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**FREE CASH FLOW THEORY AND VOLUNTARY
DISCLOSURES OF FUNDS STATEMENTS**

by

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1987 No. 3

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This draft should not be quoted without permission. It has benefitted from the comments of participants in a workshop at the Australian Graduate School of Management, October 1987, particularly Roger Simnett, Don Stokes and Justin Wood. Useful suggestions made by Bruce McDonald have also been incorporated into the paper.

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Abstract

Prior to disclosure regulations being put in place, firms have been observed to voluntarily provide funds statements along with their other financial statements. The purpose of this paper is to investigate the incentives of firms to do this, given the type of investment and financing contracts the firm has in place. The theory of free cash flow proposed by Jensen (1986a, 1986b) is used to develop hypotheses relating such voluntary reporting to leverage, retained earnings, the extent of growth options possessed by the firm, changes in dividend policy, size, and diversity in investment contracts. Empirical tests indicate weak support for these hypotheses.

1. INTRODUCTION

In both the United States and Australia the preparation and disclosure of cash flow or "funds" statements is now extensively regulated through several jurisdictions. In the U.S. the funds statement has been the subject of regulation since 1963, when the APB issued Opinion no. 3 to recommend that funds statements be presented as supplementary information in financial reports. This initiative was endorsed shortly afterwards by both the New York Stock Exchange and the Financial Analysts Federation. More recently the FASB, supported by both the SEC and the Financial Executives Institute, has required a statement that is based on a more literal definition of cash. In Australia, the stock exchanges have required listed companies to provide a funds statement since 1973, the format of which has been the subject of a professional standard (AAS 12) since 1983. Following the U.S. process, Australian regulators are currently considering replacing or supplementing the conventional funds statement with a statement closer to receipts and payments (ASRB, 1986). In this paper, the term "funds statement" is used generically. At this stage of the research we are not trying to distinguish reasons for using different methods of compiling such statements.

Prior to regulations being put in place, firms in both the U.S. and Australia have been observed to voluntarily disclose funds statements. For example, in the U.S., prior to the 1960's regulatory activity, Gladson (1958) found that 35% of the 100 largest corporations disclosed funds statements. Although a number of casual explanations have been offered for why firms might voluntarily provide funds statements there is a paucity of explanation as to the reason why management would regard such an activity to be

value increasing for the firm.¹ Importantly, explanations to date have not been able to discriminate between which firms would be more likely (or less likely) to disclose.² It is the purpose of this paper to investigate the incentives of firms to voluntarily supply funds statements given the type of investment and financing contracts the firm has in place. This paper investigates this issue from within the framework of analysis provided by the theory of 'free cash flow' [Jensen (1986a,b)]. The paper proceeds as follows. Section 2 describes the theory of free cash flow and application of the theory to voluntary disclosure of funds statements. Section 3 develops a number of hypotheses about the attributes of firms likely to engage in such disclosures. Section 4 describes the data collection and empirical results while Section 5 presents a summary and principal conclusions.

1 In contrast it is difficult to argue that voluntary disclosure is a costless activity for the firm. Apart from direct costs associated with production of additional information the firm bears indirect costs such as risks associated with exposure to additional legal liability associated with use of the information by creditors, debtholders, shareholders, etc.

2 For example Carson (1949) argued that voluntary funds statement disclosure reflected fiduciary duties of management:

...management is in a fiduciary capacity ethically and actually. They stand in this relationship with the stockholders primarily, and to a lesser extent with creditors, employees, government agencies, potential investors, and the public at large.

If this is the position that management occupies, it is clear that financial accounting must provide, above all else, records that show the source of all funds provided and or secured by the management, and the disposition they have made of them.

However, in the absence of uniformly high levels of voluntary funds statement disclosure across firms, such an explanation is deficient in that it does not show how fiduciary duties vary between firms.

2. FREE CASH FLOW THEORY

Following Jensen (1986, p. 323) free cash flow emerges in the firm when, during the life of the firm, there exists a cash flow in excess of that required to fund all available positive net present value projects at the relevant cost of capital. Free cash flow emerges from conversion of income to cash and from other firm activities closely related to receipt of cash (e.g. sale of plant, equity floats and debt issues). Consequently free cash flow is available not only to growing firms but also to firms in decline. Moreover, the existence of economic rents or quazi rents³ is typically associated with the existence of free cash flow. Because cash is a highly plastic resource [Alchian and Woodward (1986)],⁴ free cash flow results in potentially high agency costs between owners and managers. When it is in managers' interests to keep the firm growing (or at least maintain its present size) but no positive net present value projects are available, managers use free cash flow to invest in negative net present value projects. In such cases, although it is in the best interests of shareholders for the free cash flow to be distributed by dividend or share repurchase, management acts contrary to the shareholders' interests by retaining cash. Where the value-decreasing effects of this retention are recognized by the market the value of the firm is reduced. Evidence cited

3 Economic Rents imply prices above marginal cost in the long run while quazi rents are rents in excess of the short run opportunity cost of capital. A future quazi-rent stream does not imply economic rents unless the net present value of the investment exceeds zero [Klein, Crawford and Alchian (1978, p.299)]. However both phenomena do imply, at least in the short run, an excess of cash in the firm.

4 Alchian and Woodward's description of cash as a highly "plastic" resource denotes both a wide range of "legitimate" decisions with which cash can be used and also the poor reliability with which it can be monitored. Alchian and Woodward argue (p.14):

"The implication is that managers, as agents of owners, handling large cash balances or cash flows will be subjected to greater controls and review by principals".

Evidence cited by Jensen (1986b) indicates that this agency cost of equity is substantial (pp. 20-26)⁵ and plausibly is the cause of much takeover activity (pp. 27-43). A useful example he provides is that of the U.S. oil industry in the early 1970's where, partially because of the activities of the OPEC cartel, the price of oil sharply increased yet the industry needed to contract due to declining U.S. oil consumption.

The problem is mitigated by, among other factors, the presence of debt or the availability of profitable projects. As debt implies an enforceable promise by management to pay out cash flows in the form of principal and interest, their production/investment decisions are more regularly monitored in a manner that occurs when firms obtain new capital. This monitoring is avoided when projects are financed by retained earnings and could explain the well documented share price reductions that occur when leverage reducing security issues take place.⁶ Moreover, where the firm has options to invest in a substantial number of positive net present value projects, then there is no incentive for managers to expand their firms beyond the (optimum) size that maximizes shareholder wealth.

5 Jensen reports (p. 20) that "The predictions of the agency cost of free cash flow are consistent with all but two of the 32 estimated abnormal stock price changes summarized in Table 2". Jensen reviews evidence with respect to announcements of increases and decreases in dividends, sales and retirement of debt (with and without bond covenants) and repurchase of shares.

6 Jensen reports sale of industrial securities that raise cash and do not bond future cash flow payments earn on average two-day announcement return of -3.1%. For utilities the return is -0.7%. The reported result is derived from Smith (1986, Table 1) and in the case of industrials is calculated from returns in Asquith and Mullins (1986), Kolodny and Suhle (1985), Masulis and Korwar (1986), Mikkelson and Partch (1986) and Schipper and Smith (1986). For utilities results are derived from Asquith and Mullins (1986), Masulis and Korwar (1985) and Pettway and Ratcliffe (1986).

3. VOLUNTARY DISCLOSURES OF FUNDS STATEMENTS

In the face of high agency costs of equity when free cash flows are expected, management can invoke a number of mechanisms by which it can bond itself to equity holders. For example, as indicated above, management could indicate its intention to raise dividends or repurchase stock when positive net present value projects are not available. The problem with the operation of a mechanism of this type is that it is difficult for management to effectively bond itself through non-enforceable promises given incentives to pursue sub-optimal firm growth. Moreover, any attempt by management to raise the dividend after free cash flow is revealed to shareholders will be of little use as the market will have already anticipated opportunism by the managers and reduced the value of the equity accordingly. As an alternative, management can agree (or demonstrate) that growth will only be associated with the exercise of options on positive net present value projects. The difficulty encountered here is that the value of growth options to the firm is dependent, at least in part, on the ability of the firm to exercise that option to the exclusion of other firms. Revelation of the growth option through disclosure to equity holders, whilst reducing the agency costs of equity, also reduces the value of the option to the firm.

What emerges then is that managers who anticipate positive cash flow, in the presence of profitable investment opportunities, will seek an efficient mechanism ex ante to reduce the agency costs of equity associated with the market's expectations of management behaviour in the presence of free cash flow. In consequence, we argue that free cash flow theory implies incentives to voluntarily provide information about cash flows through the provision of funds statements (or, for that matter, other

disclosures) in order to reduce the agency cost of equity in these situations. Given that costs are associated with monitoring mechanisms, directed at curtailing adverse management behavior (for example, compensation contracts), funds statements reduce the costs of equity holders determining if the major contracting provision implied by (say) compensation contracts (viz. maximizing the value of equity in the firm) have been violated by the presence of any free cash flow.

An issue which arises at this point relates to the incremental value of a funds statement to the equity holders given that they are already receiving an income statement. Income statements, as measurement instruments for variations in firm wealth, only provide an indirect measure of cash flow because of accruals. Differences between accrued income and cash flows mean that, at any time, income numbers do not measure disposable resources available to managers. Managers, by voluntarily bonding themselves to the publication of funds statements provide incremental information but bear additional costs which they may avoid in the absence of the potentially high agency costs of equity in these situations. Moreover, for reasons described by Leftwich, Watts and Zimmerman (1981, p. 57) the marginal costs of voluntary disclosures for management in these circumstances may be low compared with costs of cash flow estimation by equity holders.

These statements (voluntarily provided audited reports) enable outside common and preference shareholders and fixed claim holders to determine if contract provisions have been violated. Moreover, it is in the interests of the manager to provide these reports voluntarily: Suppose, for example, that the bondholders (...) would find it worthwhile to produce detailed financial statements...If the manager himself can produce such information at lower costs than they (perhaps because he's already collecting much of the data for his own internal decision making purposes), it would pay him to agree in advance to incur the cost of providing such reports.

Smith and Warner (1979 p. 143) pursue the same argument with respect to voluntary disclosures to bondholders.

Our analysis suggests that bondholders find financial statements to be useful in ascertaining whether provisions of the contract have been/or are about to be violated. If the firm can produce this information at a lower cost than the bondholders, ... it pays the firm's stockholders to contract to provide this information...to the bondholders.

Consequently, we argue that the less likely the presence of free cash flows, the greater the incentive to reduce users' processing costs by providing information that directly describes the funds under the control of management and the way they are used, in order to reduce the expected penalty on the firm's share price imposed by the market.

Our problem with respect to empirically testing this proposition is that it is not immediately clear how to observe the likelihood of free cash flows. However, the analysis provided by Jensen (1986a,b) does suggest some proxies.

First, the probability of free cash flows is reduced where the firm has the option to undertake profitable projects. Where these options are of an intangible nature the incentives of management to disclose financial information is particularly strong because such options are unable to support debt.

H1: The greater the growth options possessed by the firm, the more likely the voluntary disclosure of funds statements.

Jensen's analysis also suggests other proxies that are more equivocal. In particular he shows that the problem is by mitigated the presence of debt. Hence, everything else equal, we would expect free cash flow to be negatively associated with debt. However, given the analysis by Myers (1977) we would expect high growth firms (= low free cash flow) to have

low debt. A similar problem arises with respect to earnings retentions and dividends. If the Myers and Majluf (1984) "pecking order" theory of financing decisions is true, then firms with substantial growth options will prefer to finance by retained earnings rather than other methods of financing. Notwithstanding these sources of noise, we expect that where growth and other factors are held constant, the likelihood of free cash flow is increasing with lower leverage, higher retained earnings, as well as low and decreasing dividends. This is schematized in Figure 1. Hence we hypothesize that:

H2: Firms are more likely to voluntarily provide funds statements:

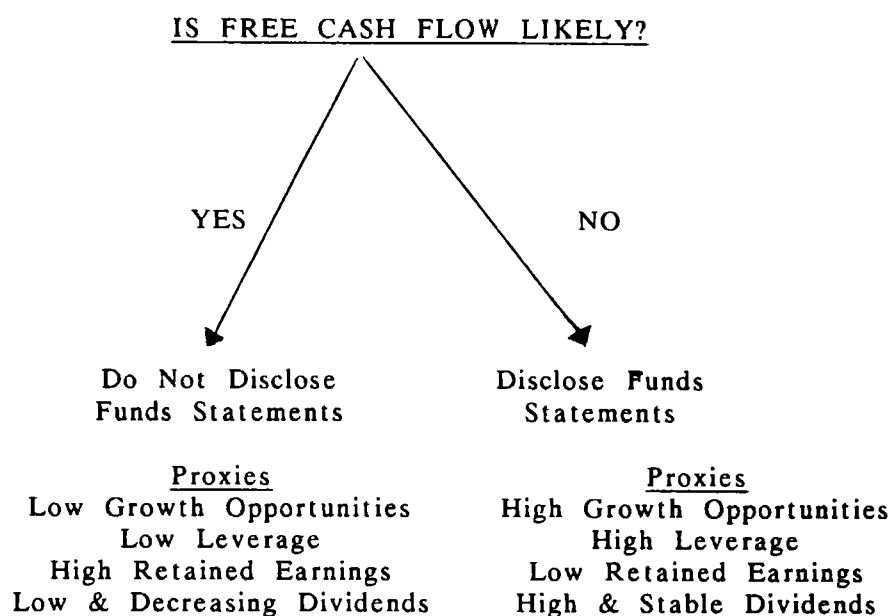
H2A: the higher their debt/assets ratio.

H2B: the lower their retained earnings/assets ratio.

H2C: where they reduce the dividend payment as a percentage of net profit.

Figure 1

Incentives to Disclose and Proxies



Hypotheses 1 and 2 assume that it is costly for equity holders to prepare their own funds statements from the income statement, balance sheet and other data supplied by the firm. Consequently, it would be expected that the costs of "home made" statements increases with firm size and diversity of the investment contracts of the firm. Therefore, we propose:

H3: that the voluntary provision of cash flow statements is more likely for firms that are

H3A: larger

H3B: more diverse in their investment contracts.

It should be noted with respect to H3 that size and diversity by themselves represent neither necessary nor sufficient conditions for voluntary disclosure of cash flows. Instead it is the association of size and

diversity of investments in firms, together with the factors in Hypothesis 1 and 2, which increases the probability of voluntary funds flow disclosure.

To what extent are there alternative explanations that could be controlled for in the research design? Two plausible rival explanations are that firms are more likely to voluntarily provide funds statements where costs are lower. If this is the "real" explanation, then although we would expect to observe Hypothesis 3 supported there would be no need to expect support for H1 nor H2.

4. DATA AND RESEARCH METHOD

Provision of cash flow statements by listed public companies effectively became mandatory in Australia after revision of listing requirements of the Australian Associated Stock Exchanges on March 1, 1973. Prior to inclusion of that requirement in the stock exchange regulations, disclosure of cash flow information was voluntary. The accounting profession in Australia published Technical Bulletin F1 "The Funds Statement" in 1971 which included a recommendation that a funds statement be presented to shareholders. Subsequently, the profession has mandated the disclosure of funds statements through AAS12, following a number of recommendations that funds statements be disclosed with the accounts, a Discussion Paper (No. 2) issued by the Australian Accounting Research Foundation (1979) and an Exposure Draft on the proposed format.

Although these regulations and formal recommendations all occurred subsequent to 1970, consideration of the funds statement by policymakers was explicit from 1966, when a report issued by the General Council of the Australian Society of Accountants, Accounting Principles and Practices

Discussed in Reports on Company Failures, proposed that "funds statements can usefully be included with published financial statements, although these statements should not be required by legislation". Further, Zeff (1973, p.14) states that in the same year the Stock Exchanges resolved to "actively promote" the inclusion of a funds statement in the annual accounts of all listed companies.

Hence, we specified the pre-regulation period to be prior to 1970, and collected a sample of 30 firms that voluntarily provided a funds statement in their annual reports before that year. In order to be sure that any results were not confounded by anticipation of the stock exchange regulations and professional recommendations, the sample was stratified so that 15 of the firms were voluntary providers prior to the initial consideration of the matter by the Australian Associated Stock Exchanges in 1966.

This sample of firms, or "experimental group", was matched by a control group of firms. The matching criterion was date of initial disclosure only, so that the characteristics of each funds statement provider were compared to the characteristics for the same years of a firm that did not provide a funds statement prior to the stock exchange mandatory requirement announced in 1971. Apart from the matching on year of disclosure, the control group was randomly selected.

For each firm, the ratios of debt/assets, retained earnings/assets and ordinary dividends/earnings were collected, as well as the total book value of assets. These variables were used to test, respectively, H1A, H1B, H2, and H3A. However, we also needed proxies for the extent of growth options available to the firm and diversity in investment contracts. For

growth options we used the ratio of the market value to the book value of the firm. For diversity in investment contracts we used the number of separately incorporated subsidiaries.

Values for each of these variables were gathered for 5 separate years for each firm. The year when the first disclosure was first made was specified as year t , and values were collected for this year, as well as years $t-5$, $t-1$, $t+1$, and $t+2$. This enabled us to test the hypotheses both cross sectionally and over time.

5. RESULTS

Although some tests were marginally significant, the results did not completely support the hypotheses. Table 1 provides cell means, standard deviations, t tests and one tailed probabilities for each variable for the 5 separate years. Mann-Whitney probabilities are also reported; however the parametric tests are relied on in the presence of equal cell sizes (Glass, Peckham and Sanders, 1972). Table 2 presents the results when the analysis is specified as a $2(5)$ analysis of variance with (non)disclosure of a funds statement as a grouping factor and years specified as a repeated measures factor. (This was also analyzed with "time" (prior to 1966, subsequent to 1966) specified as a second grouping factor, but the time factor was not significant and there was no material difference in results.) Table 3 provides the results of five multiple regressions, run for each of the five years, with (non)disclosure specified as a dichotomous dependent variable and the three ratios, as well as total assets and number of subsidiaries specified as independent variables.

None of these analyses resulted in significance levels that we are willing to definitely accept, given the large number of tests undertaken and the commensurate inflation in the experimentwise error rate. Nevertheless, there is some support for the hypotheses in the results.

Hypothesis 1 proposes that disclosure policy is related to the growth variable. There is some support for this in the results, as Table 1 indicates that the ratio is marginally significant for at least the three years up to and including the year of disclosure. The variable is also significant in the multiple regressions for the same years. With respect to Hypothesis 2 there is no support for the relationship with leverage. Table 1 indicates that this is not significant for any year measured. This is consistent with the ANOVA table (table 3) although the repeated measures factor is significant, with follow up contrasts indicating that the firms in both disclose and non-disclose groups tended to increase their leverage during the sample period.

There is also no support in the results for retained earnings/total assets, although table 1 indicates that cell means are in the direction hypothesized. This is significant in $t-1$ at the .059 level. However, this is not taken seriously in view of the number of contrasts undertaken and considering that neither the ANOVA in table 2 nor the multiple regressions in table 3 show any significant results for this variable.

For dividends the results again were not significant. A correctly specified test of the hypothesis implies an interaction between the grouping and repeated measures factor. Table 2 indicates that this is only significant at .22 (this, of course, is a two tailed test).

H3 predicts that firms that disclose are likely to be larger and more diverse in their investment contracts. Supporting this, table 1 shows that disclosing firms were significantly larger with respect to the book value of total assets for all years except $t-5$. Consistent with this, the ANOVA described in table 2 indicates a significant interaction between (non)disclosure and years. Not surprisingly, the repeated measures factor is highly significant, evidencing the unremarkable fact that the book value of the assets of both groups of firms increased during the sample period. Table 1 also shows that disclosing firms also had (marginally) significantly more subsidiaries throughout the sample period. Similar to the results for total assets, the repeated measures factor is significant. However, the interaction is not significant, reflecting that although firms in the sample tended to gain more subsidiaries during the period, the rate of increase does not differ between the two groups.

The results of the multiple regressions potentially provide a more refined test of our hypotheses, as they allow growth to be held constant while the other effects are being tested. Although this did not result in increased significance of these other factors, it is notable that the significance of the growth factor remains when other variables are controlled for; whereas the other variables lose significance, particularly total assets.

6. DISCUSSION

At this stage we are not able to claim that the results unequivocally confirm the theory. With respect to leverage, retained earnings/total assets and dividends/earnings the results are not consistent with the theory; although there is weak support in the results for market value/book value,

total assets and number of subsidiaries. Even here, results are only marginally significant.

Although the results may be clarified by increasing the sample size, at this point it is worthwhile considering why the theory is not unequivocally supported. Presumably other factors are operating. For example, it could be that the factors that we acknowledged to cause weakness in the proxies may cause more "noise" than we expected. Perhaps the most surprising result is the nonsignificance of the leverage variable, which we expected to increase as the frequency of disclosure increased. It appears that other factors were having an opposite effect. One possibility could be that as leverage increases, the demands of creditors for a funds statement makes it less costly for management to provide the same statements to shareholders, an effect that counterbalances the one we proposed. Hopefully, such other determinants can be clarified by further research.

Apart from clarifying the results of the present research it is also suggested that future work could involve determining why firms have voluntarily disclosed different types of funds statements.

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Table 1: Cell Means, Standard Deviations and t Tests on Variables Grouped by (Non) Disclosure of Funds Statements
(n = 30, N = 60)

	DISCLOSE		NOT DISCLOSE				
	Mean	Standard Deviation	Mean	Standard Deviation	t (df=58)	One-tailed probability	Mann Whitney one-tailed probability
Market Value/Book Value of Equity							
t-5	1.253	.958	.976	.512	1.397	.084	.248
t-1	1.620	1.845	1.062	.478	1.604	.057	.282
t0	1.432	1.316	1.023	.532	1.578	.060	.282
t+1	1.407	1.241	1.145	.760	.985	.164	.388
t+2	1.188	.660	1.174	.829	.075	.870	.347
Leverage							
t-5	.349	.204	.361	.187	.237	.407	.412
t-1	.408	.159	.384	.209	.515	.304	.221
t0	.396	.137	.378	.200	.416	.339	.287
t+1	.442	.238	.392	.221	.830	.205	.204
t+2	.413	.143	.399	.236	.284	.389	.297
Retained Earnings/Total Assets							
t-5	.162	.166	.199	.141	.936	.176	.071
t-1	.167	.117	.216	.124	1.582	.059	.054
t0	.182	.125	.207	.126	.751	.278	.168
t+1	.182	.124	.206	.128	.713	.239	.204
t+2	.175	.118	.208	.125	1.064	.146	.152
Dividends/Earnings							
t-5	.469	.246	.544	.262	1.138	.130	.089
t-1	.475	.272	.529	.214	.847	.200	.326
t0	.804	1.610	.503	.237	1.014	.157	.429
t+1	.522	.214	.530	.232	.149	.441	.450
t+2	.494	.198	.663	.686	1.291	.101	.154
Log of Total Assets (000s)							
t-5	8.447	2.982	8.521	1.608	.120	.452	.183
t-1	9.629	1.602	8.926	1.723	1.636	.053	.044
t0	9.695	1.625	9.002	1.694	1.617	.055	.044
t+1	9.815	1.671	9.086	1.781	1.636	.053	.057
t+2	9.943	1.706	9.246	1.656	1.605	.057	.055
Log of Number of Subsidiaries							
t-5	1.857	2.822	1.058	2.309	1.200	.117	.111
t-1	2.038	1.908	1.317	2.136	1.379	.086	.060
t0	2.054	1.939	1.384	2.158	1.266	.105	.090
t+1	2.157	1.916	1.391	2.190	1.442	.077	.063
t+2	2.259	1.909	1.550	2.068	1.379	.086	.047

Table 2: Analysis of Variance

Dependent Variable: Leverage

	df	MS	F	Significance
(Non) Disclosure Error	1 58	.027 .135	.199	ns
Years Error	4 232	.033 .014	2.308	.059
Years x (Non) Disclosure Error	4 232	.007 .014	.500	ns

Dependent Variable: Retained Earnings/Total Assets

	df	MS	F	Significance
(Non) Disclosure Error	1 58	.084 .071	1.193	.279
Years Error	4 232	.002 .004	.553	ns
Years x (Non) Disclosure Error	4 232	.002 .004	.483	ns

Dependent Variable: Market Value/Book Value of Equity

	df	MS	F	Significance
(Non) Disclosure Error	1 58	6.933 2.945	2.354	.130
Years Error	4 232	.451 .522	.865	ns
Years x (Non) Disclosure Error	4 232	.607 .522	1.162	.328

Dependent Variable: Dividends/Earnings

	df	MS	F	Significance
(Non) Disclosure Error	1 58	.000 .427	0	ns
Years Error	4 232	.244 .332	.735	ns
Years x (Non) Disclosure Error	4 232	.479 .332	1.444	.220

Dependent Variable: Assets

	df	MS	F	Significance
(Non) Disclosure Error	1 58	22.661 14.920	1.519	.223
Years Error	4 232	11.324 .537	21.092	.000
Years x (Non) Disclosure Error	4 232	1.826 .537	3.401	.010

Dependent Variable: Number of Subsidiaries

	df	MS	F	Significance
(Non) Disclosure Error	1 58	40.315 20.947	1.925	.171
Years Error	4 232	1.603 .551	2.909	.022
Years x (Non) Disclosure Error	4 232	.038 .551	.068	ns

Table 3: Multiple Regression Coefficients, t Values and One-tailed Probabilities

Regression Model	Leverage	Retained Earnings Assets	Market Value Book Value	Dividends Earnings	Log Assets	Log Number of Subsidiaries
t-5						
Coefficient	.305	.398	-.145	.276	.009	-.034
t	.790	.818	-1.655	1.037	.317	-1.253
prob	.216	.208	.052	.152	.376	.108
t-1						
Coefficient	.039	.651	-.076	.172	-.039	-.021
t	.101	1.109	-1.574	.599	-.793	-.523
prob	.46	.136	.060	.275	.216	.201
t0						
Coefficient	-.045	.283	-.102	-.052	-.023	-.029
t	-.104	.478	-1.447	-.901	-.446	.713
prob	.559	.317	.077	.186	.379	.239
t+1						
Coefficient	-.050	.346	-.074	.025	-.018	-.037
t	-.150	.542	-.965	.083	-.342	-.886
prob	.440	.295	.269	.467	.367	.189
t+2						
Coefficient	.530	.823	.016	.194	-.048	-.016
t	1.103	1.101	.155	1.406	-.961	-.361
prob	.137	.138	.439	.083	.170	.359