger for the growth stage in the primary sample but is relatively *lower* for the growth stage in the restatement sample compared to the introduction and mature firms, and only exceeds the ΔCACC for the shakeout stage in the restatement sample. The Dechow and Dichev (2002) residual, ⎪RESID⎪, is robustly larger for the growth stage in the primary sample. In the restatement sample, however, the ⎪RESID⎪ for the growth stage is only larger than the mature stage residual. The ⎪DEVSALE⎪ variable is robustly larger for the growth stage in the primary sample; however, the variable is significantly *lower* for the growth stage.

In conclusion, existing evidence suggests restatement firms increase accrual quality in the post restatement years (Wiedman and Hendricks, 2013) based on the Dechow and Dichev (2002) (| RESID |) earnings quality measure. Ettredge, Huang and Zhang (2012) present evidence suggesting restatement firms become more conservative after the restatement announcement although Givoly, Hayn and Natarajan (2007) report no difference in conservatism. Our additional analyses for the restatement sample suggests some hypothesized results that are robustly observed in the primary random sample tests, are not observed in the restated financial information; suggesting some accounting quality measures for restated data do not convey fundamental information as theorized and observed empirically in the primary sample.

5.0 Conclusions

The research question we address is whether commonly employed proxies for earnings quality are predictably associated with firm fundamentals and future firm growth. Motivating this research is the concern that earnings quality studies may not distinguish earnings naturally flowing from the firm's economic fundamentals from the earnings effects of interest to the researcher (Dechow et al., 2010; Dichev et al., 2013). Our objective is to provide new insights on this issue in the decision context of evaluating future growth. We find evidence that proxies for earnings quality generally exhibit higher levels on average for the mature firm life cycle, compared to introduction, growth and decline firm life cycles. We next confirm the fundamental expectation that the growth firm life cycle generally has the highest explanatory power for future growth. Finally, we hypothesize and document that industry adjusted future firm growth is associated with a lower level of earnings quality for the growth firm life cycle stage compared to the other firm life cycle stages. The analyses distinguish the proxies unambiguously signaling earnings quality. Additional analysis for a restatement sample of firms further suggests how

earnings quality measures might be impacted by incentives for aggressive accounting even after the accounting data has been restated.

The contribution of this study is twofold. First, evidence documenting the earnings quality links to firm fundamentals and conditional association with future growth assists researchers and market participants to interpret earnings quality measures. For example, our study reveals the 'economics' of higher persistence involves the mature firm life cycle with positive operating cash flows and negative investing and financing cash flows reflecting stabilizing sales growth, ongoing investment in long term assets, and generating enough cash to pay back debt. Conversely, we document lower earnings persistence for introduction and decline firm life cycles on average. Further, the persistence relation is reversed in the restatement sample of firms previously self-selecting to lower quality accounting. Second, our evidence builds on the 'consequences' literature (discussed earlier) to suggest anchoring earnings quality analyses on differences in the firms' stage of growth may sharpen the insights available on the benefits of earnings quality. Finally, Penman and Yehuda (2015) show that because earnings recognition is delayed under uncertainty, earnings-based measures of accounting quality convey information about both expected future cash flows and the uncertainty of expected future cash flows. Overall, consistent with this intuition, we present evidence on earnings quality measures that do and some that do not convey growth stage relevant information.

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TABLE 1 Sample Distribution across the Period 1998-2011

Sample Distribution across Individual Years

Year	Number of Firms	Percentage of Total Sample (%)
1998	2088	5.11%
1999	2345	5.74%
2000	2583	6.33%
2001	2712	6.64%
2002	2780	6.81%
2003	2881	7.06%
2004	2981	7.30%
2005	3069	7.52%
2006	3165	7.75%
2007	3312	8.11%
2008	3253	7.97%
2009	3262	7.99%
2010	3404	8.34%
2011	2992	7.33%
Total	40827	100.00%

TABLE 2 Sample Distribution across GICS Industry Groups and Firm Life Cycle Stages

Panel A Sample Distribution across GICS Industry Groups and Firm Life Cycle Stages (1998-2011)

GICS Code	Industry	Introduction	Growth	Mature	Shakeout	Decline	Total	%
1010	Energy	345	1331	1196	225	129	3226	7.90%
1510	Materials	381	832	1564	254	162	3193	7.82%
2010	Capital Goods	526	1067	2110	406	233	4342	10.64%
2020	Commercial and Professional Services	191	418	806	149	77	1641	4.02%
2030	Transportation	54	342	463	76	11	946	2.32%
2510	Automobiles and Components	116	201	296	51	33	697	1.71%
2520	Consumer Durables and Apparel	240	393	1002	176	71	1882	4.61%
2530	Consumer Services	117	587	825	160	84	1773	4.34%
2540	Media	99	339	588	166	57	1249	3.06%
2550	Retailing	161	545	1011	154	55	1926	4.72%
3010	Food and Staples Retailing	17	114	268	19	5	423	1.04%
3020	Food, Beverage and Tobacco	117	313	740	150	42	1362	3.34%
3030	Household and Personal Products	108	103	331	69	41	652	1.60%
3510	Health Care Equipment and Services	623	854	1082	293	367	3219	7.88%
3520	Pharmaceuticals, Biotechnology and Life Sciences	1223	486	514	266	823	3312	8.11%
4510	Software and Services	625	1131	1117	513	370	3756	9.20%
4520	Technology Hardware and Equipment	812	1023	1410	579	455	4279	10.48%
4530	Semiconductors and Semiconductor Equipment	199	630	504	274	185	1792	4.39%
5010	Telecommunication Services	106	297	637	78	39	1157	2.83%
	Total	**6060**	**11006**	**16464**	**4058**	**3239**	**40827**	**100%**
	%	14.84%	26.96%	40.33%	9.94%	7.93%	100.00%	

Panel B Restatement Sample Distribution across Firm Life Cycles (2002-2006)

	Overall sample	Introduction	Growth	Mature	Shakeout	Decline
Percentage	100%	11%	29%	40%	13%	7%
Sum	460	49	134	185	60	32

TABLE 3 Variable Definitions and Measurement

Theory Construct	Variable	Measurement
Earnings Quality		
Persistence and sustainability of earnings	PERS	Regression coefficient from earnings in year t regressed on earnings year (t-1) where earnings equals net income, deflated by average total assets for year t
Avoid one-time item Consistent reporting choices Small changes in or unexplained accruals	ΔTACC	Change in total accruals equals (total accruals year t – total accruals year (t-1)) divided by total accruals year (t-1) where total accruals equals the change in working capital, minus depreciation, scaled by total assets (TACC measure used by Healy (1985), Jones (1991) and Dechow, Sloan and Sweeney (1995)
	ΔCACC	Change in current accruals equals (current accruals year t – current accruals year (t-1)) divided by current accruals year (t-1) where current accruals equals the change in account receivable, inventory, account payable, tax payable and other current assets
Earnings backed by cash-flows Avoid long-term estimates Low persistent deviations between earnings and the underlying cash flows	ΔEΔCFO	Regression coefficient from change in net income for year t regressed on changed in operating cash flows for year t
	ECFO	Regression coefficient from net income for year t regressed on operating cash flows for year t
	CORR	Simple correlation between net income and operating cash flows for 3 years
	|RESID|	Absolute residuals from the Dechow-Dichev (2002) regression of net income on operating cash flows for year t, (t-1) and (t+1)
Smaller deviations from industry peers	|DEVE| |DEVSALE|	Absolute value of the difference between firm growth in earnings and growth in industry average earnings Absolute value of the difference between firm growth in sales and growth in industry average sales
Future Firm Growth		
Industry adjusted growth in sales	G_Sales	Growth in firm's Sales relative to growth in industry average Sales measured as (Sales year t – Sales year t-1) divided by Sales year t-1 minus (industry average Sales year t - industry average Sales year t-1) divided by industry average Sales year t-1
Industry adjusted growth in total assets	G_Asset	Growth in firm's AT relative to growth in industry average AT measured as (AT year t – AT year t-1) divided by AT year t-1 minus (industry average AT year t - industry average AT year t-1) divided by industry average AT year t-1
Industry adjusted growth in market value	G_MVE	Growth in firm's MVE relative to growth in industry average MVE measured as (MVE year t – MVE year t-1) divided by MVE year t-1 minus (industry average MVE year t - industry average MVE year t-1) divided by industry average MVE year t-1
Firm Life Cycle		
Introduction	I	Dummy variable equal to 1 for introduction firms and 0 otherwise for firm i in year t
Growth	G	Dummy variable equal to 1 for growth firms and 0 otherwise for firm i in year t
Mature	M	Dummy variable equal to 1 for mature firms and 0 otherwise for firm i in year t
Shakeout	S	Dummy variable equal to 1 for shakeout firms and 0 otherwise for firm i in year t
Decline	D	Dummy variable equal to 1 for decline firms and 0 otherwise for firm i in year t
Additional Explanations		
Default risk	ZSCORE	Altman's Z-score equals 1.2*(working capital / total assets) + 1.4*(retained earnings / total assets) + 3.3*(EBIT / total assets) + 0.6*(market value of equity / book value of debt) + 1.0*(sales / total assets)
Governance and controls	BIG4	Dummy variable which is equal to 1 for big 4 auditor and 0 otherwise for firm i in year t
Expected growth	MTB	Market-to-book ratio equals market value divided by book value in year t

TABLE 4 Descriptive Statistics for Firm Life Cycle Stages (1998-2011)

The mean differences are all tests of differences between the mature firm life cycle and the other firm life cycle.

	Introduction Firm Life Cycle				Growth Firm Life Cycle				Mature Firm Life Cycle		Shakeout Firm Life Cycle				Decline Firm Life Cycle			
	Mean	Std. Dev.	T-stat.	P-val.	Mean	Std. Dev.	T-stat.	P-val.	Mean	Std. Dev.	Mean	Std. Dev.	T-stat.	P-val.	Mean	Std. Dev.	T-stat.	P-val.
PERS	0.238	0.420	-16.11	0.00	0.293	0.365	-8.30	0.00	0.324	0.368	0.267	0.367	-7.59	0.00	0.238	0.400	-12.81	0.00
ΔTACC	-1.052	6.597	-6.99	0.00	-0.599	6.020	-2.70	0.01	-0.417	5.805	-0.628	7.448	-2.19	0.03	-0.746	7.845	-3.07	0.00
ΔCACC	-0.809	8.793	0.72	0.47	-0.181	8.333	6.64	0.00	-0.769	7.028	-1.046	7.879	-1.24	0.22	-0.844	7.713	-0.68	0.50
ΔEΔCFO	0.199	2.042	1.37	0.17	0.203	2.940	0.43	0.67	0.217	3.000	0.029	3.002	-2.90	0.00	0.189	2.178	-0.83	0.40
ECFO	0.741	0.753	23.57	0.00	0.607	0.648	8.93	0.00	0.520	0.586	0.670	0.706	13.35	0.00	0.787	0.762	20.72	0.00
CORR	0.407	0.671	8.03	0.00	0.396	0.677	6.61	0.00	0.334	0.691	0.320	0.694	-1.01	0.31	0.410	0.676	5.95	0.00
|RESID|	0.151	0.131	59.40	0.00	0.069	0.077	8.58	0.00	0.060	0.071	0.092	0.097	22.63	0.00	0.158	0.131	55.07	0.00
|DEVE|	2.700	5.369	7.53	0.00	2.460	5.075	5.78	0.00	2.113	4.617	3.071	5.776	10.72	0.00	2.915	5.742	8.21	0.00
|DEVSALE|	0.565	0.817	52.89	0.00	0.270	0.417	24.98	0.00	0.160	0.236	0.259	0.391	19.26	0.00	0.510	0.708	45.90	0.00
G_Sales	0.282	0.953	26.96	0.00	0.179	0.464	31.36	0.00	0.024	0.285	-0.003	0.469	-4.22	0.00	0.055	0.871	1.42	0.16
G_Asset	0.219	0.776	35.44	0.00	0.255	0.528	57.05	0.00	-0.028	0.234	-0.092	0.386	-13.28	0.00	-0.140	0.568	-18.45	0.00
G_MVE	0.462	1.534	18.11	0.00	0.339	1.035	15.64	0.00	0.156	0.779	0.155	0.948	0.28	0.78	0.220	1.340	2.70	0.01
ZSCORE	4.676	14.059	3.66	0.00	5.647	8.279	10.26	0.00	4.886	5.319	4.437	8.528	-3.31	0.00	1.620	11.501	-22.67	0.00
MTB	5.938	8.999	33.85	0.00	3.330	4.279	2.08	0.04	3.212	4.351	3.138	5.360	-1.13	0.26	4.192	6.898	12.70	0.00
BIG4	0.496	0.500	-43.83	0.00	0.747	0.435	-3.75	0.00	0.765	0.424	0.669	0.471	-14.59	0.00	0.592	0.491	-22.67	0.00

Variables are all defined in Table 3.

TABLE 5 Spearman Correlations

	I	G	M	S	D	PERS	ΔTACC	ΔCACC	ΔEΔCFO	ECFO	CORR	|RESID|	|DEVE|	|DEVSALE|	G_Sales	G_Asset	G_MVE	ZSCORE
G	-0.25**																	
M	-0.34**	-0.50**																
S	-0.14**	-0.2**	-0.27**															
D	-0.12**	-0.18**	-0.24**	-0.10**														
PERS	-0.06**	-0.01	0.08**	-0.01**	-0.04**													
ΔTACC	-0.08**	0.00	0.10**	-0.02**	-0.04**	0.01*												
ΔCACC	0.00	0.10**	-0.05**	-0.04**	-0.04**	0.03**	0.04**											
ΔEΔCFO	0.02**	-0.02**	0.00	-0.02**	0.02**	0.01**	0.01*	0.00										
ECFO	0.09**	-0.02**	-0.12**	0.03**	0.09**	0.15**	0.00	-0.01*	0.15**									
CORR	0.04**	0.02**	-0.05**	-0.02**	0.03**	0.05**	0.01**	0.04**	0.11**	0.27**								
|RESID|	0.26**	-0.08**	-0.25**	0.05**	0.21**	-0.10**	-0.06**	0.00	0.00	0.05**	-0.07**							
|DEVE|	0.03**	0.01*	-0.10**	0.07**	0.04**	-0.14**	-0.01	-0.06**	-0.04**	0.08**	0.00	0.14**						
|DEVSALE|	0.20**	0.03**	-0.26**	0.02**	0.16**	-0.06**	-0.06**	0.08**	0.02**	0.11**	0.08**	0.22**	0.12**					
G_Sales	0.03**	0.20**	-0.08**	-0.10**	-0.11**	0.03**	-0.07**	0.15**	0.01**	0.00	0.07**	0.00	-0.07**	0.20**				
G_Asset	0.05**	0.36**	-0.13**	-0.17**	-0.23**	0.04**	-0.07**	0.17**	0.01	-0.04**	0.07**	-0.05**	-0.08**	0.07**	0.55**			
G_MVE	-0.02**	0.10**	0.00	-0.04**	-0.09**	0.02**	-0.01*	0.05**	0.00	-0.01*	0.05**	-0.02**	0.02**	0.04**	0.25**	0.32**		
ZSCORE	-0.11**	0.05**	0.13**	-0.02**	-0.16**	0.16**	-0.08**	0.09**	0.00	-0.04**	0.07**	-0.08**	-0.16**	-0.06**	0.18**	0.26**	0.24**	
MTB	0.12**	0.02**	-0.04**	-0.08**	-0.02**	0.06**	-0.03**	0.08**	0.07**	0.11**	0.13**	0.04**	-0.16**	0.07**	0.19**	0.18**	0.33**	0.32**
BIG4	-0.20**	0.07**	0.13**	-0.03**	-0.07**	0.06**	0.05**	0.03**	0.01**	-0.03**	0.00	-0.18**	-0.07**	-0.13**	0.03**	0.04**	0.03**	0.08**

The asterisks **,* denote significance at 1% and 5% respectively. Variables are all defined in Table 3.

TABLE 6 Fundamental Links to Earnings Quality with Additional Controls

Earnings Quality = $\alpha_1 I_i + \alpha_2 G_i + \alpha_3 M_i + \alpha_4 S_i + \alpha_5 D_i + \alpha_{i,j}$ Controls$_{i,j}$ + δ_i (1)

Generalized Least Squares Regressions for the Period 1998-2011

Life cycle stage	**PERS**	**ΔTACC**	**ΔCACC**	**ΔEΔCFO**	**ECFO**	**CORR**	**|RESID|**	**|DEVE|**	**|DEVSALE|**
	M>I, G, D	M>I, G	M<I, G	M>I, G	M>I, G	M>I, G	M<I, G, D	M<I, G, D	M<I, G, D
I	0.161	-0.396	-0.834	0.415	0.610	0.362	0.148	2.417	0.666
	26.337**	-7.734**	-10.823**	55.867**	77.253**	15.267**	24.861**	13.878**	33.148**
G	0.195	-0.033	-0.359	0.420	0.507	0.362	0.076	2.053	0.485
	41.023**	-0.700	-4.287**	55.934**	100.219**	17.141**	13.138**	12.303**	28.737**
M	0.211	0.154	-0.906	0.427	0.493	0.328	0.069	1.787	0.431
	46.946**	3.246**	-10.739**	55.485**	87.541**	14.943**	12.022**	10.015**	25.573**
S	0.195	0.015	-0.969	0.372	0.528	0.296	0.094	2.342	0.484
	38.814**	0.276	-9.142**	37.787**	96.145**	12.984**	15.803**	13.239**	28.719**
D	0.163	-0.179	-0.889	0.347	0.610	0.360	0.153	2.304	0.644
	25.124**	-3.087**	-10.846**	32.983**	73.81**	13.986**	24.092**	11.010**	31.264**
Control variables									
ZSCORE	0.002	-0.007	0.016	-0.004	0	0.002	-0.001	-0.013	0.001
	9.407**	-9.451**	13.13**	-17.599**	2.661**	10.15**	-17.505**	-9.466**	3.799**
MTB	-0.001	0.004	0.005	0.000	0.005	0.005	0.003	-0.008	0.008
	-7.830**	3.916**	4.819**	3.636**	10.902**	9.579**	58.687**	-4.154**	6.605**
BIG4	0.034	0.111	0.123	-0.004	-1.80E-02	0.008	-0.021	-0.357	-0.045
	17.353**	7.029**	3.762**	-1.082	-8.613**	1.018	-14.581**	-10.393**	-11.563**
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.265	0.228	0.086	0.634	0.677	0.075	0.808	0.164	0.478
Total obs.	40064	40349	40349	40349	40349	39482	31671	35947	35188

Coefficients and t-statistics are reported. The asterisks **,* denotes significance at 1% and 5% respectively. Panel estimated generalized least squares regressions are estimated. The tests are conducted using cross section seemingly unrelated regression, panel corrected standard errors for robust standard errors, and generalized least squares cross section weights to allow for a different variance for each firm. The life cycle stage measures are binary variables that sum to one, therefore no intercept is included in the estimations. Variables are defined in Table 3.

Table 6 Wald Tests

	PERS	**ΔTACC**	**ΔCACC**	**ΔEΔCFO**	**ECFO**	**CORR**	**|RESID|**	**|DEVE|**	**|DEVSALE|**
High Quality EQ	Higher	Lower	Lower	Higher	Higher	Higher	Lower	Lower	Lower
Hypothesis 1	M>I, G, D	M>I, G	M<I, G	M>I, G	M>I, G	M>I, G	M<I, G, D	M<I, G, D	M<I, G, D
Introduction	0.051**	0.550**	-0.072	0.012**	-0.117**	-0.034**	-0.079**	-0.631**	-0.235**
Growth	0.016**	0.187**	-0.547**	0.007**	-0.014**	-0.034**	-0.007**	-0.267**	-0.055**
Shakeout	0.016**	0.139**	0.063	0.055**	-0.035**	0.032**	-0.025**	-0.556**	-0.053**
Decline	0.048**	0.333**	-0.017	0.080**	-0.118**	-0.032	-0.084**	-0.517**	-0.214**

'Higher Quality EQ' heading in the Table 6 Wald tests refers to the predictions in the literature interpreting the EQ measures as higher or lower earnings quality, as discussed in section 2. The Hypothesis 1 heading in the Table 6 Wald tests refers to the fundamental prediction. Variables are defined in Table 3.

TABLE 7 Earnings Quality Association with Industry Adjusted Future Growth (1998-2011)

Panel A

	Sales Growth	Asset Growth	MVE Growth	Sales Growth	Asset Growth	MVE Growth	Sales Growth	Asset Growth	MVE Growth	Sales Growth	Asset Growth	MVE Growth
	PERS (-)			**ΔTACC (+)**			**ΔCACC (+)**			**ΔEΔCFO (-)**		
EQ	-0.020	-0.020	-0.100	-0.001	-0.001	-0.002	0.001	0.002	0.000	0.002	0.002	0.002
	-6.13**	-4.47**	-9.19**	-5.38**	-5.24**	-3.62**	7.38**	10.54*	0.22	5.19**	2.93*	2.23*
ZSCORE	0.010	0.010	0.020	0.010	0.010	0.020	0.010	0.010	0.020	0.010	0.010	0.020
	16.15**	17.75**	12.10**	15.71**	19.85**	9.76**	15.55**	19.39**	9.17**	15.512*	17.99**	9.05**
MTB	0.010	0.002	0.030	0.010	0.002	0.030	0.010	0.002	0.030	0.010	0.002	0.030
	22.34**	4.26**	15.10**	13.08**	3.98**	14.45**	13.23**	4.05**	13.35**	31.34**	4.16**	14.19**
BIG4	-0.020	-0.011	-0.050	-0.020	-0.010	-0.060	-0.020	-0.010	-0.080	-0.020	-0.020	-0.080
	-3.14**	-2.09*	-4.16**	-3.29**	-2.45*	-6.92**	-3.21**	-1.04	-8.21**	-4.36**	-3.23**	-7.93**
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.314	0.754	0.26	0.223	0.326	0.284	0.231	0.316	0.268	0.466	0.287	0.19
Total obs.	35188	35949	35905	35188	35949	35905	35188	35949	35905	35188	35949	35905

Panel B

	Sales Growth	Asset Growth	MVE Growth	Sales Growth	Asset Growth	MVE Growth	Sales Growth	Asset Growth	MVE Growth	Sales Growth	Asset Growth	MVE Growth	Sales Growth	Asset Growth	MVE Growth
	ECFO (-)			**CORR (-)**			**|RESID| (+)**			**|DEVE| (+)**			**|DEVSALE| (+)**		
EQ	0.010	0.010	0.003	0.020	0.010	0.010	0.180	0.050	0.360	0.000	0.000	0.010	0.940	0.260	0.230
	2.31*	3.73**	0.47	8.00**	6.98**	0.890	5.29**	1.15	3.73**	-0.08	-0.12	4.08**	108.83**	26.4**	26.21**
ZSCORE	0.010	0.010	0.020	0.010	0.010	0.020	0.010	0.010	0.020	0.010	0.010	0.020	0.004	0.010	0.020
	17.62**	18.45**	8.58**	18.15**	19.23**	8.46**	17.08**	22.19**	9.25**	15.05**	17.80**	8.80**	14.84**	19.33**	8.69**
MTB	0.010	0.002	0.030	0.005	0.002	0.029	0.006	0.002	0.031	0.010	0.002	0.031	0.000	-0.001	0.028
	8.34**	3.62**	14.26**	12.03**	4.15**	12.85**	12.94**	4.18**	12.46**	29.23**	3.91**	12.99**	0.87	-1.42	17.73**
BIG4	-0.004	-0.007	-0.08	0.003	0.002	-0.082	0.001	-0.010	-0.050	-0.020	-0.020	-0.080	0.050	0.02	-0.050
	-0.96	-1.57	-7.39**	0.845	0.52	-7.55**	0.22	-0.84	-4.38**	-3.94**	-3.94**	-7.44**	9.29**	3.15**	-3.56**
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.148	0.211	0.793	0.146	0.15	0.229	0.162	0.27	0.231	0.357	0.484	0.293	0.69	0.284	0.686
Total obs.	35188	35949	35905	34916	35657	35614	31049	31663	31629	35186	35947	35903	35188	35188	35144

Coefficients and t-statistics are reported. The asterisks **,* denotes significance at 1% and 5% respectively. Panel estimated generalized least squares regressions are estimated. The tests are conducted using cross section seemingly unrelated regression, panel corrected standard errors for robust standard errors, and generalized least squares cross section weights to allow for different variances. Signs for the earnings quality (EQ) measures reflect the predicted lower quality direction.

TABLE 8 Earnings Quality Association with Industry Adjusted Future Growth

Future Firm Growth (Industry adjusted) = $\alpha_0 + \alpha_1 EQ_i + \alpha_2 I_i + \alpha_3 M_i + \alpha_4 S_i + \alpha_5 D_i + \alpha_6(EQ*I)_i + \alpha_7(EQ*M)_i + \alpha_8(EQ*S)_i + \alpha_9(EQ*D)_i + \alpha_{i,j} Controls_{i,j} + \delta_i$ (2)

Panel A Hypothesis 2 Tests Using Industry Adjusted Future Sales Growth (1998-2011) (Coefficients and p-values reported)

Adj. Future Sales Growth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EQ measure	PERS	ΔTACC	ΔCACC	ΔEΔCFO	ECFO	CORR	|RESID|	|DEVE|	|DEVSALE|
Intercept	-0.207	-0.245	-0.240	-0.246	-0.248	-0.261	-0.287	-0.246	-0.575
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EQ	-0.092	-0.001	0.002	-0.001	0.006	0.020	0.382	0.002	1.002
	0.000	0.007	0.000	0.580	0.270	0.000	0.000	0.003	0.000
I	0.001	0.028	0.026	0.022	-0.005	0.023	-0.005	0.021	-0.170
	0.941	0.000	0.001	0.014	0.618	0.002	0.727	0.033	0.000
M	-0.145	-0.107	-0.109	-0.107	-0.102	-0.096	-0.070	-0.101	-0.009
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015
S	-0.189	-0.147	-0.151	-0.149	-0.154	-0.138	-0.111	-0.143	-0.067
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
D	-0.201	-0.164	-0.160	-0.163	-0.133	-0.139	-0.135	-0.123	-0.251
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EQ*I	0.036	0.006	-0.002	0.012	-0.001	-0.075	0.053	-0.009	0.047
	0.013	0.000	0.219	0.000	0.954	0.000	0.551	0.000	0.000
EQ*M	0.095	0.000	-0.001	0.001	-0.005	0.000	-0.502	-0.002	-0.248
	0.000	0.819	0.002	0.245	0.487	0.955	0.000	0.023	0.000
EQ*S	0.099	0.000	-0.001	0.004	0.020	0.001	-0.489	-0.002	-0.321
	0.000	0.791	0.085	0.001	0.004	0.926	0.000	0.074	0.000
EQ*D	0.141	-0.001	0.001	0.004	-0.014	-0.019	-0.293	-0.008	-0.124
	0.000	0.189	0.314	0.029	0.116	0.158	0.000	0.000	0.000
Control variables									
ZSCORE	0.003	0.003	0.003	0.003	0.004	0.005	0.005	0.005	0.003
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MTB	0.008	0.008	0.009	0.008	0.008	0.006	0.007	0.008	0.001
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BIG4	-0.019	-0.006	-0.008	-0.005	-0.003	0.000	0.003	-0.003	0.040
	0.000	0.099	0.048	0.201	0.381	0.926	0.519	0.463	0.000
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.456	0.531	0.512	0.366	0.307	0.195	0.492	0.342	0.771
Total obs.	35188	35188	35188	35188	35188	34916	31049	35186	35188

Panel estimated generalized least squares regressions are estimated. The tests are conducted using cross section seemingly unrelated regressions, panel corrected standard errors for robust standard errors, and generalized least squares cross section weights allow for a different variance for each firm. The intercept captures the growth firm life cycle and the earnings quality variable (EQ) captures the growth firm life cycle earnings quality.

Table 8 continued for full sample

Panel B Hypothesis 2 Tests Using Industry Adjusted Future Asset Growth (1998-2011) (Coefficients and p-values reported)

Adj. Future Asset Growth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EQ measure	PERS	ΔTACC	ΔCACC	ΔEΔCFO	ECFO	CORR	RESID	DEVE	DEVSALE
Intercept	0.045	0.057	0.057	0.041	0.016	-0.011	-0.018	0.018	-0.178
	0.080	0.013	0.024	0.136	0.645	0.682	0.457	0.540	0.000
EQ	-0.053	-0.002	0.003	0.001	-0.001	0.015	0.483	-0.001	0.563
	0.000	0.000	0.000	0.125	0.776	0.000	0.000	0.346	0.000
I	-0.013	-0.012	-0.016	-0.017	-0.057	-0.053	-0.100	-0.048	-0.019
	0.076	0.182	0.068	0.093	0.000	0.000	0.000	0.000	0.024
M	-0.236	-0.214	-0.216	-0.219	-0.215	-0.204	-0.168	-0.214	-0.113
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
S	-0.294	-0.284	-0.287	-0.288	-0.281	-0.269	-0.243	-0.290	-0.172
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
D	-0.337	-0.333	-0.336	-0.331	-0.306	-0.296	-0.314	-0.343	-0.206
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EQ*I	-0.040	0.000	-0.001	0.003	0.004	-0.047	0.092	0.001	-0.348
	0.002	0.705	0.163	0.028	0.692	0.000	0.204	0.533	0.000
EQ*M	0.066	0.001	-0.002	0.000	0.005	0.003	-0.918	0.000	-0.433
	0.000	0.034	0.000	0.829	0.241	0.439	0.000	0.935	0.000
EQ*S	0.028	0.001	-0.002	0.001	-0.007	-0.021	-0.768	0.001	-0.509
	0.039	0.030	0.001	0.586	0.149	0.001	0.000	0.145	0.000
EQ*D	0.031	0.000	-0.001	-0.004	-0.036	-0.069	-0.396	0.004	-0.542
	0.035	0.782	0.360	0.152	0.000	0.000	0.000	0.000	0.000
Control variables									
ZSCORE	0.010	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.008
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MTB	0.002	0.003	0.003	0.003	0.003	0.003	0.000	0.002	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.948	0.000	0.172
BIG4	-0.004	-0.003	-0.015	-0.004	-0.008	0.002	-0.020	-0.012	0.008
	0.291	0.546	0.004	0.402	0.092	0.728	0.000	0.008	0.094
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.628	0.549	0.650	0.550	0.782	0.438	0.756	0.522	0.561
Total obs.	35949	35949	35949	35949	35949	35657	31663	35947	35188

Panel estimated generalized least squares regressions are estimated. The tests are conducted using cross section seemingly unrelated regressions, panel corrected standard errors for robust standard errors, and generalized least squares cross section weights allow for a different variance for each firm. The intercept captures the growth firm life cycle and the earnings quality variable (EQ) captures the growth firm life cycle earnings quality.

Table 8 continued for full sample

Panel C Hypothesis 2 Tests Using Industry Adjusted Future Market Value Growth (1998-2011) (Coefficients and p-values reported)

Adj. Future MV Growth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EQ measure	PERS	ΔTACC	ΔCACC	ΔEΔCFO	ECFO	CORR	RESID	DEVE	DEVSALE
Intercept	-0.268	-0.327	-0.335	-0.325	-0.373	-0.414	-0.500	-0.369	-0.456
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EQ	-0.085	0.000	-0.001	0.002	0.030	0.040	0.546	0.007	0.318
	0.000	0.598	0.293	0.114	0.001	0.000	0.000	0.000	0.000
I	-0.035	-0.031	-0.018	-0.021	-0.012	-0.005	0.046	-0.001	-0.017
	0.208	0.119	0.448	0.391	0.551	0.816	0.081	0.964	0.435
M	-0.131	-0.119	-0.120	-0.118	-0.116	-0.110	-0.085	-0.120	-0.106
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
S	-0.111	-0.103	-0.105	-0.110	-0.094	-0.099	-0.076	-0.106	-0.093
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
D	-0.171	-0.159	-0.157	-0.161	-0.090	-0.112	-0.103	-0.146	-0.189
	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000
EQ*I	0.038	-0.005	-0.003	-0.012	-0.028	-0.118	0.037	-0.003	-0.162
	0.258	0.003	0.074	0.145	0.267	0.000	0.818	0.263	0.000
EQ*M	0.034	0.000	0.001	-0.003	-0.012	-0.005	-0.441	-0.001	-0.091
	0.045	0.662	0.375	0.086	0.158	0.562	0.002	0.382	0.006
EQ*S	-0.017	0.001	0.002	0.006	-0.030	-0.016	-0.514	-0.004	-0.191
	0.434	0.632	0.034	0.037	0.021	0.242	0.002	0.046	0.001
EQ*D	0.027	0.000	0.005	0.013	-0.094	-0.127	-0.350	-0.007	-0.110
	0.318	0.893	0.014	0.007	0.000	0.000	0.044	0.009	0.002
Control variables									
ZSCORE	0.017	0.016	0.017	0.017	0.017	0.017	0.019	0.016	0.016
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MTB	0.031	0.031	0.031	0.031	0.031	0.030	0.032	0.032	0.027
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BIG4	-0.055	-0.050	-0.050	-0.053	-0.052	-0.044	-0.034	-0.038	-0.051
	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.180	0.208	0.222	0.296	0.184	0.154	0.446	0.802	0.764
Total obs.	35905	35905	35905	35905	35905	35614	31629	35903	35144

Panel estimated generalized least squares regressions are estimated. The tests are conducted using cross section seemingly unrelated regressions, panel corrected standard errors for robust standard errors, and generalized least squares cross section weights allow for a different variance for each firm. The intercept captures the growth firm life cycle and the earnings quality variable (EQ) captures the growth firm life cycle earnings quality.

Table 9 Earnings Quality Association with Industry Adjusted Future Growth for a Restatement Sample

Panel A *Industry Adjusted Future Sales Growth (2002-2006) (Coefficients and p-values reported)*

Adj. Future Sales Growth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EQ measure	PERS	ΔTACC	ΔCACC	ΔEΔCFO	ECFO	CORR	RESID	DEVE	DEVSALE
Intercept	0.010	0.019	0.016	0.016	-0.035	0.014	-0.052	0.003	-0.105
	0.058	0.000	0.014	0.000	0.000	0.284	0.000	0.462	0.000
EQ	0.028	-0.001	0.007	0.001	0.082	0.069	1.046	0.008	0.984
	0.044	0.081	0.000	0.596	0.000	0.000	0.000	0.000	0.000
I	-0.015	-0.077	-0.070	-0.039	-0.003	-0.047	-0.146	-0.047	-0.040
	0.306	0.000	0.000	0.021	0.808	0.000	0.000	0.000	0.000
M	-0.135	-0.138	-0.126	-0.129	-0.073	-0.131	-0.061	-0.111	0.039
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
S	-0.157	-0.156	-0.169	-0.160	-0.143	-0.162	-0.103	-0.162	-0.025
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
D	0.125	-0.063	-0.032	-0.102	-0.079	-0.113	0.080	-0.014	-0.169
	0.000	0.000	0.001	0.000	0.006	0.000	0.000	0.088	0.000
EQ*I	-0.161	-0.019	0.021	-0.118	-0.091	-0.051	0.235	-0.012	-0.366
	0.000	0.000	0.000	0.000	0.000	0.001	0.051	0.000	0.000
EQ*M	-0.001	0.005	-0.002	-0.003	-0.116	-0.024	-1.378	-0.015	-0.773
	0.967	0.000	0.000	0.207	0.000	0.015	0.000	0.000	0.000
EQ*S	-0.001	0.003	-0.009	0.001	-0.026	0.015	-0.888	-0.004	-0.818
	0.951	0.000	0.000	0.683	0.000	0.102	0.000	0.000	0.000
EQ*D	-0.681	0.010	0.012	0.117	-0.006	0.114	-1.668	-0.024	-0.019
	0.000	0.000	0.006	0.000	0.839	0.000	0.000	0.000	0.900
Control variables									
ZSCORE	0.008	0.008	0.008	0.009	0.008	0.007	0.009	0.008	0.001
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.077
MTB	0.004	0.004	0.004	0.006	0.005	0.005	0.004	0.004	0.003
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BIG4	0.081	0.089	0.080	0.075	0.088	0.061	0.095	0.085	0.070
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	No	No	No	No	No	No	No	No	No
Adjusted R^2	0.949	0.981	0.985	0.996	0.992	0.995	0.956	0.984	0.963
Total obs.	445	445	445	445	445	445	436	445	445

Panel estimated generalized least squares regressions are estimated. The tests are conducted using cross section seemingly unrelated regressions, panel corrected standard errors for robust standard errors, and generalized least squares cross section weights allow for a different variance for each firm. The intercept captures the growth firm life cycle and the earnings quality variable (EQ) captures the growth firm life cycle earnings quality.

Table 9 continued for the restatement sample

Panel B *Industry Adjusted Future Asset Growth (2002-2006) (Coefficients and p-values reported)*

Adj. Future Asset Growth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EQ measure	PERS	ΔTACC	ΔCACC	ΔEΔCFO	ECFO	CORR	|RESID|	|DEVE|	|DEVSALE|
Intercept	0.127	0.155	0.152	0.141	0.111	0.096	-0.019	0.119	-0.072
	0.000	0.000	0.000	0.000	0.000	0.000	0.348	0.000	0.000
EQ	0.079	-0.001	0.013	0.002	0.066	0.074	1.712	0.005	0.936
	0.000	0.078	0.000	0.151	0.000	0.000	0.000	0.000	0.000
I	0.282	0.071	0.068	0.028	0.062	0.128	-0.037	0.223	0.021
	0.000	0.000	0.003	0.000	0.195	0.000	0.140	0.000	0.012
M	-0.172	-0.188	-0.195	-0.194	-0.142	-0.169	-0.046	-0.162	0.019
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
S	-0.175	-0.245	-0.253	-0.231	-0.230	-0.214	-0.067	-0.237	-0.099
	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000
D	-0.144	-0.289	-0.289	-0.311	-0.225	-0.269	-0.191	-0.313	-0.217
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EQ*I	-0.573	-0.047	-0.011	0.285	0.011	-0.152	0.370	-0.041	0.202
	0.000	0.000	0.000	0.000	0.660	0.000	0.451	0.000	0.008
EQ*M	-0.061	0.004	-0.011	0.002	-0.082	-0.034	-2.475	-0.011	-1.020
	0.000	0.000	0.000	0.150	0.000	0.000	0.000	0.000	0.000
EQ*S	-0.163	-0.001	-0.016	-0.008	0.028	0.007	-2.351	-0.002	-0.661
	0.000	0.363	0.000	0.003	0.000	0.361	0.000	0.448	0.000
EQ*D	-0.478	0.003	-0.003	0.064	-0.099	-0.035	-1.694	0.002	-0.770
	0.000	0.276	0.557	0.000	0.000	0.013	0.000	0.780	0.000
Control variables									
ZSCORE	0.019	0.018	0.019	0.020	0.019	0.018	0.020	0.019	0.013
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MTB	0.000	0.002	0.001	0.001	0.002	0.002	0.002	0.001	-0.001
	0.257	0.000	0.000	0.000	0.000	0.004	0.000	0.018	0.000
BIG4	-0.013	-0.003	-0.001	-0.012	-0.006	-0.020	0.000	-0.004	-0.011
	0.000	0.701	0.573	0.000	0.000	0.000	0.886	0.009	0.023
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	No	No	No	No	No	No	No	No	No
Adjusted R^2	0.988	0.999	0.990	0.998	0.998	0.990	0.999	0.958	0.998
Total obs.	446	446	446	446	446	446	437	446	445

Panel estimated generalized least squares regressions are estimated. The tests are conducted using cross section seemingly unrelated regressions, panel corrected standard errors for robust standard errors, and generalized least squares cross section weights allow for a different variance for each firm. The intercept captures the growth firm life cycle and the earnings quality variable (EQ) captures the growth firm life cycle earnings quality.

Table 9 continued for the restatement sample

Panel C Industry Adjusted Future Market Value Growth (2002-2006) (Coefficients and p-values reported)

Adj. Future MV Growth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EQ measure	PERS	ΔTACC	ΔCACC	ΔEΔCFO	ECFO	CORR	RESID	DEVE	DEVSALE
Intercept	0.181	0.244	0.155	0.073	0.241	0.132	0.170	0.182	0.187
	0.000	0.000	0.000	0.055	0.000	0.019	0.000	0.000	0.000
EQ	-0.197	0.001	-0.014	0.010	-0.035	-0.153	0.667	0.017	0.215
	0.000	0.607	0.000	0.000	0.380	0.000	0.028	0.009	0.000
I	-0.067	-0.112	-0.112	-0.098	-0.057	-0.109	-0.142	-0.057	-0.260
	0.261	0.002	0.000	0.002	0.022	0.000	0.000	0.117	0.000
M	-0.233	-0.201	-0.178	-0.230	-0.191	-0.308	-0.165	-0.234	-0.244
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
S	0.261	0.143	0.112	0.116	0.141	-0.032	0.108	0.210	0.156
	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000
D	-0.346	-0.031	-0.027	-0.066	-0.062	-0.062	-0.117	-0.075	0.040
	0.000	0.565	0.647	0.269	0.484	0.392	0.029	0.043	0.688
EQ*I	-0.064	-0.015	0.018	-0.122	-0.095	-0.186	-0.357	-0.023	0.837
	0.627	0.265	0.000	0.000	0.013	0.000	0.159	0.043	0.000
EQ*M	0.108	-0.009	0.015	-0.006	-0.069	0.225	-0.741	0.004	0.257
	0.013	0.000	0.000	0.050	0.100	0.000	0.025	0.357	0.000
EQ*S	-0.423	-0.005	-0.009	0.020	-0.042	0.430	-0.257	-0.039	0.029
	0.000	0.057	0.063	0.010	0.452	0.000	0.375	0.004	0.847
EQ*D	1.186	0.009	0.008	0.108	0.008	-0.018	0.318	0.009	-0.408
	0.000	0.150	0.553	0.000	0.882	0.819	0.439	0.351	0.000
Control variables									
ZSCORE	0.038	0.036	0.037	0.038	0.039	0.038	0.035	0.039	0.036
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MTB	0.028	0.024	0.024	0.026	0.028	0.025	0.032	0.031	0.021
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BIG4	0.050	0.040	0.069	0.057	0.045	0.077	0.059	0.060	0.083
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	No	No	No	No	No	No	No	No	No
Adjusted R^2	0.931	0.919	0.919	0.950	0.943	0.941	0.912	0.978	0.908
Total obs.	446	446	446	446	446	446	437	446	445

Panel estimated generalized least squares regressions are estimated. The tests are conducted using cross section seemingly unrelated regressions, panel corrected standard errors for robust standard errors, and generalized least squares cross section weights allow for a different variance for each firm. The intercept captures the growth firm life cycle and the earnings quality variable (EQ) captures the growth firm life cycle earnings quality.