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Chapter 7 Growth and the role of Accounting Accruals

7.1 Introduction

In this chapter I examine the effect of growth on accounting accruals. Accounting is fundamentally linked to underlying economics. Growth of a firm seems to affect the accrual accounting process. Growing firms are typically firms with large positive accruals relative to their asset base, while firms with large negative accruals (value firms) are typically firms that are exiting businesses and are in a state of decline. Accruals for growing firms have an income statement perspective, focusing on revenue recognition and the matching of costs with revenues. Value firms however, use accruals from a balance sheet perspective, where the focus is on changes in the value of assets, as reflected in earnings. The difference in accounting perspective is presumably driven by differences in the historical emphasis on reliability and conservatism in accounting (Dechow and Ge, 2006). [59]

I examine the systematic differences in the relation between accruals and cash flows for high growth firms and low growth firms (value firms) (Skinner and Sloan, 2002). I argue that the role of accruals in reducing the noise in cash flows to produce earnings is different for growth firms and value firms. Furthermore, accruals have a prominent place in earnings management research. I predict that the effect of growth on accruals causes a systematic difference in accrual based measures for earning management research. My results confirm that the relation between accruals and cash flows is affected by growth, and that this causes a bias in accrual based measures for earnings management. Thus, my results enhance the understanding of accruals and the role accruals can play in the financial reporting process.

Accruals are used to smooth temporary fluctuations of cash flows in earnings, i.e. the noise reducing role of accruals. There is a difference in accounting perspective for accruals that is likely to be dependent on the life cycle the company is in. The role of accruals is therefore hypothezised to be different for growth firms and value firms. I show that there are systematic differences in accrual accounting between growth firms and value firms. Using a standard cash flow model (Ball and Shivakumar, 2006) to examine the relation between accruals and cash flows for growth firms and value firms, I show that the noise reducing role of accruals is less prevalent for growth firms, and more prevalent for value firms on average. This is consistent with business activity effecting accruals.

I then examine the effect of growth on accrual based measures for earnings management. Accruals have attracted substantial attention from researchers studying earnings

[59] The difference in perspective is the result of the demand for reporting quality. Following Ball and Shivakumar (2005), I interpret reporting quality in abstract terms as the usefulness of financial statements to investors, creditors, managers and all other parties contracting with the firm.

management and earnings quality. While accruals are used to adjust cash flow from operations to present the earnings of a company over a specific time frame, accruals can also be used by management to manage earnings in a certain direction. For instance, management can show higher revenues by generating additional sales on bad credit or creating questionable receivables as an accrual to show higher earnings.

In the symmetric Dechow (1994) view of accruals, high-quality accrual accounting reduces the variance of earnings, conditional on the variance of cash flows. However, since growth causes adjustments in the accruals process, growth actually increases the variance in earnings without partitioning on earnings management, as the noise reducing role of accruals is significantly lower for growth firms. This would suggest that accrual-based measures, which are for instance used in earnings management research, would behave differently for growth firms and value firms in a systematic fashion, causing a bias in accrual based earnings management measures.

I examine the effect of growth on earnings management measures that examine the relation between cash flow and aggregate accruals (e.g. Leuz et al., 2003). I argue that these measures are also systematically affected by growth. However, this effect is not expected to be isolated to aggregate accrual models. As McNichols (2000) shows, specific accruals are also often examined in earnings management research. Therefore, I also examine the effect of growth on specific accrual measures of earnings management. My results indicate that measures which examine the relation between earnings, cash flow and aggregate accruals are also related to growth. The contemporaneous correlation between changes in accounting accruals and changes in operating cash flows is significantly lower for high growth firms compared to value firms, as is the magnitude of accruals relative to cash flows (Leuz et al., 2003). This is consistent with the results in the first hypothesis, which show that accruals are used to a lesser extent to ameliorate transitory cash flows for growth firms than for value firms. Growth also affects measures of unexpected specific accruals, which furthers shows that growth can be an omitted correlated variable in earnings management research.

My analysis makes the following contributions. First, the research adds to the insights of the function of accounting accruals, which occupy a central position in financial reporting. I show that the noise reducing role of accruals demonstrated by Dechow (1994) is less prevalent for growth firms than for value firms. As a result, earnings will be more volatile for growth firms, than for value firms.

Second, my results add to the earnings management literature. Accruals are of great interest for researchers of earnings management and earnings quality. The first hypothesis shows that growth can cause earnings to be more volatile, which could be interpreted as lower quality earnings, even though an incentive for earnings management is absent. I then show

that this effect is also reflected in accrual based earnings management measures. Also, incorrect inferences about earnings management and earnings quality can be drawn from incomplete accruals models. Different models of accruals have been used to examine earnings management. The two most popular research designs are models based on aggregate accruals respectively based on specific accruals models. The most used aggregate accrual model is the Jones (1991) abnormal accrual model (McNichols, 2000; Guay, 2006). Since accruals are related to growth, growing firms are also likely to show discretionary accruals using the Jones accrual models, in spite of the absence of managerial influence. McNichols (2000) for instance shows that growth is related to Jones-model discretionary accruals. Thus, researchers may conclude that earnings management has taken place, where in fact the accrual process is altered as a result of the firm growing, causing discretionary accruals.[60] These results are consistent with assertions that accruals models that are used to show earnings management that do not control for growth may lead to inappropriate conclusions about earnings management (McNichols, 2000). My results caution users of financial statements not to interpret the effect of growth on accruals as earnings management.

The remainder of the chapter is as follows. Paragraph 7.2 develops the hypotheses in this chapter. Paragraph 7.3 describes the data and methodology employed in this research. Paragraph 7.4 discusses the results of my analysis. Paragraph 7.5 discusses the robustness checks of the empirical examination. Paragraph 7.6 Concludes.

7.2 Hypothesis Development

The primary product of financial reporting is net income or earnings as a measure of performance. Earnings are the summary measure of firm performance produced under the accrual basis of accounting. Earnings are important since they are used as a summary measure of firm performance by a wide range of users, for instance for executive compensation plans or in debt covenants. The primary role of accruals is to overcome problems with measuring firm performance when firms are in continuous operation. Information asymmetries between management and other contracting parties create a demand for an internally generated measure of firm performance over finite intervals. Reporting realized cash flows is not

[60] Beaver (2002) states that some of the earnings management literature could in fact be the "glamour phenomenon" in disguise. The glamour phenomenon refers to the fact that high growth stocks, i.e. stocks with low fundamentals–to-price ratios (for instance a low book-to-market ratio), show lower stock performance than value stock, i.e. stock with high fundamentals-to-price ratios (for instance high book-to-market ratio). Lakonishok et al. (1994) explain this phenomenon in terms of investors' expectations. They argue that investors are overoptimistic about glamour stocks and have high expectations of future growth due to their strong past performance. As growth mean-reverses in the future, investors are negatively surprised by the performance of glamour stocks. This causes lower returns on the stock. Similarly, growth can cause a firm to have too high expectations, and as a result may have too much accruals, for instance too much inventory based on too high expectations for sales.

necessarily informative, because realized cash flows have timing and matching problems that cause them to be a 'noisy' measure of firm performance. To mitigate these problems, generally accepted accounting principles have evolved to enhance performance measurement by using accruals to alter the timing of cash flows recognition into earnings. This results in a negative correlation between accruals and cash flow from operations. Accruals offset negative serial correlation in cash flow changes to produce first differences in earnings that are approximately serially uncorrelated. If accruals are used to smooth temporary fluctuations in cash flows, then changes in cash flows and accruals will be negatively correlated (Dechow, 1994). This effect is called the noise reducing role of accruals (Ball and Shivakumar, 2006).

The life cycle of a firm is an important determinant of the properties of accruals. For instance, Desai et al. (2004) show that high growth firms are likely to have large positive accruals, while low sales growth firms (value firms) are likely to have smaller positive or negative accruals. Marquandt and Wiedman (2004) show that different accruals are used to manage earnings, depending on whether the firm is a young growing company or a stagnant company.

Accrual adjustments made by firms are fundamentally linked to underlying economics. Dechow and Ge (2006) argue that accounting rules applicable to growing and declining firms have very different perspectives and that this difference in perspective leads to predictable implications for earnings persistence. A firm that is raising capital and growing will also be a firm that is recording large positive accruals relative to assets. Young, growing firms that are typically reporting large positive accruals are firms that are purchasing assets, generating sales, and expanding their businesses. Accrual accounting generally does not attempt to fair-value these growth opportunities on the balance sheet. For instance, under US GAAP, R&D investments cannot be capitalized, but have to be expensed immediately, while young, high growth firms typically invest a lot in R&D (Joos and Plesko, 2005). Growing firms only record assets that meet certain criteria and these assets are generally recorded at capitalized costs. Accrual accounting for high accrual firms tends to have an income statement perspective, focusing on revenue recognition and matching costs that generate the revenues.

In contrast a firm that is declining or downsizing will be recording large negative accruals relative to assets. When firms are downsizing, the accounting rules have a strong balance sheet perspective. As a firm exits lines of businesses, assets such as inventory, goodwill, property, plant, and equipment are likely to have market values less than their book values. In such circumstances, assets are typically written down to their fair value. The marking of assets and liabilities to their fair value results – in general - in changes in value being reflected in earnings. These accrual adjustments result in impairment charges,

restructuring charges, and other special items being recorded in the income statement via accruals.

If growth firms are more likely to have an income-statement perspective, it is likely that the noise reducing role of accruals is less prevalent than in value firms. However, if value firms have a balance sheet perspective, it is likely that the noise reducing role of accruals is more prevalent in value firms than in growth firms. Therefore, the first hypothesis is:

H7.1: The noise reducing role of accruals is less prevalent for growth firms, and more prevalent for value firms

Accruals have attracted substantial attention from researchers studying earnings management. If accrual accounting is linked to the underlying economics, researchers could find differences in accrual properties that are associated with earnings management caused by the effect of growth on accruals, rather than by a partitioning incentive for earnings management. Recall from equation 5.1 in chapter 5 that researchers typically partition their sample on PART, a dummy variable partitioning the data set into two groups for which earnings management predictions are specified by the researcher. If however differences in (discretionary) accruals or other accrual based measures for earnings management are found without partitioning on PART, one has to conclude that the (discretionary) accrual or accrual measure could be driven by another variable. In this chapter, growth is hypothesized to be (one of) the variable(s). If growth drives differences in accruals, growth is an important omitted correlated variable in earnings management research. Growth could lead researchers to make spurious conclusions, i.e. to conclude to earnings management when there is no earnings management. I examine the properties of accruals based on the underlying economics of the company. I examine the different properties of accruals, to get a better understanding of the role accruals may play for different type of firms. Accruals may be used to reduce the noise in accounting or to recognize a loss or to manage earnings. It is imperative to understand the role accruals play to avoid making wrong conclusions on the observation of the behavior of accruals. This includes concluding earnings management when in fact another factor, such as growth, caused accruals to behave differently. Therefore, the second hypothesis in this chapter is:

H7.2: The difference in accounting perspective for growth firms versus value firms causes a bias in accrual based measures for earnings management

The earnings management measures I examine are measures based on the relation between cash flows, earnings and accruals (Leuz et al., 2003) and specific accruals (Marquandt and Wiedman, 2004).

7.3 Research Methodology

The empirical tests employ data obtained from the Compustat annual industrial and research files over 1972 to 2001. Consistent with prior literature, the extreme 1% of the observations are deleted on either side of the distribution for all variables. All variables are deflated by average total assets. Excluded from the sample are financial firms (SIC codes 6000-6999) and firms without complete data. Also excluded are firms with a negative book value. After these reductions, the sample yields 79,823 firm-year observations.

To test the first hypothesis, I use a piecewise linear model of accruals and cash flows. Evidence of a nonlinear relation between accruals and cash flows is shown by Ball and Shivakumar (2005, 2006), who report an asymmetric relation between accruals and cash flows for firm with economic losses. I employ a model that allows a non-linear relation between cash flows and accruals for growth firms and value firms. Using a piecewise model allows for an incremental coefficient on cash flows for growth firms and value firms that can be distinguished from the rest of the sample. This specification allows for examining if accrual accounting for growth firms differs significantly from value firms. I run annual cross-sectional regressions with time-series adjusted standard errors of the following model:

$$Acc_t = \beta_0 + \beta_1 CFO_t + \beta_2 D_Growth_t + \beta_3 D_Growth_t * CFO_t + \beta_4 D_Value_t + \beta_5 D_Value_t * CFO_t + \varepsilon_t \tag{7.1}$$

Where Acc_t = total accruals = $(\Delta CA_t - \Delta Cash_t) - (\Delta CL_t - \Delta STDebt_t) - DEPN_t$ and CFO_t is cash flow from operations, and is calculated as $CFO_t = NI_t - TA_t$. NI_t is firm j's net income before extraordinary items (Compustat #18) in year t, and TA_t is total accruals, where total accruals is $(\Delta CA_t - \Delta Cash_t) - (\Delta CL_t - \Delta STDebt_t) - DEPN_t$.

The variables are defined as:

Acc_t = total accruals. Accruals are calculated from the balance sheet as follows: $(\Delta CA_t - \Delta Cash_t) - (\Delta CL_t - \Delta STDebt_t) - DEPN_t$;

ΔCA_t = change in current assets (Compustat data item # 4);

$\Delta Cash_t$ = change in cash/cash (Compustat data item # 1);

ΔCL_t = change in current liabilities (Compustat data item # 5);

$\Delta STDebt_t$ = change in debt included in current liabilities (Compustat data item # 34);

$DEPN_t$ = depreciation and amortization expense (Compustat data item # 14);

D_Growth_t = Dummy variable that takes the value of 1 if the firm-year observation is a growth firm;

D_Value_t = Dummy variable that takes the value of 1 if the firm-year observation is a value firm.

Growth firms and value firms are classified by the method used by Skinner and Sloan (2002). Firms are ranked on the book-to-market ratio, where firms with a low book-to-market ratio are growth firms, and firms with a high book-to-market ratio are value firms. Growth firms are the top 25% of the sample, and value firms are the bottom 25% of the sample (Skinner and Sloan, 2002). Book value of equity is Compustat data item #60, and market value is the amount of shares outstanding (Compustat data item #25) times the closing price (Compustat data item #199).

The second hypothesis examines if the difference in accrual accounting affects accrual based measures used in earnings management research. First, I examine the relation between growth and the descriptive variables of the firm. I examine firm characteristics and accrual characteristics and test to see if there is a difference in descriptive variables between growth firms and value firms. By showing that there is a difference in firm characteristics between growth firms and value firms, I show that one can expect different properties for accruals based on the business environment the company is in, regardless of any managerial discretion. The firm characteristics I examine are size, sales volatility, earnings volatility, cash flow volatility, accruals volatility, the firm's operating cycle and the propensity to have negative earnings.

To further examine earnings management, I then examine measures related to accruals that have been employed in the accounting literature to measure earnings management (e.g. Leuz et al, 2003; Lang et al. 2006). Leuz et al. (2003) consider the ratio of the firm-level standard deviation of earnings to the firm-level standard deviation of cash flow from operations. According to Leuz et al. (2003), a low value of this measure indicates that insiders exercise accounting discretion to smooth reported earnings. Given hypothesis 1, I expect that value firms have more smoothing of reported earnings, and therefore I expect the value of this measure to rise for value firms. I expect growing firms to have more volatile cash flows from operations. However, there is little demand for the reporting of growth opportunities via accrual accounting, as stakeholders focus on the realization of the growth opportunities. As a result, the noise reducing role of accruals is lower for growth firms than for value firms. Value firms have a relatively stable business, and are expected to show stable results. I therefore expect relatively more smoothing for value firms than growth firms.

Another measure used is the contemporaneous correlation between changes in accounting accruals and changes in operating cash flows to examine earnings smoothing. A negative correlation is expected, as accruals buffer cash flow shocks in reported earnings (Dechow, 1994). A larger magnitude of this correlation would indicate smoothed earnings that does not reflect a firm's underlying economic performance, and is therefore considered an indicator of earnings management.[61]

Finally, the third earnings management measure uses the magnitude of accruals as a proxy for the extent to which insiders exercise discretion in reporting earnings. It is computed as the absolute value of firms' accruals scaled by the absolute value of firms' cash flow from operations. The scaling controls for differences in firm size and performance (Leuz et al., 2003). All variables are defined as above.

I also examine unexpected accruals at the specific accrual level. The use of aggregate accrual measures to show earnings management is subject to interpretation as to what exactly the role of accruals is. Specific accruals suffer less from this problem, and are therefore expected to be more indicative of earnings management (McNichols, 2000). I use a method based on Marquandt and Wiedman (2004) to identify unexpected specific accruals. Marquandt and Wiedman (2004) relate the specific accrual to the underlying business activity in determining the expected level of specific accruals. For instance, accounts receivable is related to sales revenue. The expected level of accounts receivable (AR) is obtained by multiplying the prior year's closing account balance by the growth in sales. The unexpected component is the difference between the actual account balance and this expected value. Unexpected accounts receivable (UAR) for period t is thus defined as:

$$UAR_{j,t} = (AR_{j,t} - (AR_{j,t-1} * SALES_{j,t} / SALES_{j,t-1})) \quad (7.2)$$

For the test on earnings management, unexpected accounts receivable (UAR) is controlled for the median industry unexpected accounts receivable (Median_IndUAR) at the three-digit SIC code level. Thus, unexpected industry-controlled accounts receivable are:

$$UnAR_{j,t} = UAR_{j,t} - Median_IndUAR_{j,t} \quad (7.3)$$

In similar fashion, inventory (INV) and accounts payable (AP) are related to cost of goods sold. Unexpected inventory (*UINV*) for period t and firm j is defined as:

[61] However, as Ball and Shivakumar (2006) point out, this not necessarily considered a negative effect. Dechow and Dichev (2002) interpret greater negative correlation as an indicator of higher earnings quality, due to noise reduction.

$$UINV_{j,t} = (INV_{j,t} - (INV_{j,t-1} * COGS_{j,t} / COGS_{j,t-1})) \quad (7.4)$$

Unexpected accounts payable (*UAP*) for period *t* is defined as:

$$UAP_{j,t} = (AP_{j,t} - (AP_{j,t-1} * COGS_{j,t} / COGS_{j,t-1})) \quad (7.5)$$

Depreciation expense (DEP) is assumed to remain a constant proportion of gross property, plant, and equipment. Thus, the unexpected component of depreciation expense *(UDEP)* for period *t* is defined as:

$$UDEP_{j,t} = (DEP_{j,t} - (DEP_{j,t-1} * Gross\ PPE_{j,t} / Gross\ PPE_{j,t-1})) \quad (7.6)$$

All unexpected values of these specific accruals are subsequently controlled for by the median industry unexpected value of the accrual at the three-digit SIC level.

Special items *(SI)* are by their nature non-recurring, and therefore it is expected that special items to equal zero. The unexpected component of special items *(USI)* for period t is therefore simply defined as the level of special items itself:

$$USI_{j,t} = SI_{j,t} \quad (7.7)$$

I expect both growth firms and value firms to have different levels of unexpected specific accruals, given their difference in accrual accounting. I expect to find these differences without partitioning on an earnings management incentive. This would indicate that growth in it self could lead to differences in unexpected accruals, and therefore to spurious conclusions on earnings management.

7.4 Results

7.4.1 Descriptive Statistics

Table 7.1 provides descriptive statistics on the variables. Results show that total accruals are negative on average at -0.051, reflecting that firms on average are mean reversing in terms of growth. This result is similar to previous studies. For instance, Dechow and Dichev (2002) report mean accruals of -0.046. The average book-to-market ratio is 0.922, with the lower quartile (growth firms) of 0.440 and the upper quartile (value firms) of 1.191.

Table 7.1 Descriptive Statistics for Firm-Year Observations

	Mean	Standard Deviation	Lower Quartile	Median	Upper Quartile
Total Assets	1.407	5.911	32.3	122.2	595.9
Book Value of Equity	0.518	0.208	0.361	0.501	0.662
Market Value of equity	1.012	1.215	0.359	0.639	1.197
Book to Market ratio	0.922	0.697	0.440	0.733	1.191
Cash from operations	0.083	0.114	0.041	0.093	0.146
Total Accruals	-0.051	0.071	-0.089	-0.049	-0.014

N= 79,823. Total Assets = Compustat data item (Compustat item # 6; $CFO_{j,t} = NI_{j,t} - TA_{j,t}$; Net income = Net Earnings before Extraordinary Items (Compustat item #18); $CFO_{j,t}$= Net $Income_{j,t} - TA_{j,t}$; TA= Total Accruals= $(\Delta CA_{j,t} - \Delta Cash_{j,t}) - (\Delta CL_{j,t} - \Delta STDebt_{j,t}) - DEPN_{j,t}$; $\Delta CA_{j,t}$= change in current assets (Compustat data item # 4); $\Delta Cash_{j,t}$= change in cash/cash (Compustat data item # 1); $\Delta CL_{j,t}$= change in current liabilities (Compustat data item # 5); $\Delta STDebt_{j,t}$= change in debt included in current liabilities (Compustat data item # 34); $DEPN_{j,t}$= depreciation and amortization expense (Compustat data item # 14); All variables are scaled by average total assets (Compustat item 6). For each variable, the extreme 1% is deleted on either side of the distribution.

Table 7.2 shows the descriptive statistics for the underlying business process that determine the accrual characteristics of a firm. The accrual characteristics reflect the ability of accruals to be converted into cash, and therefore determine the quality of accruals, an important determinant of earnings quality (Dechow and Dichev, 2002). The descriptive statistics reveal the primary role of accruals in financial accounting. The cash flow volatility is 0.070. However, earnings volatility is lower, at 0.048. This is the result of the role of accruals to reduce the noise of transitory cash flow changes in earnings.

Table 7.2 Descriptive statistics of the accrual characteristics

	Mean	Standard Deviation	Lower Quartile	Median	Upper Quartile
Firm Characteristics					
Size	4.849	2.095	3.305	4.659	6.224
Sales volatility	0.168	0.154	0.069	0.127	0.218
Earnings volatility	0.048	0.056	0.014	0.029	0.058
Operating income volatility	0.050	0.049	0.018	0.036	0.065
Cash flow volatility	0.070	0.055	0.033	0.057	0.091
Accruals volatility	0.059	0.041	0.028	0.049	0.080
Operating cycle	146	140	84	129	185
Negative Earnings	0.430	0.126	0.353	0.429	0.500

N= 79,823. Variables Measurement: Size= log of Total Assets; Total Assets= Compustat data item Compustat item # 6); Sales volatility= the standard deviation of Sales (Compustat item # 12), from years t-4 to t; Earnings volatility= the standard deviation of Net Earnings before Extraordinary Items (Compustat item #18), from years t-4 to t; Cash flow volatility= the standard deviation of Cash flow from operations, as defined in table 1, from years t-4 to t; Accruals volatility = the standard deviation of Total Accruals, as defined in table1, from years t-4 to t; Operating cycle= firm j's operating cycle in days; Negative Earnings= incidence of negative earnings; All variables are deflated by average total assets. For each variable, the extreme 1% is deleted on either side of the distribution.

In order to examine the effects of growth on accrual accounting, table 7.3 summarizes the difference in accrual and firm characteristics between high-growth and low-growth firms. Table 7.3 shows that the effect of growth on the firm characteristics is to increase the volatility of the firm characteristics. For five of the eight firm characteristics, the underlying process is significantly more volatile for growth firms than value firms at the 1% level. For high-growth firms, the sales process and the underlying cash flows are more volatile. The accruals process for high growth firms is less prevalent, as reflected in the higher earnings volatility. Overall, the results in table 7.3 show that growth causes higher volatility of the business environment of the firm, and this is reflected in different accrual characteristics between growth firms and value firms.

Table 7.3 Differences in means of firm and accrual characteristics between Growth firms and Value firms

	Growth firms	*Value firms*	*Difference in Means*	*t-stat*	*Difference p-value*
Size	5.100	4.323	0.777	28.03	0.0000
Sales volatility	0.181	0.177	0.004	1.89	0.0591
Earnings volatility	0.064	0.045	0.019	23.68	0.0000
Cash flow volatility	0.082	0.070	0.011	14.57	0.0000
Total Accruals volatility	0.063	0.060	0.003	4.60	0.0000
Operating cycle	152	150	1.55	0.60	0.5480
Negative Earnings	0.418	0.430	-0.012	-9.04	0.0000
Total Accruals	-0.051	-0.049	-0.002	-2.61	0.0089

Tables 1 and 2 provide the definitions for all variables. P-Values for difference are based on two-tailed test.

The correlations in Table 7.4 illustrate the relations between the sample variables. These empirical correlations are in agreement with previous research and the predictions of the model. Specifically, there is a negative correlation between CFO and total accruals (-0.44). Growth, as measured by the Book-to-Market (B-to-M) ratio is negatively related to cash flow, but positively related to total accruals.

Table 7.4 Correlations between variables. Pearson (Spearman) Correlation Coefficients in the Lower (Upper) Diagonal (significance in parentheses)

	CFO	Total Accruals	B-to-M	Book value of Equity	Market value of Equity
CFO	-	-0.5572	-0.1854	0.2294	0.2767
		(0.0000)	(0.0000)	(0.0000)	(0.0000)
Total Accruals	-0.4401	-	0.0217	0.0612	0.0109
	(0.0000)		(0.0000)	(0.0000)	(0.0051)
B-to-M	-0.0998	0.0161	-	-0.1131	-0.8425
	(0.0000)	(0.0000)		(0.0000)	(0.0000)
Book value of Equity	0.1552	0.0710	-0.0879	-	0.5814
	(0.0000)	(0.0000)	(0.0000)		(0.0000)
Market value of Equity	0.0458	0.0254	-0.4897	0.4609	-
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	

Table 1 provides the definitions for all variables.

7.4.2 Test of H7.1: The noise reducing role of accruals is less prevalent for growth firms, and more prevalent for value firms

The first hypothesis states that there is a difference in the noise reducing role of accruals for growth firms and value firms. Growth affects accrual accounting. Also, the accounting rules have a different perspective for growth firms than for value firms, and I expect that this is reflected in the difference in noise reduction of cash flows by accruals. More specifically, I expect that the noise reduction role of accruals is less prevalent for growth firms, and more prevalent for value firms. Tests of hypothesis 7.1 are provided in table 7.5. Table 7.5 reports results of Fama-Macbeth (1973) regression with time-series standard errors of equation (7.1). The results presented in table 7.5 indicate the there is indeed a difference in the noise reduction role of accruals.

Table 7.5 Time-series means and t-statistics for coefficients from annual cross-sectional regressions of total accruals on cash flow from operations

$$Equation_7.1: Acc_t = \beta_0 + \beta_1 CFO_t + \beta_2 D_Growth_t + \beta_3 D_Growth_t * CFO_t + \beta_4 D_Value_t + \beta_5 D_Value_t * CFO_t + \varepsilon_t$$

		Regression I		*Regression II*	
	Predicted sign	*Coefficient*	*t-stat*	*Coefficient*	*t-stat*
$Intercept_t$	?	-0.018	-3.54	-0.007	-1.21
CFO_t	-	-0.365	-11.10	-0.440	-14.32
D_Growth_t	?			-0.017	-7.05
$D_Growth_t * CFO_t$	+			0.205	13.71
D_Value_t	?			-0.016	-11.24
$D_Value_t * CFO_t$	-			-0.045	-4.27
Adj R^2		0.19		0.22	
No of obs		79823		79823	

D_Growth_t is a dummy variable that takes the value of 1 if the firm-year observation is a growth firm; D_Value_t is a dummy variable that takes the value of 1 if the firm-year observation is a value firm. Table 1 provides the definitions for all variables

Regression I show results for traditional linear cash flow model. The coefficient on current cash flow CFO_t is -0.365 with a t-stat of -11.10. This is consistent with previous research (e.g. Dechow, 1994; Dechow and Dichev, 2002), and shows that accruals are negatively correlated to cash flows, i.e. accruals reduce the noise in cash flows. Regression II shows the results for the piecewise linear model with the adjustments for growth. This model offers an improvement in specification, as the explanatory power improves from 0.19 to 0.22. The coefficient on current cash flow CFO_t is somewhat similar to regression I at -0.440 (with a t-stat of -14.32). However, for firms with high growth, the incremental coefficient on *Growth** CFO_t is +0.205, with a t-stat of 13.71. This indicates that the noise reduction role of accruals for cash flows is less prevalent for firms with high growth. The total coefficient on cash flow CFO_t for high growth firms is -0.235 (-0.440 + 0.205). This means that the noise reducing role of accruals for high growth firms is 53% lower than non-growth-non value firms. For value firms, the incremental coefficient on *Value** CFO_t is -0.045, with a t-stat of -4.27. This indicates that the noise reduction role of accruals for cash flows is more prevalent for value firms than for growth firm. The total coefficient on cash flow CFO_t for value firms is -0.485 (-0.440 - 0.045). This means that the noise reducing role of accruals for high growth firms is 10% higher than non-growth-non value firms.

My results show that high growth affect the accrual process to the extent that it significantly reduces the noise reducing role of accruals. This is consistent with Richardson et al. (2006), who show that growth is associated with the lower persistence of accruals. However, as a result of the lower noise reducing role of accruals, earnings are more noisy for growth firms. This could be interpreted as lower earnings quality, or even earnings

management. The interpretation of this result is dependent on the reader's priors. If the reader's prior is that smoothed earnings do not reflect a firm's underlying economic performance, and is therefore considered an indicator of earnings management (e.g. Leuz et al., 2003) this is considered a positive effect. Earnings reflect the underlying business as reflected in operating cash flows. However, if the reader's prior is that greater noise reduction is an indicator of higher earnings quality (e.g. Dechow and Dichev, 2002), this would be considered less positive, since management is less able to use its discretion over accruals to show the firm true performance. In this case, matching and timing problems are considered to be accentuated for high growth firms. The effect of growth on earnings management measures is further examined with hypothesis 7.2.

7.4.3 Test of H7.2: The difference in accounting perspective for growth firms versus value firms causes a bias in accrual based measures for earnings management

The second hypothesis examines the effect of growth on accrual based measures for earnings management. The results for hypothesis 7.1 show that the noise reducing role of accrual is less prevalent for growth firms compared to value firms. This result potentially has implications for earnings management research. For instance, McNichols (2000) shows that abnormal accruals are related to growth. The Jones model requires for abnormal accruals the estimation of the sensitivity of accruals to sales growth. If the noise reducing role of accruals is less prevalent for high-growth firms, it seems likely that accruals are less reactive to the sales process if growth is high. This could be picked-up by the residual in the Jones model, i.e. abnormal accruals.

For hypothesis 7.3, I examine the effect of growth on two research designs used in earnings management research. The first type of earnings management measures are based on the relation between cash flows and accruals, the second type of earnings management measures are based on specific accruals. Notice that the aim of hypothesis 7.3 is not to show that growth increases the likelihood of earnings management. Rather, table 7.7 shows that there is a difference in the examined earnings management measures resulting from a systematic differences in accruals caused by the level of firm-growth. Table 7.6 shows the effect of growth on the ratio of the firm-level standard deviation of earnings to the firm-level standard deviation of cash flow from operations, the contemporaneous correlation between changes in accounting accruals and changes in operating cash flows and the magnitude of accruals relative to cash flows (Leuz et al., 2003).

Table 7.6 Accrual properties and earnings management proxies for Growth firms versus Value firms

Panel A: Ratio of the firm-level standard deviation of earnings to the firm-level standard deviation of cash flow from operations		
	StDev Earn / StDev CFO	
	Mean	***p-value of difference***[a)]
All firms	1.149	
Growth firms	0.966	
Value firms	1.157	0.3961
Panel B: Correlation of change in accruals to change in cash flows from operations		
	Corr ΔAccr/ΔCFO	***p-value of difference***[b)]
All firms	-0.674	
Growth firms	-0.540	
Value firms	-0.761	0.0000
Panel C: Magnitude of accruals		
	Accr/ CFO	***p-value of difference***[a)]
All firms	2.031	
Growth firms	1.525	
Value firms	2.352	0.0000

a) P -Values for differences in means are based on two-tailed tests
b) P-Values for differences in means are based on two-tailed tests after Fisher Z- transformation of the correlation coefficients

Variable measurement: all variables as in table 7.1 and StDev Earnings= the standard deviation of Operating Income (Compustat item #178), from years t-4 to t; StDev Cash flows= the standard deviation of Cash flow from operations, as defined above, from years t-4 to t.

Panel A of table 7.6 shows results for the ratio of the firm-level standard deviation of earnings to the firm-level standard deviation of cash flow from operations, which, according to Leuz et al. (2003) represents the smoothing of earnings by management. A low ratio indicates that earnings are less volatile than underlying cash flows, meaning that accruals are used to produce earnings that reflect the volatility of the underlying economics to a lesser extent than cash flows. The subsample of high growth firms shows a lower ratio of 0.966 compared to the ratio of the entire sample of 1.149. This is contrary to what is expected based on the offsetting influence of high growth on the noise reduction role of accruals. The difference between growth firms and value firms in the ratio of firm-level standard deviation of earnings

to the firm-level standard deviation of cash flow from operations is not significant, indicating that the difference in the level of growth does not affect this measure. [62]

Panel B of table 7.6 examines another measure of earnings smoothing, the contemporaneous correlation between changes in accounting accruals and changes in operating cash flows. The subsample of high growth firms shows a correlation of -0.540 compared to the correlation of the entire sample of -0.674. This is consistent with the offsetting influence of high growth on the noise reduction role of accruals. For high growth firms, accruals are used to a lesser extent to ameliorate cash flow shocks than for value firms. The correlation for the value firm subsample of -0.761 is higher than the entire sample. The difference between growth firms and value firms in the contemporaneous correlation between changes in accounting accruals and changes in operating cash flows is significant, indicating that the difference in the level of growth affects this measure. [63]

Panel C of table 7.6 examines the absolute value of firms' accruals scaled by the absolute value of firms' cash flow from operations. Leuz et al. (2003) argue that apart from dampening fluctuations in firm performance, insiders can use their reporting discretion to misstate their firm's economic performance. For instance, insiders can overstate reported earnings to achieve certain earnings targets or report extraordinary performance in specific instances, such as an equity issuance. Therefore, this measure uses the magnitude of accruals as a proxy for the extent to which insiders exercise discretion in reporting earnings. The subsample of high growth firms shows a value of scaled accruals of 1.525 compared to the 2.031 for the entire sample. Again, this is consistent with the offsetting influence of high growth on the noise reduction role of accruals. For high growth firms, accruals are used to a lesser extent to ameliorate cash flow shocks than for value firms. The value of scaled accruals for the value firms subsample of 2.352 is higher than the entire sample. The difference between growth firms and value firms in the absolute value of firms' accruals scaled by the

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[62] For this test, earnings are defined as operating income, similar to Leuz et al. (2003). However, untabulated results show that using net income before operations (Compustat data item # 18) as the measure of earnings does not affect this result.

[63] The difference between the correlations is determined by performing Fisher's Z transformation of the sample correlation. The r to z transformation is as follows:

$$Z_{r_{xy}} = \frac{1}{2}\log_e\left(\frac{1+r_{xy}}{1-r_{xy}}\right)$$

The Fisher Z transformation normalizes the correlation coefficient, enabling to use the properties of the student's t-distribution in determining the significance. The significance of the difference is determined by the following formula, where a Z of 2.56 determines significance at the 1% level:

$$Z = \frac{z_{y_1} - z_{y2}}{\sqrt{\left(\frac{1}{n_1 - 3}\right) + \left(\frac{1}{n_2 - 3}\right)}}$$

absolute value of firms' cash flow from operations is significant, indicating that the difference in the level of growth affects this measure.

The results in table 7.6 show that growth is a potential correlated omitted variable in aggregate accrual based measures of earnings management. To further examine the effect of growth on earnings management measures, table 7.7 shows the effect of growth on specific accrual measures. More specifically, I expect that unexpected accruals are negative for high-growth firms, and positive for value firms. Negative unexpected accruals would indicate that the actual level of accruals is lower that the expected level of accruals. Positive unexpected accruals suggest that the actual level of accruals is higher than the expected level of accruals.

Table 7.7 Logistic Regressions of Life Cycle on Unexpected Specific Accruals

Panel A: Logistic regression of Growth on Unexpected Accruals

Growth_firm = y0 + y1 UnAR + y2 UnINV + y3 UnAP + y4 UnDEPN + y5 UnSPEC + vt

Regression Coefficient	*yo*	*y1*	*y2*	*y3*	*y4*	*y5*	*Model Chi-Square*	*(P-Value)*
Estimated value	-1.332	0.137	-0.024	-0.377	-4.224	-2.917	207.41	(0.000)
(p-value)	(0.000)	(0.402)	(0.817)	(0.006)	(0.000)	(0.000)		

Panel B: Logistic regression of Value on Unexpected Accruals

Value_firm = y0 + y1 UnAR + y2 UnINV + y3 UnAP + y4 UnDEPN + y5 UnSPEC + vt

Regression Coefficient	*yo*	*y1*	*y2*	*y3*	*y4*	*y5*	*Model Chi-Square*	*(P-Value)*
Estimated value	-1.002	-0.400	-0.254	0.430	1.280	1.412	44.68	(0.000)
(p-value)	(0.000)	(0.010)	(0.030)	(0.019)	(0.082)	(0.000)		

Sample consists of 69444 observations. Variable measurement: Growth_firm is an indicator variable equal to one if the firm-year observation is a growth firm; Value_firm is an indicator variable equal to one if the firm-year observation is a value firm; *Sales* =Compustat data item # 12; *AR* = Accounts Receivable (Compustat data item # 2); *INV* = Inventory (Compustat data item # 3); *AP* = Accounts Payable (Compustat data item # 70); *DEPN* = Depreciation and Amortization (Compustat data item # 14); *SPEC* = Special Items (Compustat data item #17); The unexpected specific accrual measures are calculated as unexpected accrual - median unexpected industry accrual at the three-digit SIC level :
$UAR_{j,t}= (AR_{j,t} – (AR_{j,t-1}* SALES_{j,t} /SALES_{j,t-1}))$; $UINV_{j,t}= (INV_{j,t} – (INV_{j,t-1}* COGS_{j,t} /COGS_{j,t-1}))$;$UAP_{j,t}= (AP_{j,t}– (AP_{j,t-1}* COGS_{j,t} /COGS_{j,t-1}))$; $UDEP_{j,t}= (DEP_{j,t} – (DEP_{j,t-1}* Gross\ PPE_{j,t} / Gross\ PPE_{j,t-1}))$; $USPEC_{j,t} = SPEC_{j,t}$; $UnAR_{j,t} = UAR_{j,t}$ - median_Industry $UAR_{j,t}$; $UnINV_{j,t} = UINV_{j,t}$ - median_Industry $UINV_{j,t}$; $UnAP_{j,t} = UAP_{j,t}$ - median_Industry $UAP_{j,t}$; $UnDEP_{j,t} = UDEP_{j,t}$ - median_Industry $UDEP_{j,t}$; $UNSPEC_{j,t}= USI_{j,t}$; Median_ Industry= median Industry value at the 3 digit SIC code. All variables are scaled by average total assets (Compustat item 6). For each variable, the extreme 1% is deleted on either side of the distribution.

The results in table 7.7 partly confirm that growth affects the level of unexpected specific accruals. The model is significant for both growth firms and value firms, with a chi-square of

207.41 and 44.68 respectively. Unexpected accounts payables, depreciation and special items are more likely to be negative for growth firms, and more likely to be positive for value firms. However, accounts receivables and inventory are not significant, or not significant in the expected direction. Note that the aim of the examination of unexpected accruals is not to show that firms manage earnings in a certain direction using accounts payables, depreciation or special items. Rather, the results in table 7.7 indicate that growth affects the likelihood that an unexpected specific accruals is likely to significantly behave in a specific direction. That is, panel A shows that unexpected specific accruals like accounts payable are likely to be significantly positive for growth firms, suggesting that growth firms manage their earnings upward. Negative unexpected accounts payable means that the actual accounts payable are lower than the expected accounts payable. Since accounts payable has a negative effect on earnings, this would suggest higher earnings. Panel B shows that unexpected accruals are likely to be significantly negative for value firms, suggesting that value firms manage their earnings downward, even though there is no incentive for earnings management that can be used as a partitioning variable. These results indicate that growth affects specific accruals used to examine earnings management. However, even though the models lack an incentive for earnings management, one cannot conclude that earnings management has not taken place. Table 7.7 just shows that growth potentially affects the level of unexpected accruals.

7.5 Robustness tests

7.5.1. Specification of robustness tests

The results reported in the previous section indicate that growth offsets the noise reduction role of accruals. In this subsection, I show that this result is robust with respect to different definitions of accruals and controls for size, fiscal year-end and industry.

7.5.2. Different definitions of accruals

Francis and Smith (2005) observe that traditional measures of accruals are functions of current- and non-current-period transactions. This causes the contemporary relation between accruals and performance to be biased downwards. They develop “time-specific” measures of accruals and cash that capture current-period transactions only. Using the “time-specific” accrual measures should improve the specification of the model, as it better captures the true relation between accruals and cash flows. Their measure of accruals uses the ending balance of asset accruals and the beginning balance of asset deferrals as the construct for the accrual component of income. In their measure of accruals, different types of accruals are treated

differently depending on whether their recognition in current-period income precedes cash (an accrual account (A) e.g. accounts receivables, or follows, their cash consequences (a deferral account (D), e.g. unearned revenue). The time-specific definition of accruals is:

$$Accrual_t^{Time} = (CA_t^A - CA_{t-1}^D) - (CL_t^A - CL_{t-1}^D) - InvEffect_t - DEPN_t \quad (7.8)$$

where

$$InvEffect = \begin{cases} min\ (AP_t\ ,\ COGS_t) & if\ INV_t \geq INV_{t-1} \\ min\ (COGS_t, AP_t - (INV_t - INV_{t-1})) & if\ INV_t < INV_{t-1} \end{cases} \quad (7.9)$$

and

CA_t^h = current assets of type h = {A, D} as of the end of year t (excluding inventory)
CL_t^h = current liabilities of type h = {A, D} as of the end of year t (excluding accounts payable)

The empirical definition of the time specific accrual measure is:

$$Accruals_t = AR_t - OtherCA_{t-1} - OtherCL_t - InvEffect_t - DEPN_t \quad (7.10)$$

where

AR_t = ending balance of accounts receivable for year t (Compustat data item # 2);
INV_t = change in inventories for year t (data item # 3);
$OTHERCA_{t-1}$ = beginning balance of other current assets for year t (data item # 68);
AP_t = accounts payable for year t (data item # 70);
$OTHERCL_t$ = ending balance for other current liabilities for year t (data item # 72);
$DEPN_t$ = depreciation and amortization expense for year t (data item # 14);
$COGS_t$ = Cost of Goods Sold for year t (data item # 41).

This definition of accruals essentially uses balance sheet accounts to reconstruct income summary journal entries. The current asset (*CA*) and current liability (*CL*) accounts exclude inventory and accounts payable, respectively, because the balances of these accounts do not map neatly into cost of goods sold (Francis and Smith, 2005). Regression I of table 7.8 shows the results for time-specific accruals. The contemporaneous relation between accruals and cash flow is -0.657, with a t-stat of -47.33. This is consistent with the notion by Francis and Smith (2005), that time accruals better captures the true relation between accruals and cash flows. This is also captured in the higher Adj. R^2 of the model of 0.51, compared to 0.22 in table 7.5. The results for hypothesis 7.1 using the time accruals specification are similar to the specification in table 7.5. For firms with high growth, the incremental coefficient on *Growth** CFO_t is +0.207, with a t-stat of 14.26. For value firms, the incremental coefficient on *Value**

CFO_t is significant, with a coefficient of -0.046 and a t-stat of-4.67, as predicted in hypothesis 7.1. If time accruals better capture the true relation between accruals and cash flows as suggested, this results provide strong support for the hypothesis that growth offsets the noise reducing role of accruals.

Another potential shortcoming of the accrual measurement procedures is that hypothesis 7.1 is tested using balance sheet data to construct accruals. Hribar and Collins (2002) point out that the use of balance sheet data can introduce errors into the measurement of accruals. Therefore, I also run the model using accruals and cash flow data obtained from cash flow statements and not estimated indirectly from balance sheet data. This restricts the sample to the 1987–2001 period. Accruals are defined as Net Income Before Extraordinary Items (Compustat data item #123) minus Cash From Operations (Compustat data item # 308); Net Income and Cash From Operations are from the SFAS No. 95, *Statement of Cash Flows*. Regression II of table 7.8 shows the results for accruals taken from the cash flow statement. Even though the Adj. R^2 of the model of is lower at 0.12, compared to 0.22 in table 7.5, the results for hypothesis 7.1 using the cash flow statement accruals specification are also robust to the specification in table 7.5. For firms with high growth, the incremental coefficient on *Growth** CFO_t is +0.295, with a t-stat of 12.74, similar to table 7.5. Similarly, for firms value firms, the incremental coefficient on *Value** CFO_t is significant, with a coefficient of -0.104 and a t-stat of -4.44, as predicted in hypothesis 7.1. If cash flow statement accruals better capture the true relation between accruals and cash flows as suggested, this results again provides strong support for the hypothesis that growth offsets the noise reducing role of accruals.

Table 7.8 Time-series means and t-statistics for coefficients from annual cross-sectional regressions of Current accruals on cash flow from operations

$$Equation_7.1: Acc_t = \beta_0 + \beta_1 CFO_t + \beta_2 D_Growth_t + \beta_3 D_Growth_t * CFO_t + \beta_4 D_Value_t + \beta_5 D_Value_t * CFO_t + \varepsilon_t$$

		Regression I		*Regression II*	
	Predicted sign	*Coefficient*	*t-stat*	*Coefficient*	*t-stat*
$Intercept_t$	?	0.022	2.67	-0.017	-3.03
CFO_t	-	-0.657	-47.33	-0.438	-12.80
D_Growth_t	?	-0.040	-9.50	-0.022	-10.29
$D_Growth_t * CFO_t$	+	0.207	14.26	0.295	12.74
D_Value_t	?	-0.029	-10.67	-0.024	-8.68
$D_Value_t * CFO_t$	-	-0.046	-4.67	-0.104	-4.44
Adj R^2		0.51		0.12	
No of obs		79823		41382	

Variable measurement:

Regression I:

$Accruals_t = AR_t - OtherCA_{t-1} - OtherCL_t - InvEffect_t - DEPN_t;$

$InvEffect = \min(AP_t, COGS_t) \quad \text{if } INV_t \geq INV_{t-1}$

$\min(COGS_t, AP_t - (INV_t - INV_{t-1})) \quad \text{if } INV_t < INV_{t-1}$

AR_t = ending balance of accounts receivable for year t (Compustat data item # 2); INV_t = change in inventories for year t (data item # 3); $OTHERCA_{t-1}$ = beginning balance of other current assets for year t (data item # 68); AP_t = accounts payable for year t (data item # 70); $OTHERCL_t$ = ending balance for other current liabilities for year t (data item # 72); $DEPN_t$ = depreciation and amortization expense for year t (data item # 14); $COGS_t$ = Cost of Goods Sold for year t (data item # 41); CFO_t = Net Income before extraordinary items (data item # 18) – Accruals.

Regression II:

Accruals = Net Income Before Extraordinary Items (Compustat data item # 123) minus Cash From Operations (Compustat data item # 308).

7.5.3. Size

Firm-size can proxy for exogenous volatility in economic income. I check this possibility by adding the rank of year-end total assets ($SIZE_t$) as an interactive variable. Table 7.9 reports results from versions of regression (7.1) with controls for size. The results in table 7.9 show that the results remain qualitatively unaltered when size is included as an additional interactive variable.

Table 7.9 Time-series means and t-statistics for coefficients from annual cross-sectional regressions of Current accruals on cash flow from operations with controls for growth

$$Acc_t = \beta_0 + \beta_1 CFO_t + \beta_2 D_Growth_t + \beta_3 D_Growth_t \times CFO_t + \beta_4 SIZE_t + \beta_5 SIZE_t \times CFO_t$$
$$+\beta_6 SIZE \times D_Growth_t + \beta_7 SIZE \times D_Growth_t \times CFO_t + \beta_8 SIZE_t \times D_Value_t$$
$$+\beta_9 SIZE \times D_Value_t \times CFO_t + \varepsilon_t$$

	Predicted sign	Coefficient	t-stat
$Intercept_t$	?	-0.007	-1.28
CFO_t	-	-0.436	-14.01
D_Growth_t	?	-0.018	-7.25
$D_Growth_t * CFO_t$	+	0.206	13.84
D_Value_t	?	-0.017	-10.91
$D_Value_t * CFO_t$	-	-0.046	-4.11
$SIZE_t$	?	0.226	4.67
$SIZE_t * CFO_t$	?	-2.354	-6.23
$SIZE_t * D_Growth_t$	?	2.450	2.77
$SIZE_t * D_Growth_t * CFO_t$	?	-9.793	-2.84
$SIZE_t * D_Value_t$	?	0.535	2.73
$SIZE_t * D_Value_t * CFO_t$	?	-5.642	-2.10
$Adj\ R^2$		0.19	
No of obs		79823	

Table 7.1 provides the definitions for the variables; $SIZE_t$, rank of total assets at end of year t, standardized to the interval (0,1).

7.5.4 Fiscal year-end

The model is based on the relation between accruals and cash flows in a specific book year. Results may be affected by the fact that different companies have different fiscal year-ends, and therefore have differences in the relation between accruals and cash flows in a calendar year. In table 7.10, the model is re-estimated using only firms with a December fiscal year end. The results show that the results are not affected by differences in fiscal year-end.

Table 7.10 Time-series means and t-statistics for coefficients from annual cross-sectional regressions of Current accruals on cash flow from operations with December fiscal year-end

$$Equation_7.1: Acc_t = \beta_0 + \beta_1 CFO_t + \beta_2 D_Growth_t + \beta_3 D_Growth_t * CFO_t + \beta_4 D_Value_t + \beta_5 D_Value_t * CFO_t + \varepsilon_t$$

		Regression I	
	Predicted sign	*Coefficient*	*t-stat*
$Intercept_t$	?	-0.006	-1.00
CFO_t	-	-0.445	-13.56
D_Growth_t	?	-0.013	-4.52
$D_Growth_t * CFO_t$	+	0.195	9.67
D_Value_t	?	-0.016	-10.03
$D_Value_t * CFO_t$	-	-0.035	-2.24
Adj R^2		0.20	
No of obs		44073	

D_Growth_t is a dummy variable that takes the value of 1 if the firm-year observation is a growth firm; D_Value_t is a dummy variable that takes the value of 1 if the firm-year observation is a value firm. Table 7.1 provides the definitions for all variables. All firms have December fiscal year end.

7.5.5 Controls for industry

Different industries typically differ in growth rates. For instance, technology firms are usually high growth firms, while utilities are traditionally low growth industries. To control for industry effects, I partition the sample into 13 industries using the primary SIC code (Barth et al. 1998; Easton and Pae, 2004) and run annual regressions with time-series adjusted t-statistics for each major industry. Table 7.11 reports the industry composition of the sample.

Table 7.11 Industry subsample

Industry	Primary SIC codes	# firm-years	% of obs.
Agriculture	1 - 999	347	0,47
Mining and Construction	1000–1999, excluding 1300–1399	1950	2,62
Food	2000–2111	2940	3,96
Textiles and Printing	2200–2790	7143	9,61
Chemicals	2800–2824, 2840–2899	2857	3,84
Pharmaceuticals	2830–2836	2284	3,07
Extractive Industries	2900–2999, 1300–1399	3888	5,23
Durable Manufacturers	3000–3999, excluding 3570–3579 and 3670–3679	24789	33,35
Computers	7370–7379, 3570–3579, 3670–3679	7752	10,43
Transportation	4000–4899	4215	5,67
Retail	5000–5999	9630	12,96
Services	7000–8999, excluding 7370–7379	5997	8,07
Others	9000 and above	527	0,71
Total		74319	100,00
Mean		5717	7,69

Table 7.12 shows the results for the annual regressions for the 13 major industries. The results indicate that there is variation in the contemporaneous relation between accruals and cash flows on an industry level, and as a result, one can expect variation in the effect of growth on the noise reducing role of accruals over different industries. The results indicate that for most industries, accruals for high growth firms are less prevalent in noise reduction of cash flows. The incremental coefficient on cash flow for growth firms, $Growth^* CFO_t$, is significant for firms for ten of the thirteen industries. However, for only one of these industries the incremental coefficient on cash flow for value firms, $Value^* CFO_t$, is significant. This is only partly consistent with the results in table 7.5. The results in table 7.12 show that only Retail has a significant negative incremental coefficient on cash flow for value firms, $Value^* CFO_t$. Overall, the results in table 7.12 show that growth has industry specific effects on accrual accounting, especially for firms with high growth.

Table 7.12 Time-series means and t-statistics for coefficients from annual cross-sectional regressions of Total accruals on cash flow form operations

	Intercept$_t$	*CFO$_t$*	*D_Growth$_t$*	*D_Growth$_t$* CFO$_t$*	*D_Value$_t$*	*D_Value$_t$ * CFO$_t$*	*Adj-R^2*	*n*
Agriculture	0.045	-0.598	-0.014	0.069	-0.055	0.116	0.14	347
	(1.71)	(-4.33)	(-0.35)	(0.28)	(-2.18)	(0.82)		
Mining and Construction	-0.016	-0.427	-0.007	**0.126**	-0.006	-0.063	0.24	1950
	(-2.55)	(-10.77)	(-0.94)	(2.30)	(-1.29)	(-1.46)		
Food	0.011	-0.576	-0.024	**0.258**	-0.013	-0.073	0.50	2940
	(1.84)	(-16.92)	(-1.21)	(2.52)	(-2.16)	(-1.38)		
Textiles and Printing	0.011	-0.527	-0.014	0.104	-0.024	-0.034	0.40	7143
	(2.38)	(-21.64)	(-1.21)	(0.70)	(-6.06)	(-0.95)		
Chemicals	0.005	-0.475	-0.011	**0.202**	-0.022	-0.084	0.26	2857
	(0.83)	(-17.07)	(-0.92)	(3.17)	(-4.02)	(-1.18)		
Pharmaceuticals	-0.010	-0.346	-0.011	**0.207**	-0.016	0.219	0.04	2284
	(-1.18)	(-6.73)	(-1.79)	(5.13)	(-1.75)	(1.22)		
Extractive Industries	-0.026	-0.410	-0.015	**0.085**	-0.016	0.021	0.24	3888
	(-3.28)	(-9.69)	(-2.32)	(2.10)	(-3.40)	(0.53)		
Durable Manufacturers	0.002	-0.493	-0.019	**0.230**	-0.023	-0.015	0.28	24789
	(0.40)	(-15.97)	(-4.54)	(9.92)	(-8.82)	(-0.78)		
Computers	-0.029	-0.358	0.003	**0.093**	-0.014	-0.004	0.06	7752
	(-4.24)	(-9.66)	(0.41)	(2.32)	(-3.10)	(-0.12)		
Transportation	-0.016	-0.458	-0.008	0.137	-0.007	-0.103	0.30	4215
	(-3.38)	(-17.88)	(-0.52)	(1.81)	(-1.51)	(-1.75)		
Retail	0.004	-0.517	-0.011	**0.203**	-0.018	**-0.074**	0.33	9630
	(0.76)	(-18.16)	(-2.15)	(5.49)	(-5.20)	(-2.23)		
Services	-0.007	-0.493	-0.016	**0.212**	-0.020	0.000	0.24	5997
	(-1.34)	(-19.55)	(-2.86)	(4.68)	(-5.00)	(-0.01)		
Others	-0.018	-0.361	-0.022	0.183	-0.015	-0.189	0.15	527
	(-1.89)	(-5.57)	(-1.49)	(1.77)	(-1.20)	(-1.49)		

Table 7.1 provides the definitions for the variables

7.6 Summary and Conclusion

In this chapter, it is hypothesized that growth affects accounting accruals. The results are consistent with this prediction. Accounting is fundamentally linked to underlying economics. There is a difference in accounting perspective for accruals, that is likely to be dependent on the life cycle the company is in. My results confirm that the noise reducing role of accruals is less prevalent for high growth firms than for non-high growth and value firms. My results also show a higher prevalence of the noise reduction role of accruals for value firms. This result indicates that for firms with high growth, accruals are used to a lesser extent to dampen the effects of transitory cash flows, causing more volatile earnings. This could be interpreted as lower earnings quality. My results also show that for firms with low growth, accruals are used to a higher extent to dampen the effects of transitory cash flows, causing less volatile earnings, which could be interpreted as earnings of high quality.

In this chapter, it is also shown that the effect of growth on accounting accruals is also reflected in accrual based measures for earnings management. I show that measures that examine the relation between earnings, cash flow and aggregate accruals are also related to growth. This is consistent with the results in the first hypothesis, which show that accruals are used to a lesser extent to ameliorate transitory cash flows when growth is high. A further examination of specific accruals is also consistent with this result.

The contribution to the accounting literature made in this chapter is to show the effects of growth on accounting accruals. In particular, it is shown that when growth is high, earnings can be more volatile, since accruals will be less prevalent in reducing transitory cash flows. This finding adds to the literature on the role of accruals in financial accounting (e.g. Dechow, 1994).

My results also contribute to the earnings management literature. I show that growth also affects accrual based measures for earnings management. This is consistent with McNichols (2000), who shows that growth affects Jones model abnormal accruals. Future research should examine other effects of growth on accruals, for instance whether high growth firms have lower accrual quality because of the difference in accruals for high growth firms or because of earnings management motives.