

The Impact of Free Cash Flow, Financial Leverage and Accounting Regulation on Earnings Management in Australia's 'Old' and 'New' Economies

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Abstract

This paper explores the earnings management question in Australia's 'old' and 'new' economy sectors. Using four different accrual models as proxies for earnings management, and a sample that included all listed companies in Australia over a ten year period, the results indicate that new economy firms were associated with significantly less management of accruals than old economy firms. Significant differences were also found with respect to the impact of leverage and free cash flows on earnings management. These results can potentially be explained by a stringent disclosure regime imposed by the Australian Stock Exchange Listing Rule 4.7B, which requires detailed quarterly cash flow reporting under the direct method by new economy firms in Australia.

Keywords: Earnings management, cash flow regulation, 'old' and 'new' economy.

Data availability: Data for this study is available on request.

1. Introduction

Australia has experienced an explosive growth in the so-named 'new economy', particularly in industries such as health and biotechnology; telecommunications; high technology, internet and e-commerce.¹ These companies amount to 16% of total listed companies in Australia, and account for more than 60% of the total market capitalization of the Australian Stock Exchange (ASX) (Shareholder, 2001).

Furthermore, the growth of new economy companies has swelled the average market-to-book ratio of Australian listed firms to 5.5. In Australia, the knowledge economy accounts for five of every seven dollars of corporate market value (see Lev, 2000A, p.1 for comparable results in the US). Lev (2000A, pp.1-10) also observes that 'new economy' companies being 'high growth' are typically characterised by poorer than average financial performance, particularly cash flow and earnings performance. Lev's observations in the US are consistent with Australia (see Table 2 of the results).

While the global significance of the new economy is unequivocal, there has been comparatively little or no research attention given to the myriad of accounting and financial reporting issues now facing regulators and financial report users (Lev, 2000B). Nor has there been an attempt by Australian researchers to examine earnings management and contractual variables in the context of new and old economy sectors in Australia.

The motivation of this research is twofold. First, the paper seeks to provide preliminary evidence of earnings management in the context of new and old economy firms. We

Table 1: Mean values, standard deviations and adjusted t statistics for 'Old' vs 'New' Economy Across Key Financial Indicators

Variable	New Econ (Mean)	Std Dev.	Old Econ (Mean)	Std Dev.	Adj t-value	Sig.
<i>Cash flow:</i>						
Fee Cash Flow per Share	-5.188	18.3	11.3	173.06	-2.73	.006**
Annual Growth in Free Cash Flow	-112.82	332.13	-25.57	331.82	-2.75	.006**
Cash Flow/Total Assets (%)	-11.7290	35.7499	-1.1347	26.0825	-3.965	.000**
Cash Flow/Invested Capital (%)	-43.4764	236.9469	-6.2300	126.8593	-2.149	.033**
Annual Growth in Cash Flow (%)	-150.5492	363.6492	-13.6205	299.8946	-4.546	.000**
<i>Earnings:</i>						
Annual Growth in EBITDA (%)	-109.1779	368.2288	3.7169	270.6551	-3.867	.000**
Annual Growth in EBIT (%)	-125.8788	333.2748	-10.6030	268.4063	-4.319	.000**
Annual Growth in Net Profit After Tax (%)	-7.7375	53.3466	-.2980	9.8727	-1.849	.066
Annual Growth in EPS (%)	-50.8959	242.2631	8.6863	230.4726	-2.794	.066**
<i>Dividend Performance:</i>						
Dividend Yield (%)	3.4545	35.5899	3.0262	7.0751	.170	.865
Annual Growth in Dividends per Share (%)	-4.1968	36.3328	5.4183	82.1079	-2.417	0.16**
<i>Rate of Return:</i>						
Rate of Return on Equity (%)	-23.8081	87.3026	-7.3066	53.1706	-2.569	.011**
Rate of Return on Assets (%)	-34.1439	91.9833	-15.2391	73.3819	-2.734	.007**
Rate of Return on Investment (%)	-35.1952	137.3337	-13.4613	90.5032	-2.146	.033**

Table 1: Mean values, standard deviations and adjusted t statistics for 'Old' vs 'New' Economy Across Key Financial Indicators (continued)

Variable	New Econ (Mean)	Std Dev.	Old Econ (Mean)	Std Dev.	Adj t-value	Sig.
<i>Liquidity and Asset Backing:</i>						
Current Ratio Ratio (X)	8.7818	16.9621	8.2377	23.1777	.382	.702
Net interest cover (X)	-2554	41.5928	2.7266	36.6411	-.508	.613
NTA per share (cents)	43.3689	161.0728	79.3478	273.3001	-2.488	0.13**
Book value per share (cents)	60.1618	168.4104	99.4083	288.6134	-2.585	.010**
<i>Capital Structure:</i>						
Leverage Ratio	40.82	128.55	54.63	128.97	-1.383	.168
**Significance at .05 critical value. Results based on the population of Australian Listed Firms in YR2000. Data collected from Huntley's FinAnalysis Database (2001).						

test whether differences in certain financial characteristics in the two sectors can lead to a higher (lower) propensity for earnings management. The rationale for this investigation is that new economy companies are typically high growth and are associated with low levels of free cash flow. Therefore, the phenomenon of a 'cash squeezed' new economy sector exhibiting generally poor earnings performance might lead to a higher propensity for earnings management. Furthermore, due to presence of 'cash squeeze' variables such as leverage and free cash flow, this could also have an impact on earnings management proxies.

Second, the potential for new economy companies, owing to the financial performance issues just mentioned, to manipulate accounting numbers has not escaped the keen attention of Australian regulators. Since the mid 1990s, the ASX has been developing Listing Rule 4.7B "Quarterly Reporting for Entities Admitted on the Basis of Commitments," which has been designed specifically for Australian new economy firms (see Appendix 1, for the disclosure requirements of rule 4.7B).²

The rationale for Rule 4.7B is set out in the accompanying notes: "The quarterly report provides a basis for informing the market of how the entity's activities have been financed for the past quarter and the effect on its cash position. An entity wanting to disclose additional information is encouraged to do so, in a note or notes attached to this report" (Note 1, Listing Rule 4.7B). The rule requires detailed disclosure of operating cash flows under the *direct* method, with separate disclosure for all major categories of payments to suppliers and receipts from customers (Listing Rule 4.7B, 1.2-1.7).

Furthermore, the Rule also requires detailed disclosure of all financing and investing activities, including cash flow reconciliations and availability of financing and standby facilities (Listing Rule 4.7B 1.9-1.20; 4.1-4.4). These requirements are consistent with

the Australian Accounting Standard AASB 1026 "Statement of Cash Flows." A major objective of the standard has been to highlight disclosure and reconciliation of the 'leads and lags' in accruals and cash flows, thus providing a precise disclosure of any discrepancies between operating cash flow and accrual based earnings (see Jones et al., 1995). Given the detailed requirements of Listing Rule 4.7B, and the close scrutiny paid to new economy firms by stock exchange regulators and analysts, the Rule may well have an impact on the ability and capacity of new economy managers to effectively manipulate their accruals. This paper seeks to examine these issues empirically. Specifically, for the purpose of this preliminary study, we examine the impact of free cash flows (Jensen, 1986) and leverage (Christie, 1990; Duke and Hunt, 1990), including their interactive affects (Gul and Tsui, 1998) on earnings management proxies.

The remainder of the paper is organised as follows. Section II outlines the study's objectives and relevant literature. Section III details the methodology. Section IV presents the results. Finally, the conclusions and directions for future research are discussed.

II. Theoretical Framework

Earnings management has been defined by Schipper (1989) as "the purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain" (in contrast to a "neutral" involvement in process, such as improving the quality of financial information). More recently, Healy and Wahlen (1998, p.6) defined earnings management more comprehensively:

"Earnings management occurs when managers use judgement in financial reporting and structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting numbers."

Managers can potentially manipulate earnings using a variety of methods. Decisions can be "real" impinging directly on operating, financing and investing decisions (for example, the strategic sale of an investment to affect short-term gain). Other manipulations relate to accounting decisions, or accounting policy choices that are available within generally accepted accounting principles (GAAP) (see Healy, 1985).

The systematic study of earnings management by firm managers has now developed into a significant body of empirical literature (see Healy and Wahlen, 1998; Watts, 1995; Dechow, Sloan and Sweeney, 1995, 1996). The viewpoint adopted in this literature is that explicit and implicit contracts between stakeholders and the firm can afford a range of incentives for managers to manipulate earnings for a variety of reasons (see Jensen and Meckling, 1976; Smith and Warner, 1979 for theoretical discussion). Empirical investigations have systematically tested three basic hypotheses during the 1980s and early 1990s. These are: (i) the bonus plan (executive compensation) hypothesis (ii) the leverage hypothesis, and (iii) the political cost or "firm size" hypothesis (Watts and Zimmerman, 1990; Watts, 1995, Dechow et al., 1996). Christie (1990) found that the bonus plan and leverage hypotheses achieved the greatest statistical significance in explaining managerial incentives to manipulate earnings.³

It is noteworthy that nearly all empirical findings have been based on US firm samples. There is an absence of published research on earnings management by Australian corporations, particularly in the context of the new and old economy. The Australian new

and old economy sectors afford an interesting and informative contrast to further investigate and extend the earnings management literature. As previously mentioned, new economy companies are characterised by high growth and low available free cash flow (see Table 2 for an overview of the comparisons). A pertinent research question is whether this scenario is likely to lead to or provoke a higher propensity for earnings management in this sector.

The free cash flow/firm growth issue has already been examined in the context of agency problems. Jensen (1986), for instance, argued that there were agency problems associated with firms having high levels of free cash flow and low growth (see also Gul and Tsui, 1998, pp.219-220). We argue that the free cash flow/growth factor is also a meaningful issue to examine in the context of earnings management literature for new and old economy companies. We also explore the impact of leverage on earnings management, as leverage has been shown to have a significant impact on earnings management in the US (Christie, 1990).

The Australian regulatory context also provides a number of noteworthy contrasts with respect to other countries, such as the US and UK. The empirical findings could potentially impact regulatory policy in other contexts. Australia's cash flow standard AASB 1026 "Statement of Cash Flows" mandates the direct method of reporting cash flows. In the US and the UK a choice between the direct and indirect methods is permitted, notwithstanding that most companies in these jurisdictions choose the indirect method for reporting cash flows (see Belkaoui and Jones, 1996). Under the direct method, which requires disclosure of all gross receipts and payments to suppliers, a more refined measure of operating cash flow results. Unlike the indirect method, the direct method does not rely on crude profit "add backs" or balance sheet reconciliations in deriving operating cash flow (cf. Lehn and Poulsen, 1989). Hence, the direct method is likely to improve the estimation accuracy of total accrual models used to proxy for earnings management (see Jones et al., 1995; 1998). Finally, as previously mentioned, new economy companies are subject to special cash flow regulations in Australia, which could have implications for the empirical findings and regulatory policy.

III. Research Methodology

Independent Variable Definition. Table 2 summarises the variables used in this study.

The leverage ratio is defined down traditional lines as the ratio of external debt to total equity (see ASX Guide to Ratios, 1997). Free cash flows is defined in the Australian context as operating cash flow (direct method) minus investment (see Huntley's Guide to FinAnalysis, 2000). Free cash flows are normalized in this study to total assets⁴ (see Gul and Tsui, 1998, p.227 and Lehn and Paulsen, 1989). The study also uses an interaction variable in the regressions- the interaction of leverage to the free cash flow to total assets. The purpose of such tests is to measure the interactive affects of more than one variable on the accrual proxies (Gul and Tsui, 1998).

Dependent Variable Measurement. An important element in specifying accrual models used to proxy for earnings management is the definition and estimation of *discretionary* accruals. This requires knowledge of nondiscretionary accruals and total accruals, because total accruals is comprised of a discretionary element and a nondiscretionary element (Jones, 1991). The nondiscretionary element is essentially an accrual component

Table 2: Variable Definitions	
Variable Name	Description
Independent Variables	
Leverage ratio	Ratio of total external debt to total liabilities
FCF/TA	Free cash flow to book value of total assets
Free Cash Flow	Gross Receipts from Customers - Payment to Suppliers = Operating Cash Flow) - Investment (as extracted from the cash flow statement)
Interaction of FCF & Leverage	Interaction of free cash flow to total assets and leverage
Log Total Assets	Natural Log of Total Assets (<i>Control Variable</i>)
Current Ratio	Current Assets/Current Liabilities (<i>Control Variable</i>)
Dependent Variables	
Raw Total Accruals	Raw total accruals = Total Accruals divided by the Lag of total assets
Adjusted Total Accruals	Adjusted total accrual, measured by first differenced raw total accruals
Discretionary Accruals	Determined according to the Jones (1991) model: $NDA_{\tau} = \alpha_1(1/A_{\tau-1}) + \alpha_2(REV_{\tau}) + \alpha_3(PPE_{\tau})$ Where REV_{τ} = Revenue in year τ less revenues year $\tau-1$ scaled by total assets at $\tau-1$; PPE_{τ} = Gross property plant and equipment in year τ scaled by total assets at $\tau-1$; $A_{\tau-1}$ = Total assets at $\tau-1$; and α_1, α_2 and α_3 Firm-specific parameters $TA_{\tau} = a_1(1/A_{\tau-1}) + (REV_{\tau}) + \alpha_3(PPE_{\tau}) + v_{\tau}$ Where α_1, α_2 and α_3 denote the OLS estimates of α_1, α_2 and α_3 and TA is total accruals scaled by lagged total assets.
New Economy Sector	All companies classified by the Australian Stock Exchange as either belonging to any of the following four industry groups: (1) healthcare and biotechnology (2) telecommunications (3) high technology (4) internet services
Old Economy Sector	Any company not belonging to the new economy sector as classified by the ASX.

imposed on management by a regulatory requirement (such as an accounting standard), whereas discretionary accruals are those accounting choices available to management within the flexibility of GAAP. The relationship among these variables at any time (t) can be specified as follows:

$$TA_t = DA_t + NDA_t \quad (1)$$

Where TA = Total Accruals; DA = Discretionary Accruals; and NDA - Nondiscretionary Accruals

Following the work of McNichols and Wilson (1988) and others, a general linear framework will be used to model the relationship between discretionary accruals. The framework is as follows:

$$DA_t = \alpha + \beta PART_t + \sum \gamma_k X_{kt} + \varepsilon_t \quad (2)$$

Where DA = Discretionary accruals (typically deflated by lagged total assets); PART = Variables represented in our hypotheses; X_k = Control variables, for example, firm size (log of total assets), industry classification and other variables defined in this paper; ε = an error term that is independently and identically normally distributed.

In order to calculate DA_t in equation (2), the value for nondiscretionary accruals needs to be estimated. The nondiscretionary component has been estimated in the literature using a variety of linear models provided by DeAngelo (1986); Jones, including Modified Jones Model (1991); and the Industry Model (Dechow and Sloan, 1991). For the purpose of this paper we have used the Jones model. Jones (1991) developed a model that is more descriptive of actual events by relaxing the assumption that nondiscretionary accruals are constant. The model attempts to control for the effect of changes in a firm's economic circumstances on the NDA variable. The Jones Model (modified) for nondiscretionary accruals in the event year is:

$$NDA_\tau = \alpha_1(1/A_{\tau-1}) + \alpha_2(REV_\tau) + \alpha_3(PPE_\tau), \quad (3)$$

Where

REV_τ = Revenues in year τ less revenues in year $\tau-1$ scaled by total assets at $\tau-1$;

PPE_τ = Gross property plant and equipment in year τ scaled by total assets at $\tau-1$;

$A_{\tau-1}$ = Total assets at $\tau-1$; and

$\alpha_1, \alpha_2, \alpha_3$ = Firm-specific parameters

Estimates of the firm-specific parameters, α_1, α_2 and α_3 , are generated using the following model in the estimation period:

$$TA_\tau = \alpha_1(1/A_{\tau-1}) + \alpha_2(REV_\tau) + \alpha_3(PPE_\tau) + v_\tau \quad (4)$$

Where a_1, a_2 and a_3 denote the OLS estimates of α_1, α_2 and α_3 and TA is total accruals scaled by lagged total assets.

In addition to the Jones model, our paper also uses two other simpler measures of accruals: raw total accruals (defined as total accruals, which is net income minus operating

cash flows, and then divided by lag of total assets) and adjusted (or the change in) total accruals (the first difference of raw total accruals, see Healy, 1985).

Sample Characteristics and Data Collection. The sample included all Australian firms listed on the ASX over a ten year period (1999-2000). A ten year time frame has been selected because it is consistent with available literature on detecting variations in discretionary accruals (see Defond and Jiambalvo, 1994). Data was collected from the Huntley's Financial Database (2000), which contains detailed financial reports of all listed Australian firms.

IV. Results and Discussion

An interactive regression model was developed which used free cash flow, leverage and interaction of free cash flow and leverage as independent variables. Two control variables (the log of total assets and the current ratio) were also introduced to control for the effects of size and liquidity, see Gul and Tsui (1998). Dependent variables included three accrual models: (i) a raw total accrual model; (ii) an adjusted accrual model (change in total accruals), and (iii) a discretionary accrual model computed according to the formula set by Jones (1991). The regressions were run on both the new and old economy populations. The regressions were firstly run on a pooled basis, and then on a yearly sectional basis.

Table 3 summarises the results for the new economy sector. Panel A of Table 3 reports the model summary for the pooled results across all three accrual proxies. Panel B reports the cross sectional yearly results for the discretionary accrual model.⁵ Table 4 displays similar results for the old economy sector.

With respect to Table 3 Panel A, the regressions results for the new economy sector reveal that the pooled results were largely consistent across all three accrual proxies. The regression model summaries in Table 3 Panel A indicate statistically insignificant F values for two of the accrual models: the raw accrual proxy and the discretionary accrual proxy. Furthermore, Panel A indicates that none of the individual t values were statistically significant for individual variables. The F value for the adjusted accrual model was significant. The year by year analysis revealed an interesting pattern in the results. With respect to the statistically significant F value of the adjusted accrual model, the yearly cross sectional results revealed that the most significant values for individual years were in the early 1990s (1991-1993) (see Panel B). In later years, particularly 1999 and 2000, the results were insignificant. With the raw accrual model and the discretionary accrual model, the results were largely consistent with the adjusted accrual model when the yearly results were analysed. Similar to the adjusted model, the raw accrual model displayed more significant results in the early 1990s and became steadily less significant towards the end of the decade. Further, it is noted that the discretionary accrual model revealed the least association with the independent variables, both on the pooled results and the year by year results. It is quite possible that these results can be explained by the development and introduction of Listing Rule 4.7B by the ASX from the mid 1990s (Voorhaar, 2001), which imposed a quarterly reporting of detailed cash flows under the direct method. In other words, earnings manipulation would have been made significantly more difficult to disguise under this regulation.

While the regression results for the new economy sector were largely insignificant, the few significant results deserve brief mention. Table 3 Panel B indicates that the sign

Table 3: Results for New Economy Sector

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PANEL A							
Pooled Regression Results: Model 1 - Raw Total Accruals							
Model	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1	.101	.010	.005	.7286	1.838	.103	895
Model				Standardized Coefficients	t	Sig	
1	Constant			.	-7.01	.484	
	LOG TOTAL ASSETS			.016	.433	.665	
	CURRENT RATIO			.064	1.861	.063	
	Leverage RATIO			.003	.082	.935	
	FCF/TA			.064	1.689	.092	
	Interaction of FCT & Leverage			.019	.543	.588	
PANEL A - cont-							
Pooled Regression Results: Model 1 - Adjusted Total Accruals							
Model	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
2	.114	.013	.007	1.1240	2.265	.046	873
Model				Standardized Coefficient	t	Sig	
2	Constant				2.618	.009	
	LOG TOTAL ASSETS			-.088	-2.361	.018	
	CURRENT RATIO			.002	.058	.954	
	Leverage RATIO			.052	1.503	.133	
	FCF/TA			.068	1.772	.077	
	Interaction of FCT & Leverage			.027	.771	.441	

Table 3: Results for New Economy Sector (continued)**PANEL A - continue -****Pooled Regression Results: Model 3 - Discretionary Accruals**

Model	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
3	.093	.009	.003	.3459247	1.548	.172	892
Model				Standardized Coefficients	t	Sig	
3	Constant					-.846	.398
	LOGTA			.050		1.361	.174
	CURRENT RATIO			.043		1.238	.216
	GEARING RATIO			.003		.080	.936
	FREE TA			.049		1.276	.202
	Interaction of FCT & TA			.014		.408	.683

PANEL B:**Cross Sectional Year by Year Results (Discretionary Accrual Model)**

Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1991	.749	.562	.248	2.837528E-02	1/794	.233	13
Year				Standardized Coefficient	t	Sig	
1991	Constant					.944	.377
	LOG TOTAL ASSETS			.307		.507	.627
	CURRENT RATIO			-.446		-1.334	.224
	GEARING RATIO			-2.306		-1.810	.113
	FCF/TA			.568		1.256	.249
	Interaction of FCT & Leverage			1.739		1.256	.249

PANEL B:**Cross Sectional Year by Year Results (Discretionary Accrual Model)**

Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1992	.674	.454	.272	7.656615E-01	2.496	.078	21
Year				Standardized Coefficient	t	Sig	
1992	Constant					1.004	.331
	LOG TOTAL ASSETS			-.131		-.626	.540
	CURRENT RATIO			-.252		-1.033	.318
	GEARING RATIO			-.426		-1.759	.099
	FCF/TA			-.432		-1.907	.076
	Interaction of FCT & Leverage			.815		3.503	.003

Table 3: Results for New Economy Sector (continued)

Table 3: Results for New Economy Sector (continued)							
PANEL B: Cross Sectional Year by Year Results (Discretionary Accrual Model)							
Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1993	.517	.326	.115	7.57257E-02	1.547	.231	22
Year				Standardized Coefficients	t	Sig	
1993	Constant				.379	.710	
	LOG TOTAL ASSETS			-.169	-.714	.486	
	CURRENT RATIO			.274	1.232	.236	
	GEARING RATIO			-.095	-.403	.692	
	FCF/TA			.657	2.283	.036	
	Interaction of FCT & Leverage			-1.74	-.695	.497	
PANEL B: Cross Sectional Year by Year Results (Discretionary Accrual Model)							
Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1994	.331	.109	.039	9.455449E-02	1.549	.188	69
Year				Standardized Coefficient	t	Sig	
1994	Constant				-1.201	.234	
	LOG TOTAL ASSETS			.219	1.714	.086	
	CURRENT RATIO			-.007	-.056	.955	
	GEARING RATIO			-.159	-1.251	.216	
	FCF/TA			-.286	-2.127	.037	
	Interaction of FCT & Leverage			.163	1.204	.233	
PANEL B: Cross Sectional Year by Year Results (Discretionary Accrual Model)							
Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1995	.096	.009	-.056	.1956612	.140	.982	82
Year				Standardized Coefficient	t	Sig	
1995	Constant				1.054	.295	
	LOG TOTAL ASSETS			-.087	-.714	.477	
	CURRENT RATIO			.022	.184	.854	
	GEARING RATIO			.002	-.018	.986	
	FCF/TA			.031	.250	.803	
	Interaction of FCT & Leverage			-.032	-.263	.793	

Table 3: Results for New Economy Sector (continued)**PANEL B:****Cross Sectional Year by Year Results (Discretionary Accrual Model)**

Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1996	.131	.017	-.033	.6996295	.342	.886	104
Year				Standardized Coefficients	t	Sig	
1996	Constant					-.198	.844
	LOG TOTAL ASSETS			.070		.561	.576
	CURRENT RATIO			.117		1.083	.282
	GEARING RATIO			.005		.044	.965
	FCF/TA			-.008		-.065	.949
	Interaction of FCT & Leverage			-.079		-.742	.460

PANEL B:**Cross Sectional Year by Year Results (Discretionary Accrual Model)**

Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1997	.176	.031	-.014	.3629822	.694	.629	114
Year				Standardized Coefficient	t	Sig	
1997	Constant					-1.228	.222
	LOG TOTAL ASSETS			.166		1.531	.129
	CURRENT RATIO			-.010		-.099	.922
	GEARING RATIO			.083		.674	.502
	FCF/TA			-.061		-.479	.633
	Interaction of FCT & Leverage			.029		.204	.839

PANEL B:**Cross Sectional Year by Year Results (Discretionary Accrual Model)**

Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1998	.420	.176	.145	.1935411	5.615	.000	137
Year				Standardized Coefficient	t	Sig	
1998	Constant					-.012	.990
	LOG TOTAL ASSETS			-.034		-.348	.728
	CURRENT RATIO			.035		.412	.681
	GEARING RATIO			.016		.171	.865
	FCF/TA			.240		2.476	.015
	Interaction of FCT & Leverage			.298		3.287	.001

Table 3: Results for New Economy Sector (continued)

Table 3: Results for New Economy Sector (continued)							
PANEL B: Cross Sectional Year by Year Results (Discretionary Accrual Model)							
Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1999	-.146	.021	-.011	.3887391	.668	.648	160
Year				Standardized Coefficients	t	Sig	
1999	Constant				-1.722	.078	
	LOG TOTAL ASSETS			.115	1.269	.206	
	CURRENT RATIO			.083	.993	.322	
	GEARING RATIO			.016	.176	.860	
	FCF/TA			.005	.046	.963	
	Interaction of FCT & Leverage			.040	.377	.707	
PANEL B: Cross Sectional Year by Year Results (Discretionary Accrual Model)							
Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
2000	.071	.005	-.025	.2208963	.168	.974	170
Year				Standardized Coefficient	t	Sig	
2000	Constant				.199	.843	
	LOG TOTAL ASSETS			.050	.556	.579	
	CURRENT RATIO			-.017	-.210	.834	
	GEARING RATIO			.059	.374	.709	
	FCF/TA			-.002	.022	.982	
	Interaction of FCT & Leverage			.029	.183	.855	

Table 4: Regression Results on Old Economy Sector

PANEL A

Pooled Regression Results: Model 1 - Raw Total Accruals

Model	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1	.190	.036	.035	2.5559	48.363	.000	64867
Model				Standardized Coefficients	t	Sig	
1	Constant				1.672	.095	
	LOG TOTAL ASSETS			-.049	-3.865	.000	
	CURRENT RATIO			.059	4.696	.000	
	GEARING RATIO			.068	5.399	.000	
	FCF/TA			.182	13.073	.000	
	Interaction of FCF & Leverage			-.061	-4.326	.000	

PANEL A - continue -

Pooled Regression Results: Model 1 - Adjusted Total Accruals

Model	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
2	.178	.032	.031	2.8121	41.118	.000	62845
Model				Standardized Coefficient	t	Sig	
2	Constant				2.080	.038	
	LOG TOTAL ASSETS			-.042	-3.247	.001	
	CURRENT RATIO			.059	4.578	.000	
	GEARING RATIO			.059	4.591	.000	
	FCF/TA			.149	10.540	.000	
	Interaction of FCF & Leverage			-.134	-9.345	.000	

PANEL A - continue -

Pooled Regression Results: Model 1 - Discretionary Accrual Proxy

Model	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1	.131	.017	.016	.8777200	22.670	.000	64756
Model				Standardized Coefficient	t	Sig	
1	Constant				1.311	.190	
	LOG TOTAL ASSETS			-.042	-3.271	.001	
	CURRENT RATIO			.039	3.096	.002	
	GEARING RATIO			.073	5.726	.000	
	FCF/TA			.102	7.279	.000	
	Interaction of FCF & Leverage			-.003	-.208	.835	

Table 4: Regression Results on Old Economy Sector (continued)**PANEL B:****Cross Sectional Year by Year Results (Discretionary Accrual Model)**

Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1991	.132	.018	-.012	.1357094	.604	.697	175
Year				Standardized Coefficients	t	Sig	
1991	Constant				-1.485	.139	
	LOG TOTAL ASSETS			.047	.582	.561	
	CURRENT RATIO			-.035	-.427	.670	
	GEARING RATIO			.043	.521	.603	
	FCF/TA			.086	.954	.341	
	Interaction of FCF & Leverage			-.129	-1.385	.168	

PANEL B:**Cross Sectional Year by Year Results (Discretionary Accrual Model)**

Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1992	.280	.079	.060	5.026376E-02	4.295	.001	258
Year				Standardized Coefficient	t	Sig	
1992	Constant				-3.459	.001	
	LOG TOTAL ASSETS			.017	.269	.788	
	CURRENT RATIO			.181	2.876	.004	
	GEARING RATIO			-.073	-1.185	.237	
	FCF/TA			.248	3.581	.000	
	Interaction of FCF & Leverage			-.103	-1.520	.130	

PANEL B:**Cross Sectional Year by Year Results (Discretionary Accrual Model)**

Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1993	.910	.827	.824	.6957721	276.749	.000	295
Year				Standardized Coefficient	t	Sig	
1993	Constant				-5.384	.000	
	LOG TOTAL ASSETS			.055	2.188	.029	
	CURRENT RATIO			.927	36.672	.000	
	GEARING RATIO			.043	1.739	.083	
	FCF/TA			.052	1.922	.056	
	Interaction of FCF & Leverage			-.023	-.854	.394	

Table 4: Regression Results on Old Economy Sector (continued)**PANEL B:****Cross Sectional Year by Year Results (Discretionary Accrual Model)**

Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1994	.802	.643	.639	1.271908	191.753	.000	539
Year				Standardized Coefficients	t	Sig	
1994	Constant				.306	.759	
	LOG TOTAL ASSETS			-.035	-1.292	.197	
	CURRENT RATIO			.011	.402	.688	
	GEARING RATIO			.131	4.785	.000	
	FCF/TA			.728	18.361	.000	
	Interaction of FCF & Leverage			-1.108	-27.487	.000	

PANEL B:**Cross Sectional Year by Year Results (Discretionary Accrual Model)**

Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1995	.308	.095	.088	.1908062	13.958	.000	671
Year				Standardized Coefficient	t	Sig	
1995	Constant				-1.169	.243	
	LOG TOTAL ASSETS			.024	.613	.540	
	CURRENT RATIO			-.013	-.336	.737	
	GEARING RATIO			.004	.101	.920	
	FCF/TA			.128	3.190	.001	
	Interaction of FCF & Leverage			.235	5.925	.000	

PANEL B:**Cross Sectional Year by Year Results (Discretionary Accrual Model)**

Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1996	.293	.086	.080	.5160226	15.091	.000	811
Year				Standardized Coefficient	t	Sig	
1996	Constant				-1.699	.090	
	LOG TOTAL ASSETS			.045	1.281	.200	
	CURRENT RATIO			-.006	-.160	.873	
	GEARING RATIO			.005	.138	.891	
	FCF/TA			-.294	-8.660	.000	
	Interaction of FCF & Leverage			.015	.439	.661	

Table 4: Regression Results on Old Economy Sector (continued)

PANEL B: Cross Sectional Year by Year Results (Discretionary Accrual Model)							
Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1997	.100	.010	.004	.2977692	1.725	.126	863
Year				Standardized Coefficients	t	Sig	
1997	Constant				-2.768	.006	
	LOG TOTAL ASSETS			.080	2.237	.026	
	CURRENT RATIO			.037	1.043	.297	
	GEARING RATIO			-.022	-.629	.529	
	FCF/TA			.098	1.333	.183	
	Interaction of FCF & Leverage			-0.73	-.992	.321	
PANEL B: Cross Sectional Year by Year Results (Discretionary Accrual Model)							
Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1998	.660	.435	.432	.7661415	151.666	.000	990
Year				Standardized Coefficient	t	Sig	
1998	Constant				4.710	.000	
	LOG TOTAL ASSETS			-.142	-5.672	.000	
	CURRENT RATIO			-.034	-1.374	.170	
	GEARING RATIO			.132	5.288	.000	
	FCF/TA			.039	1.142	.254	
	Interaction of FCF & Leverage			.634	18.595	.000	
PANEL B: Cross Sectional Year by Year Results (Discretionary Accrual Model)							
Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
1999	.458	.210	.206	.3164067	54.126	.000	1023
Year				Standardized Coefficient	t	Sig	
1999	Constant				5.757	.000	
	LOG TOTAL ASSETS			-.174	-6.026	.000	
	CURRENT RATIO			-.042	-1.473	.141	
	GEARING RATIO			-.014	-.469	.639	
	FCF/TA			.424	11.059	.000	
	Interaction of FCF & Leverage			.039	1.007	.314	

Table 4: Regression Results on Old Economy Sector (continued)

Table 4: Regression Results on Old Economy Sector (continued)							
PANEL B:							
Cross Sectional Year by Year Results (Discretionary Accrual Model)							
Year	R	R square	Adj R Square	Std Error of Estimate	F	Sig	N
2000	.153	.023	.018	.6306823	4.049	.001	849
Year				Standardized Coefficients		t	Sig
2000	Constant					.032	.975
	LOG TOTAL ASSETS			-.024		-.624	.533
	CURRENT RATIO			-.037		-1.038	.299
	GEARING RATIO			.011		.292	.770
	FCF/TA			.089		2.059	.040
	Interaction of FCF & Leverage			-.173		-4.063	.000

While the regression results for the new economy sector were largely insignificant, the few significant results deserve brief mention. Table 3 Panel B indicates that the sign of the leverage variable by itself was negative in many instances, indicating the counter-intuitive proposition that lower leverage is associated with higher earnings management. A possible explanation for this result is the relatively low leverage ratios of new economy companies (see Table 1), and perhaps their relatively greater reliance on equity rather than debt as a source of funds. The sign of the free cash flow variable was mixed, suggesting that the level of free cash flow is not consistently associated with earnings management. Interestingly, many of the cross sectional results indicated a positive interaction with free cash flow and leverage, indicating that the level leverage does have positive associations with earnings management when combined with free cash flows.

Table 4 displays the results for the old economy sector. Panel A of Table 4 indicates that the overall *F* value is statistically significant for each of the accrual proxies. Furthermore, the *t* values of individual variables are statistically significant in nearly all cases. The cross sectional yearly results are largely consistent with the pooled results across all three accrual models (because of the higher degree of consistency in the results only the discretionary accrual model is reported here on a cross sectional basis). The regression results for the old economy sector are more significant than the new economy results, for the ten firm years. The results in Table 4 reveal that the interaction term was negative on two of the accrual models, suggesting the intuitive notion that high leverage is associated with lower free cash flows (no doubt owing to the impact of interest payments) and that the combined affect is positive on the accrual proxies. Consistent with the theory (Christie, 1990), it was found that in most instances leverage was positively associated with accrual proxies. The free cash flow variable was also found in most cases to be positively associated with the management of accruals. This result can be explained in the context of extant Australian cash flow regulations, AASB 1026 "Statement of Cash Flows." Paragraph 18 of AASB 1026 requires listed Australian companies to disclose a detailed reconciliation statement between operating cash flow and net profit after tax, highlighting all

major categories of accruals and allocations in arriving at operating cash flow (see Appendix 2, Note 3 to AASB 1026). These regulations have been framed to expose companies reporting high accrual based earnings with poor underlying cash flow positions, thus revealing potential income manipulating firms (see Jones et al., 1995).

Therefore, firms with poor cash flow positions who engage in the wanton management of earnings (thus widening the discrepancy between earnings and cash flow) cannot easily disguise such practices under AASB 1026, and consequently run a higher risk of punitive exposure in the market. Likewise, firms with strong cash flow positions may have more scope and opportunity to manage their accruals. Thus, while the management of earnings may take place, the discrepancy between cash flows and earnings may not be as apparent than it would be with low cash flow firms. An alternative explanation for the results on the free cash flow variable is that old economy companies persist with earnings management practices irrespective of the level of their free cash flow positions. Arguably, the old economy sector, by virtue of longevity and tradition if nothing else, has had long association and experience with managing earnings under GAAP, and these practices could be persisting subject to existing financial statement and/or regulatory constraints.

V. Summary

With respect to the new economy sector, it was intuitively expected that high growth firms with lower levels of free cash flow (and generally poor earnings performance) would be associated with higher levels of earnings management. The results painted a different story. The relatively insignificant regression results on each of the accrual models for the new economy population, and particularly their lack of association with traditional variables such as free cash flow and leverage, could in part be explained by the stringent quarterly cash flow disclosure regulations now imposed on these companies by the ASX. The detail in such regulations, including disclosure of all major categories of operating, financing and investing cash flows, could restrict both the scope and opportunity for earnings management in the new economy sector.

The results displayed a very different picture for the old economy sector. All three accrual models were found to be statistically significant and positively associated with leverage and free cash flow levels. The result for leverage was expected and largely consistent with previous literature (Christie, 1990). The positive association with higher free cash flow and earnings management proxies is best explained in terms of the requirements of AASB 1026 "Statement of Cash Flows," which mandates detailed disclosure of reconciliations between cash flows and earnings.

There are also opportunities to refine and extend this study by using a wider range of accrual proxies, a broader cross section of independent variables including firm and industry specific measures. Finally, the research implications of this paper suggest that improved financial regulation could have a significant impact on the incidence of firms and industries in managing their accruals. Researchers may consider whether a quarterly regime of cash flow reporting along the lines outlines in Listing Rule 4.7B might be effective in combating earnings management in other industries and whether such a disclosure regime should now be more widely required in Australia.

Endnotes

1. As of March 2001, 214 companies were listed under new economy industry classifications of the Australian Stock Exchange (ASX) (see Huntley's ASX Monthly Roundup, 2001).
2. The Australian Securities and Investments Commission (www.asic.gov.au) the focal regulatory authority in Australia, routinely investigates new economy companies as part of its ongoing surveillance program conducted twice a year. Evidence gathered on other principal accounting issues such as failure to amortise intangibles, classification of abnormal items, and directors remuneration led to the formal introduction of the cash flow regulatory requirement. A recent project by ASIC involved a detailed review of financial statements of 140 companies - at least 53 recently listed new economy companies were asked for a "please explain" on their accounting and disclosure practices (Voorhar, 2001).
3. The testing of firm size has received a reduced level of emphasis because firm size can proxy for a range of other confounding factors, in addition to political costs (Watts and Zimmerman, 1990). Size is treated as a control variable in the empirical examinations that follow.
4. Similar results were found when free cash flow was normalized to the book value of equity.
5. It is noted that the cross-sectional results for other two accruals proxies were largely consistent with the results on discretionary accruals.

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