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Voluntary disclosure of cash flow information in Australia

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VOLUNTARY DISCLOSURE OF CASH FLOW INFORMATION IN AUSTRALIA

BY

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USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

ABSTRACT

The purpose of this study is to investigate the economic incentives of firms to voluntarily disclose cash flow information prior to the operation of the approved standard AASB 1026 Statement of Cash Flows in 1992. This study theorises that firms voluntarily disclose such financial information because they believe that (1) the cash flow information is useful and relevant (in addition to information in income statement, balance sheet and funds statement), and (2) by voluntarily disclosing cash flow information, it will reduce the agency cost and the political cost. A review of contracting theory and the literature on voluntary disclosure identified the possible determinants as firm size, ownership control status, leverage, political sensitivity, proportion of assets in place, exchange listing, and subsidiary relationship. The relationship between these possible determinants and the disclosure policy of 172 firms - 18 in the treatment group and 154 in the control group - as listed on the Australian Graduate School of Management (AGSM) Annual Report Microfiche File for the year 1990, was tested using both univariate tests (parametric and non-parametric) and multivariate analyses. Based on univariate statistical tests performed, the incidence of voluntary disclosure of cash flow information is related to: (1) firm size, (2) foreign exchange listing, and (3) proportion of assets in place, and moderately related to (4) financial leverage of a firm. The decision appears to be unrelated to (5) whether a firm's shares were widely held, (6) market concentration ratio, (7) profitability ratio, and (8) whether a firm is a subsidiary of a foreign parent in Canada or New Zealand or the USA. Furthermore, multivariate analysis reveals that the eight independent variables significantly explain 52.4% (R^2 of OLS regression) of the variations in the firms' decisions to voluntarily disclose cash flow information.

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DECLARATION

"I certify that this thesis does not incorporate, without acknowledgment, any material previously submitted for a degree or diploma in any institution of higher education and that, to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where due reference is made in the text".

Salleh B. Hassan

Date : 7 June 1994

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GLOSSARY OF ABBREVIATIONS

AARF	Australian Accounting Research Foundation
AASB	Australian Accounting Standards Board
AC	Accounting Statements
AGSM	Australian Graduate School of Management
AIM	Australian Institute of Management
ASC	Australian Securities Commission
ASX	Australian Stock Exchange
ASRB	Accounting Standards Review Board
CFO	Cash Flow from Operation
CICA	Canadian Institute of Chartered Accountants
CPA	Certified Practising Accountant
ED	Exposure Draft
FASB	Financial Accounting Standards Board
FRS	Financial Reporting Standard
IAS	International Accounting Standards
IOSCO	International Organisation for Securities Commission
NI	Net income
NCSC	National Companies and Securities Commission
OCF	Operating Cash Flow
OECD	Organisation for Economic Cooperation and Development
OLS	Ordinary Least Squares
RBA	Reserve Bank of Australia
SAC	Statements of Accounting Concepts
SSAP	Statements of Standard Accounting Practice
VAS	Value Added Statements
WCF	Working Capital Cash Flow
WCFO	Working Capital from Operations

CHAPTER 1
INTRODUCTION

1.0   Statement of the problem

The debate for cash flow reporting in Australia has its beginning in 1983. It was resolved with the issuance of AASB 1026 Statement of Cash Flows by the regulator (that is, the Australian Accounting Standards Board), mandating cash flow reporting in the form of a third audited financial statement in companies' annual reports replacing the funds statement.

It is an unexplained phenomenon that during the debate period there has been a number of listed companies that had voluntarily presented various forms of cash flow information disclosures in their annual reports. This is rather an interesting observation because given the absence of any disclosure requirement, and also the sensitive nature of companies' cash flow - conceptually different from the funds flow information (Whittred & Zimmer, 1992) - it is not expected of listed companies to disclose such information.

1.1   Purpose of the research

The purpose of this thesis is to examine the economic incentives motivating listed companies in Australia to voluntarily disclose cash flow information in their annual reports. This study is an examination of cash flow reporting practices in 1990, prior to the issue of approved accounting standard AASB 1026 Statement of Cash Flows. In effect, this study seeks to determine (1) whether or not there are any significant differences in

terms of firm-specific characteristics (described more in later chapters) of those companies that voluntarily disclosed cash flow information, compared with those that did not, and (2) to present arguments that would rationalise the behaviour exhibited by such discloser companies in this study.

One of the issues that has been well documented in the accounting literature concerns the motivation for management's choice among alternative accounting disclosure policies for financial reporting. In this context, there have been numerous studies, both in the USA and Australia, devoted to explain why companies choose a certain accounting policy as opposed to others by examining firm-specific characteristics. This approach to accounting research, positive theory of accounting, is indeed useful for explaining the phenomenon observed in this study. According to Zmijewski and Hagerman (1981):

> such a theory could identify the economic motives that influence managers to make certain choices and thus indicate how these incentives could be altered. This theory could also be used by accounting policy-makers to predict how corporations and possibly other related parties, ie. auditors, would react to proposed changes in accounting rules and hence, predict the economic effect of these changes. Such forecasts could aid policy-makers in anticipating which corporations are most likely to lobby for or against a given proposal. (p. 130)

Contracting theory is used as the theoretical framework to help answer the above research question (to be discussed Chapter 4). A review of the related literature suggests that perhaps the following firm specific

attributes, namely (1) separation of ownership and control (ownership diffusion), (2) proportion of assets in place, (3) financial leverage, (4) size, (5) market concentration, (6) profitability, (7) exchange listing, and (8) subsidiary relationships, are related to the incidence of voluntary disclosure of cash flow information among the listed firms. It is also hypothesised in this study, that those companies that voluntarily disclosed cash flow information did so because such practice would reduce their agency and political cost, due to the relevance and usefulness of the cash flow information to the users of financial statements.

1.2   Significance and contribution of the research

The objective of this study is two fold: (1) to complement the literature on economic consequences of accounting policy choice by examining the voluntary disclosure of cash flow information by listed Australian companies, and (2) to expand the literature by examining an additional explanatory variable, namely foreign exchange listing variable, which has not been tested by previous published studies.

With respect to the first objective, this study contributes to the understanding of the motives for alternative accounting policy choices in two aspects. First, it is an analysis of accounting policy choice beyond the prevailing historical cost model; by empirically testing economic factors influencing managements' decision to present financial information prepared under a cash model. Second, it extends the external validity and generalisability of previous studies of different financial information. For example the voluntary disclosure of (1) Value Added Statement (Deegan and Hallam, 1991), (2) current cost financial statements (Wong, 1988), and (3) segment information (Bradbury, 1992; McKinnon and Dalimunthe,

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1993). Furthermore, this voluntary practice by companies may contribute to the justification of the promulgation of cash flow reporting standard by the regulators.

The AGSM Annual Reports Microfiche File (subsequently referred as AGSM File) was used as the population frame in selecting the sample firms of this study. By reviewing the 1990 annual reports of companies contained in the AGSM File, companies that had disclosed cash flow information were identified. In total, the sample consisted of 172 listed companies divided into the treatment group with 18 disclosers and the control group with 154 non-disclosers. The firm-specific characteristics of the treatment group was then compared with those of the control group.

The principal findings of this study from univariate analyses, are that the incidence of voluntary disclosure of cash flow information is significantly related to (1) firm size, (2) level of proportion of assets in place, and (3) whether the firm is also listed in Canada or New Zealand or the USA. It is moderately related to (4) firm's financial leverage, and not significantly related to (5) level of firm's shares held by other than the top 20 shareholders, (6) market concentration ratio, (7) profitability ratio, and (8) whether the firm is a subsidiary of a foreign listed firm in Canada or New Zealand or the USA.

In addition, the multivariate analysis reveals that the eight independent variables significantly explain 52.4% (R^2 of OLS regression) of the variations in the firms' decisions to voluntarily disclose cash flow information. This analysis also shows that the foreign exchange listing (EXCH) variable is the single most significant variable influencing the sampled firms' decisions to voluntarily disclose cash flow information.

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1.3   Organisation of the thesis and research

This thesis is organised as follows. The next chapter discusses the nature and current situation of cash flow reporting. The third chapter presents the review of the related literature of this study. Following this, the fourth chapter proffers the research hypotheses and also discusses the rationale and relevant theory for each of the hypotheses. The fifth chapter describes the data sources used for this study and provides definitions of the independent (explanatory) variables. The sixth chapter reports the results of this study. The seventh and final chapter provides the conclusion to the thesis. This chapter also presents alternative plausible hypotheses, and some suggestions for future research.

CHAPTER 2
CASH FLOW STATEMENT

2.0   Introduction

In Australia, cash flow reporting became mandatory when the AASB issued and gazetted the approved accounting standard AASB 1026 Statement of Cash Flows in December 1991. However, the operative date of the new standard was for the financial period on or after 30 June 1992. Australia lagged behind many countries and the international community in issuing the cash flow standard. In the USA, the SFAS 95 Statement of Cash Flows was issued by the FASB in late 1987. New Zealand too issued its equivalent cash flow standard SSAP 10 Cash flow Statement (later revised to FRS 10 in 1992) in 1987. Canada issued its cash flow reporting requirement in 1985 as per s.1540 of the CICA Handbook. As further examples, South Africa made cash flow reporting mandatory in July 1988 through its standard AC118, and the UK's standard on cash flow statement, FRS 1 was issued by the accounting bodies in 1991. Thus it can be commented that Australia was one of the last OECD countries to adopt an accounting standard on the Statement of Cash Flows.

The situation in Australia was similar to the above mentioned countries in that the cash flow reporting requirement superseded and replaced the requirement to prepare the Funds Statement (some countries referred this statement as Funds Flow Statement, others called it the Statement of Changes in Financial Position or Statement of Sources and Applications of Funds). The historical development of the cash flow statement in Australia is further described in the next section.

2.1   The Australian scene

In 1983, the NCSC prepared a green paper which proposed that companies should be required to include a cash statement in their published annual reports. The cash statement should include a schedule of cash movements during the year, including a reconciliation of opening and closing cash balances. Schedule 7 of the Companies Regulations and s.269 of the Companies Code were duly amended to require companies to prepare cash flow statements. This was the first regulatory move toward cash flow reporting in any country. However, the provision was subsequently withdrawn due to intense lobbying by the accounting bodies through the AARF, by industrial organisations and various corporations such as CSR Limited (Sims and Cantrick-Brooks, 1992).

The debate for mandatory cash flow reporting surfaced again in July 1986 when the accounting standard setting bodies - AARF and ASRB - jointly issued ASRB Release 410 / ED 37 Proposed Amendment to AAS 12 / ASRB 1007 to require Disclosure of Cash Flow from Operations. However, once again due to the vehement opposition, the proposal was dropped (Sims and Cantrick -Brooks, 1992). The turn of the decade saw a resurgence of the cash flow debate.

In November 1990, ED 37 was resubmitted to the accounting standards setting bodies for reconsideration as a separate accounting standard on cash flow statements. Sims and Cantrick-Brooks (1992) note that this movement was perhaps due to continued public pressure brought about by a volatile stock market, corporate collapses of the 1980s and overseas requirements for cash flow reporting. With the support of the Australian Society of CPAs, the AARF and the AASB issued ED 52

Statement of Cash Flows in May 1991. Six months later AASB 1026 Statement of Cash Flows was gazetted as the approved accounting standard replacing ASRB 1007 Statement of Sources and Applications of Funds.

2.2   Description of cash flow statement

The cash flow statement is basically a means for the company to reports its cash flow. In describing the form and content of the cash flow statement, reference is made to the requirements as contained in accounting standard AASB 1026. Prior to preparing the cash flow statement, the preparer must be equipped in two aspects. First he/she must understand the definitional items, and secondly he/she must also comprehend the prescribed presentation and disclosure requirements.

With regards to the definitions aspect, two definitions are important. The standard defines a cash flow as "cash movement resulting from transactions with parties external to the entity (or economic entity)" (AASB 1026, para 13). It is important to note that transactions not involving outside parties are excluded similar to the requirement of the now superseded funds statement. The other critical definitional item is cash. Cash is defined in the standard as "cash on hand and cash equivalents" (AASB 1026, para 9). Thus the entity is required by the standard to formulate a policy which will identify items to be classified as cash (Sims, 1992).

Turning to the presentation and disclosure aspect, the standard requires cash inflows and cash outflows to be separately disclosed. After cash is defined and the types of transactions which can be netted are

identified, the preparer needs to classify cash inflows and cash outflows into operating, investing and financing activities. In addition, the preparers must ensure that the cash flow statement reports separately each of the following items: (a) interest and other items of a similar nature received, (b) dividends received, (c) interest and other cost of finance paid, (d) dividends paid, and (e) income taxes paid (AASB 1026, para 15). There are four other additional items to be disclosed in the notes to the cash flow statement. These are information about acquisition and disposal of an entity; external cash financing and investing transactions; details of standby credit facilities; and details about used and unused loan facilities. An example of a cash flow statement is illustrated in Figure 2.1.

For the purpose of this study, cash flow information is defined as any presentation where minimally, the operating cash flows is presented, regardless of form of presentation (further discussion in Chapter 5). This is based on the findings of Dowds and Blake (1992) that the main factors identified as important in empirical studies (to be discussed in Chapter 3) are linked to operating cash flows. Authors who suggest a range of ratios for cash flow statement analysis include operating cash flows or elements thereof as a key component in many of them; seven out of fourteen in the case of Giacomino and Mielke (1988); eleven out of thirteen in the case of Carslaw and McNally (1990); nine out of sixteen in the case of Gahlan and Vigeland (1988) (cited in Dowds and Blake, 1992).

FIGURE 2.1

ILLUSTRATIVE EXAMPLE OF CASH FLOW STATEMENT

Chris Ltd
Statement of Cash Flows
for the year ended 30 June 1990

	$000	$000
Cash Flows from Operating Activities		
Receipts from customers	1 480	
Payments to suppliers and employees	(1 060)	
Interest paid	(66)	
Income taxes paid	(50)	
Net Cash provided from Operating Activities		304
Cash Flows from Investing Activities		
Purchase of plant & equipment	(452)	
Proceeds from sale of plant & equipment	3	
Net Cash used by Investing Activities		(449)
Cash Flows from Financing Activities		
Payments of cash dividends	(75)	
Proceeds from issue of shares	200	
Increased borrowings	17	
Net Cash provided by Financing Activities		142
Net Decrease in Cash		(3)
Cash 1 July 1989		15
Cash 30 Jun 1990		12

Notes to the Statement of Cash Flows

1.   Reconciliation of Operating Profit after Tax to Net Cash Provided by Operating Activities.

	$000	$000
Operating profit after tax		150
Adjustments		
Depreciation expense		
Building	10	
Plant and equipment	168	
Amortisation of goodwill	7	
Loss on sale of plant and equipment	17	
Increase in deferred income tax	4	
Increase in receivables	(20)	
Increase in inventories	(31)	
Decrease in creditors	(6)	
Increase in income taxes payable	5	154
Net Cash provided by operating activities		304

2.   Non-cash Investing and Financing Activities

Acquisition of plant for $75 000 in exchange for a $75 000 long-term note.

(Source: Whittred and Zimmer, 1992 p. 426)

2.3   Utility of Cash flow Statement

SAC No. 2 The Objective of General Purpose Financial Reporting para 43 states that "all general purpose financial reporting shall provide information useful to users in making and evaluating decisions about the evaluation of scarce resources". The approved accounting standard AASB 1026 Statement of Cash Flows is argued to be a reporting standard that fulfils the said objective.

Lee (cited in Wise and Wise, 1988) claims that cash flow reporting, in which the cash flow statement is a part of it, has utility for accounting information users in the following ways:

* For owners, cash flow statement describes the cash flow records of the entity which is one of the key factors in decisions concerned with cash distributions.

* For lenders, bankers and suppliers, cash flow statement shows whether or not the entity was able to make cash repayments when due, that is to retire its debts promptly.

* For customers, the past liquidity of the entity will provide the information on its ability to survive and to continue to provide a service.

* For employees, cash flow statement gives   an indication on the cash generated and how it is used.

* For public enterprise, it enables the government to identify and predict cash needs of the public enterprise, that is to determine how much it needs from the government.

Thus it does seem that cash flow information contained in the cash flow statement is relevant and useful as input for users in their economic decision making process. In terms of assessing corporate performance, Giacomino and Mielke (1988), Kalkbrenner, Kremer and Smith (1989), and Lee (1992) believe that cash flow data are relevant and useful when used together with other financial information contained in other financial statements. This is because the information contained in the cash flow statement enhances the ability to evaluate a company's performance and financial health as it answers questions concerning quality of earnings, sources of cash from operations, how debt repayment was made, and reliance on external financing. Finally, in assessing corporate financial flexibility, solvency and liquidity, cash flow data are also relevant and useful (Cassino, 1987; Currie, 1987; Flanagan, 1992; Lee, 1992; Wise and Wise, 1988). For example, the cash flow statement is able to show the ability of the entity to generate adequate cash flow, and whether it would come from trading activities or external borrowings (Blue, 1990).

The advocates of cash flow reporting believe that the cash flow statement is a superior financial statement when compared with its predecessor the funds statement. Lee (1992) asserts that the cash flow statement is devoid of the elements of judgement and subjectivity inherent in accrual accounting and cost allocation. Neill, Schaefer, Bahnson and Bradbury (1991 p. 118) claim that critics have maintained that "the accrual process is subject to significant manipulation and has contributed to a lack of meaningfulness in financial statements". Edmonds, Rogow and Rezaee (cited in Dowds and Blake, 1992 p. 67) echo Neill's view in that there is a "lack of confidence in the accounting now being used to derive earnings". Furthermore, Soper (1991 p. 22) describes funds statements as

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"often confusing", and inadequate as a means of extracting information about cash flows (Dowds and Blake, 1992; Currie, 1987).

Lee (1992) sums up the cash flow statement as a statement that describes realised cash inflow and outflow representing observable effects of economic transactions. He also argues that the cash flow statement is a statement entirely of economic substance and free of legal form.

2.4 Criticisms of cash flow statement

The cash flow statement is however not a financial report that is without any limitations. Parker (1992 p. 17) argues that "the statement of cash flows is not a panacea for all solvency and liquidity issues as it can be manipulated by deferral of payments and premature receipts". Boymal (national director on accounting and auditing standards for Arthur Young) as reported by Wise and Wise (1985) believes that the different bases used in the financial statements - accrual accounting for balance sheet and income statement, and cash flow accounting for cash flow statement - will be misleading and cause confusion.

Lee (1992) provides three guidelines in analysing the cash flow statement of an entity. First, it is wrong to attempt to assess the health and predict the failure of an entity solely on the basis of single indicator. Second, it must be noted that operating and other cash flows are inevitably lumpy due to the cyclical nature of business activity. Following the second guideline, Lee (1992) asserts that the lumpiness of cash flow dictates that it is sensible not to judge the cash performance of an entity on the basis of single period data. Hence, he cautions that there is the need to judge cash flow data on a longer term basis rather than a single period.

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Apart from the substance of the cash flow statement, there are also criticisms of its form of presentation, particularly the flexibility in the classification of cash flow components allowed by the standard. Shanahan (1992 p. 20) notes that "AASB 1026 provides so many options that it is likely to result in non-standard cash flow statements being produced". The likely ramification is that perhaps inter-company or even cross-country comparability would be difficult. As an example of this problem, when companies choose different classifications for the same item, their cash flow statements will not be directly comparable unless they are adjusted to restate the classifications on a consistent basis. However, the situation is similar to those of other countries. Even the international standard of cash flow statement (IAS 7), suffers the same problem of flexibility in the classification of components of cash flows.

2.5   Summary

In this chapter, the nature, history, utilities, and criticisms of the cash flow statement is discussed at some length. This serves as a foundation to the understanding of the rationale behind the behaviour of certain firms to voluntarily disclose cash flow information. Perhaps this chapter also illustrates the underlying reasons for the decision by the Australian regulators to make cash flow reporting mandatory. The following chapter is dedicated to reviewing the literature that is related to this study. Specifically, the next chapter will review the literature in two related areas, namely the literature on economic consequences studies, and the usefulness of cash flow information.

CHAPTER 3
REVIEW OF THE LITERATURE

3.0   Introduction

In this chapter, a review of the related literature in this study is presented. The purpose of this review is to help this study in developing a theoretical framework and selecting the appropriate firm-specific variables to be tested. In addition, this review will highlight the evidence of whether or not cash flow information is indeed useful and relevant to financial statements users. In order to achieve these objectives, a review of the literature on two main areas was performed; (1) the voluntary disclosure of financial information in annual reports; and (2) the usefulness of cash flow information.

3.1   Economic consequences (incentives) study

The underlying theoretical framework of an economic incentives study is Contracting Theory, which consists of Agency Theory and Political Cost Theory. All these theories are part of "Positive Accounting Theory" in accounting research. While the explanation, rationale, and criticisms of Positive Accounting Theory (and its underlying theories) are well documented in the accounting literature, it is adequate to mention here that it is one of the theoretical frameworks that seeks to explain the observed phenomena in accounting (Watts, 1977). In the context of this study, this theoretical framework is used to explain the practices of certain firms that voluntarily disclosed cash flow information.

Jensen and Meckling (1976) and Fama (1980) perceive the firm as a nexus of contracts, where numerous groups and individuals contracting with each other in the operation of the firm. Hence, a firm will have a complex set of contracts, explicit and implicit with shareholders, lenders, unions, government, customers, managers, suppliers and pressure groups. Inevitably, these contracts will result in various forms of agency relationship. In this context, Jensen and Meckling (1976 p. 308) define an agency relationship as "a contract under which one or more persons - the principal(s) - engage another person - the agent - to perform some service on their behalf which involves delegating some decision making authority to the agent". Thus according to contracting theory, accounting information is provided as a means of fulfilling the contractual obligations between the capital providers and managers of resources.

Management of firms face alternative accounting policy choices that will affect the quantity and quality of financial information reporting to users of this information. From the perspective of the Costly Contracting Theory, Watts and Zimmerman (1986) explain that firms choose certain alternative accounting policy over others in order to reduce the agency cost (equity and debt) and the political cost associated with the contracting process undertaken by management and the monitoring of firm's / management's performance, by interested external parties - primarily the capital providers and the government. The interest in reducing agency cost and political cost is because such cost will have economic consequences to the firms in terms of the value of the firm, and the wealth of managers, auditors, regulators and investors (Holthausen & Leftwich, 1983).

Watts (1977) further theorises that financial statements are products of both market and political processes, and are viewed as resulting

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from "interaction among individuals and groups in these processes" (p. 54). Watts and Zimmerman (1986 p. 222) suggest that these processes can be characterised as a "competition for wealth transfers".

The examination of economic incentives motivating voluntary disclosure of certain financial information, for example segment information, is based on the assumption that the role of, or demand for, that certain financial information is not the same for all firms. Instead, firms with certain economic characteristics are greatly motivated to voluntarily disclose certain information than those firms which lack the same economic characteristics. The reason for such voluntary disclosure is economic benefits in terms of reduced agency and / or political cost accruing to the particular firms.

The findings of selected previous empirical studies - in relation to those other than cash flow - have consistently shown that there are systematic differences between firms that voluntarily present certain financial information. Table 3.1 presents the summary of the studies reviewed in this section.

Bazley, Brown and Izan (1985) conducted a cross-sectional study of voluntary disclosure of lease commitments of Australian lessees companies in their annual reports. The study aimed to explain the factors that influenced the adopted accounting policy. The sample of the study consisted of 370 Australian companies which were divided into 280 disclosers and 90 non-disclosers. Based on univariate and multivariate tests ($R^2=0.091$), the authors found that the relative frequency of voluntary disclosure was significantly explained by the firms' industry, size, and whether the lessee

TABLE 3.1

ECONOMIC CONSEQUENCES STUDIES (VOLUNTARY DISCLOSURE)

Authors	Information type	Sample group	Principal findings
Bazley, Brown & Izan (1985)	lease commitment	280 disclosers / 90 non-disclosers; 1979; Australia	relative frequency of voluntary disclosure by lessees was related to (a) industry, (b) firm size, (c) whether the lessee was a subsidiary company of a foreign parent; was only weakly related to (d) whether the lessee entered the AIM good reporting award; and was unrelated to (e) identity of the lessee's audit firm, (f) existence of bonus scheme tied to reported profit, and (g) relative risk of the firm.
Wong (1988)	current cost financial statement	15 disclosers / 186 non-disclosers; 1980; New Zealand	voluntary presenter of current cost financial statement have (1) higher effective tax rates, (2) lower leverage ratios, (3) larger market concentration ratios, and (4) are more capital-intensive.
Deegan & Hallam (1991)	valued-added statement	30 disclosers / 185 non-disclosers; 1987; Australia	firms that voluntarily presenting VAS's are larger (in terms of size and concentration), more capital intensive, more heavily taxed, and more likely to come from the manufacturing or agricultural industries.
Bradbury (1992)	segment information	29 disclosers; 1983; New Zealand	extent of quantified segment disclosure is significantly related to firm size, financial leverage, but not proportion of assets in place, earnings volatility or the importance of foreign funding to the firm.

TABLE 3.1 (Continued)

ECONOMIC CONSEQUENCES STUDIES (VOLUNTARY DISCLOSURE)

Authors	Information type	Sample group	Principal findings
Gay, Farley & Peirson (1993)	value-added statement	256 disclosers / 2048 non-disclosers; 1983-87; Australia	relative frequency of voluntary disclosure of VAS is related to firm size, whether the firm is a subsidiary of a UK company, and industry group.
McKinnon & Dalimunthe (1993)	segment information	15 disclosers / 50 non-disclosers; 1984; Australia	strong support for firm size, level of minority interest, and industry membership; moderate support for ownership diffusion; and no support for level of leverage and diversification into related vs unrelated industries.

was a subsidiary of a foreign parent. The results also revealed weak support for the hypothesis that voluntary disclosure was related to whether the lessees entered the AIM good reporting award. The other variables, namely the identity of the lessees' audit firms, the existence of bonus scheme, and the relative risk of the firms were not significantly related to the incidence of voluntary disclosure of lease commitments.

Wong (1988) investigated the voluntary presentation of current cost financial statements of New Zealand companies from the political cost perspective. In addition to the univariate and multivariate tests, the author performed a randomisation test due to the small sample size of this study (15 presenters and 186 non-presenters). The results suggest that tax and political cost considerations are influential in the voluntary disclosure of current cost information. Specifically, the voluntary presenters of current cost financial statement have higher effective tax rates, lower leverage ratios, larger market concentration ratios, and are more capital intensive.

The study by Deegan and Hallam (1991) was study attempting to explain the incidence of voluntary disclosure of value-added statements by Australian listed companies in 1987. The authors hypothesised that politically sensitive firms were more likely to adopt such voluntary accounting policy choice. By voluntarily presenting the value-added statement in their annual reports, these firms would mitigate or at least reduce the high political cost associated with their visibility. The economic characteristics of 30 discloser firms were compared with those of 185 non-discloser firms. Various statistical techniques were performed including the univariate test to test for industry effect between groups, and phi-coefficients for comparative employee information and taxation information within groups. The OLS multiple regression was performed as a

multivariate test. The inference from the results is that the firms that voluntarily present value-added statements are larger (in terms of size and concentration), more capital intensive, more heavily taxed, and more likely to come from the manufacturing or agricultural industries. It seems that the principal finding by Deegan and Hallam (1991) is consistent with the finding of Wong (1988) in that politically sensitive firms are more likely to voluntarily disclose information with the aim of reducing political cost borne by them.

A follow-up study of voluntary disclosure of the value-added statement was conducted by Gay, Farley and Peirson (1993). Two significant differences exist between their study and that of Deegan and Hallam (1991), even though both studies examined the same phenomenon. First, Gay et al. examined the incidence of voluntary disclosure of value-added statements by Australian companies through a period of time (1983-1987), that is their's was a longitudinal study. Second, in contrast to Deegan and Hallam's study (1991), Gay et al. did not solely attempt to explain the phenomenon from the political cost perspective. They examined also other variables developed from a review of the agency literature, including a variable (subsidiary relationship) examined by Bazley et al. (1985) where the accounting practices of Australia firms are hypothesised to be dictated by the accounting practices or policies of their overseas parents.

However, similar to Deegan and Hallam (1991), Gay et al. (1993) performed both univariate and multivariate tests to differentiate between the disclosers and the non-disclosers. They inferred from the results that the relative frequency of voluntary presentation of value-added statements over the period of years examined is related to the firm size, whether the

company is the subsidiary of a UK parent company, and the industry group. The authors acknowledged though, that although their result from the multivariate test was somewhat disappointing (R^2=0.1652), it was within the expected range.

This section ends with a review of studies examining the voluntary disclosure of segment information by Bradbury (1992) and McKinnon and Dalimunthe (1993). Although these authors looked into identical financial information, the country setting is different, making a comparison of the methodologies and results rather interesting.

Bradbury (1992) attempted to explain why New Zealand multiproduct firms voluntarily disclosed segment information by examining six firm-specific characteristics. The sample consisted of 29 discloser multiproduct firms selected from 50 of the largest New Zealand firms by market capitalisation in 1983. Interestingly, the experimental design adopted by Bradbury did not include a control group of non-discloser firms. Perhaps this could be a weakness of this study, as there was no benchmark for a comparison of the findings. No explicit reason was given for the approach taken, but there was mention of the cost constraint faced by the author. Four statistical techniques were performed (Mann-Whitney and Chi-square tests for univariate analysis; Multi-logistic regression and OLS for multivariate analysis) as counter-checking measures. The results suggest that the extent of quantified segment disclosure is significantly related to firm size, and financial leverage, but not proportion of assets in place, earnings volatility or importance of foreign funding to the firm.

McKinnon and Dalimunthe (1993) took a different approach to Bradbury (1992). They examined the extent of voluntary disclosure of

segment information of 65 listed diversified Australian companies in 1984. Their sample was divided into 15 disclosers (treatment group) and 50 non-disclosers (control group), thus enabling a between groups experimental design. Apart from the experimental design, McKinnon and Dalimunthe also selected a different set of explanatory variables to be tested as compared to those examined by Bradbury (1992).

Based on the univariate and multivariate analyses, the authors conclude that "specific economic incentives exist for voluntary disclosure of segment information, and that the strength of those is not the same across diversified firms" (McKinnon and Dalimunthe, 1993 p. 46). There was strong support for firm size, the level of minority interest and industry membership as factors motivating the voluntary disclosure of segment information. Moderate support was found for the importance of ownership diffusion, while no support was found for either level of leverage or diversification into related against unrelated industries.

3.2   Cash flow information

The literature review on cash flow information as discussed in this section is greatly extracted from an extensive study by Neill, Schaefer, Bahnson and Bradbury (1992) on the usefulness of cash flow data. This study acknowledges the contribution made by these authors.

Whittred and Zimmer (1992 p. 427) suggest a classification of the empirical research on the usefulness of cash flow information. They classify these studies into either "statistical" or "behavioural". The latter studies include studies where participants in laboratory experiments are asked to make forecasts (for example, corporate failure) using experimented-

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manipulated data sets, and studies gathering participants attitudes or perceptions on certain financial reporting matters (for example, perception on usefulness of cash flow data). The former studies primarily consider statistical relationships within financial statements and between financial statement items and events (for example share price changes or corporate failure). In this context, the literature review on the usefulness of cash flow data is grouped as studies on the information content of cash flow data, use of cash flow data in corporate failure prediction using statistical analysis, and on the behavioural / attitude toward cash flow data. These studies are summarised and presented in Table 3.2, Table 3.3, and Table 3.4 respectively.

3.2.1 Information content studies

Bowen, Burgstahler and Daley (1987) investigate the information content of (1) cash flow data beyond that contained in earnings and (2) accrual-based earnings numbers beyond cash flow data. Two accrual measures and two cash flow variables were examined. They obtained a sample of 324 US firms that had complete financial statements for the period 1972-1981. The results of the pooled cross-sectional time-series regressions indicate that cash flow variables (individually and as a group) possess information content beyond accrual earnings. In addition, the pooled regressions also indicate that earnings and the two accrual variables jointly possess information content beyond cash flow variables. Similar results were found by Wilson (1987), complementing and supporting the findings by Bowen et al. (1987).

TABLE 3.2

INFORMATION CONTENT STUDIES

Authors	Years examined	Length of return holding period	Major conclusions
Bowen, Burgstahler & Daley (1987)	1972-1981; USA	12 months	Cash flow variables have incremental content over earnings, while working capital from operations (WCFO) does not. Earnings has incremental content over cash flows.
Livnat & Zarowin (1990)	1974-1986; USA	12 months	Financing and operating cash flows are associated differentially with returns, while investing cash flows are not.
Charitou & Ketz (1991)	1976-1985; USA	12 months	cash flow from operating, financing and investing activities are associated with security prices, that is market value of the firms.
Percy & Stokes (1992)	1974-1985; Australia	12 months	low correlations between traditional cash flow measures and a more refined cash flow measure; traditional cash flow measures exhibit high correlations with earnings, while the more refined cash flow measure has a lower correlation with earnings; and traditional cash flow measures better predict future cash flows than model based on earnings or a more refined cash flow measure.

Livnat and Zarowin (1990) are the first to examine the information content of the three components of cash flows prescribed by SFAS 95. Specifically they examine whether the operating, investing, and financing components of cash flows are differentially associated with abnormal security returns, in accordance with economic and finance theories. The results indicate that the individual components of operating and financing (but not investing) cash flows are differentially associated with returns in the directions predicted by theory. The results are obtained by estimating a cross-sectional regression model for each sample year, with the results then pooled across years. The authors also find that the disaggregation of net income into aggregate operating cash flows and accruals do not provide incremental information beyond net income. However, explanatory power is increased by adding financing and investing cash flows to an accruals and OCF disaggregation of net income. Explanatory power is further increased when each individual component of operating, investing, and financing cash flow is included in a model along with accruals.

Following the Livnat and Zarowin (1990) study, Charitou and Ketz (1991) also examined the associations of cash flows from operating, financing, and investing activities with security returns. The study employed a cross-sectional equity valuation model to examine a sample of 403 US firms for the ten-year period of 1976-1985. The results indicate that there exists a strong association between the various cash flow components included in the cash flow statement and the market value of the firm, as reflected in the security prices. The results also suggest that "the success or failure of each firm depends not only on the profitability of the firm but also on the liquidity " (Charitou and Ketz, 1991 p. 61).

In Australia, Percy and Stokes (1992) replicated the Bowen et al. (1986) study using Australian sample and data. They examined 107 Australian companied for the twelve-year period of 1974-1985. Their results provide external validity to the results obtained by Bowen et al. (1986). The results and inferences are that there are low correlations between traditional cash flow measures (that is, (1) net income plus depreciation and amortisation, and (2) working capital from operations) and a more refined measure of cash flow. Furthermore, the traditional cash flow measures are highly correlated with earnings, while a more refined measure of cash flow has a lower correlation with earnings. This is not surprising given that the market are supplied with financial disclosures prepared primarily using accrual accounting. Finally, the results also show that using one- and two-period-ahead forecasting models, traditional cash flow measures better predict future cash flows than models based on earnings or a more refined cash flow measures.

The preceding results imply that traditional cash flow measures give similar news or signals to that of earnings. This in turn means that more refined cash flow measures provide a different, and perhaps a better picture of the state of affairs of the companies than earnings figure or the traditional cash flow measures (Bowen et al., 1986).

The studies reviewed in this section assessed the ability of current cash flow and earnings to predict a firm's future cash flows. The results provide some insight into the general usefulness of cash flows for decision making.

3.2.2 Failure prediction studies

Largay and Stickney (1980) studied the bankruptcy of W.T. Grant Co. and found that a decline in OCF preceded the bankruptcy petition. Furthermore, the decline in OCF occurred earlier than the declines in NI and WCFO that also preceded bankruptcy. From this analysis, the authors concluded that OCF was a better predictor of bankruptcy than either net income or working capital from operations. In the Australian context, similar results were obtained from a case study of the collapse of Hooker Corporation in 1989. Flanagan and Whittred (1992) conducted conventional analysis, and net profit and cash flow analysis for ten years prior to the collapse of Hooker Corporation. They found that there is little information in "working capital" concepts beyond that contained in the net profit figure. Furthermore, in the years preceding its collapse, Hooker Corporation's share price declining performance was more consistent with its underlying cashflow experience than its reported profits.

Nevertheless, subsequent to the study by Largay and Stickney (1980), a number of empirical studies have examined cash flow information in the context of predicting failure to determine whether the positive OCF result is generalisable beyond the one company examined by Largay and Stickney. However, in this section not all of these subsequent studies are reviewed.

Casey and Bartczak (1985) examined the ability of OCF, OCF divided by current liabilities, and OCF divided by total liabilities to predict bankruptcy. Their sample of 290 firms was made of 60 bankrupt firms and 230 non-event firms. The firms were selected from period 1971 to 1982. The marginal predictive ability of these OCF variables relative to accrual data

TABLE 3.3

FAILURE PREDICTION STUDIES

Authors	Test Data	Ratios examined	Statistical model	Principal findings
Largay & Stickney (1980)	Case study of W.T. Grant Company	NI, WCFO, and CFO compared during 10 years prior to 1975 bankruptcy petition	None	CFO was seen as a more timely indicator of the subsequent bankruptcy petition because it revealed a declining trend several periods before NI and WCFO
Casey & Bartczak (1985)	60 bankrupt, 230 non-event; 1971-1982	3 CFO ratios, 6 traditional ratios; 1-5 years prediction interval	MDA	CFO is not a good univariate predictor, nor did it improve predictions when added to the six traditional ratios
Gentry, Newbold & Whitford (1985)	33 bankrupt / liquidated, 33 non-event; 1970-1981	12 cash flow components, nine traditional ratios; 1-3 year prediction interval	Probit	Performed a likelihood ratio test on marginal contributions of CFO. CFO ratios added more explanatory power to the joint model than did the traditional ratios. Dividends cash flow was significant in all years, receivables cash flow and investment cash flow were significant the year prior to failure
Bahnson & Bartley (1992)	43 insolvent, 76 technical defaulted, 1,742 non-event; 1982-1984	8 variable cash flow model compared to Casey & Bartczak's (1985) 7 variable using 3 definitions of failure; prediction interval includes 3 years	Logit	Casey & Bartczak's model is the most powerful predictor of bankruptcy. The cash flow model is more powerful for predicting the 2-state and 3-state insolvency definitions

TABLE 3.3 (Continued)

Authors	Test Data	Ratios examined	Statistical model	Principal findings
Flanagan & Whittred (1992)	Case study of Hooker Corporation	NI, WCFO, and CFO compared during the 10 years prior to collapse in 1989	None	Similar to Largay & Stickney's (1980) study. In the years prior its collapse, Hooker's share price declining performance was more consistent with its underlying cash flow experience than its reported profits.

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was tested by including the OCF variables in multiple discriminant analysis models containing six traditional financial ratios. Stepwise procedures were used to identify the optimum variable sets. Casey and Bartczak found that the inclusion of OCF variables did not produce a statiscally significant improvement in the predictive accuracy of the models. Bahnson and Bartley (1992) assert that the Casey and Bartczak models have been used as benchmarks in subsequent studies of financial failure, and their results have been used to support the proposition that accrual data provide a better basis for predicting future cash flows than cash flow data.

In 1985, Gentry, Newbold and Whitford presented the results of their failure prediction study via an expanded cash model. Thus their study was significantly different from Casey and Bartczak (1985) in two principal ways. First, Gentry et al. (1985) selected a broader base of cash flow components that use the complete balance sheet and income statement, rather than only OCF. Second, they used a cash based approach as contrast to the traditional working capital based funds model. Gentry et al. (1985) divided the change in the cash balance of a company into seven cash flow components and tested the joint ability of these components to predict bankruptcy and liquidation. The sample of this study was made up of 30 bankrupt / liquidated firms and 33 non-event firms, selected from the period 1970 to 1981. The resulting logit model was statistically significant, but the dividend component was the only statistically significant variable. They believed that their cash based model significantly improved predictive performance.

Bahnson and Bartley (1992) conducted a failure prediction study from a cash flow model (B&B) developed by them. They examined the sensitivity of their results to various definitions of failure. Unlike previous

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studies, the sample firms in this study was divided into three groups; 43 insolvent firms, 76 technical default firms, and 1,742 non-event firms. The period of study was from 1982 to 1984. Their cash flow model is compared with the Casey and Bartczak (1985) (C&B) model under three definitions of failure: (1) bankruptcy (bankrupt versus non-bankrupt), (2) insolvency (solvent versus insolvent), and (3) solvent versus technical default versus insolvent, the three-state continuum. The results show that the usefulness of OCF in failure prediction is affected by the definition of failure. Under the bankruptcy definition, OCF is not significant in either the C&B or B&B models but the C&B model is the more powerful predictor. In the insolvency setting (two-state and three-state insolvency definitions), OCF is significant in the B&B model, but not in the C&B model.

Neill et al. (1992) conclude, based on their review, that OCF is not a good univariate predictor of failure. However, there are mixed results in the multivariate studies which suggest that OCF's usefulness depends on the other variables used as predictors and on the definition of failure employed. Thus, the evidence suggests that OCF results are weak at best, and that other cash flow components offer much stronger support, namely the investment and dividend cash flows (Neill et al., 1992).

3.2.3 Behavioural / attitudinal studies

Currie (1986) conducted a laboratory experiment where 36 Australian loan officers were divided into three groups and were requested to use real (but disguised) financial profiles of failed and non-failed firms to predict which firms defaulted. Each group was given a different set of financial reports. The first group was supplied with the core information set of financial statements only, whereas the second and third groups were

TABLE 3.4

BEHAVIOURAL / ATTITUDINAL STUDIES

Authors	Test Data	Experimental Design	Principal Findings
Currie (1986)	36 loan officers	divided into 3 groups and requested to use real (but disguised) financial profiles of failed and non-failed firms to predict which firm defaulted	no significant differences between the groups supplies with/without the conventional accrual funds statement. However group supplied with cash flow statement performed significantly better than the other two groups.
McEnroe (1989)	800 audit partners of US public accounting firms	survey questionnaire concerning various forms and dimensions of cash flow accounting (in part replicate Lee's 1981 study)	past cash flow information is regarded as useful to bankers, lenders, institutional and private shareholders, and suppliers.
Epstein and Pava (1992)	2,359 shareholders in all 50 states in the USA	survey questionnaire on usefulness of annual reports (comparison with 1973 study)	statement of cash flows does provide investors with useful information. Furthermore, statement of cash flows is more widely read, is more easily understood, and is becoming substantially more useful than its predecessor, that is the statement of changes in financial position.
Bradbury and Newby (1992)	30 financial analysts	supplied with identical annual reports to answer 5 questions - 2 questions on judgement on financial position and prospects, 3 questions on calculation of investing and financing activities	statement of changes in financial position does not enhance financial statement analysis, and evidence indicated little point in retaining statement of changes in financial position as the third financial statement.

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supplied with this set as well as accrual funds statements (group two) and cash flow statements (group three). The principal finding of this experiment was that there were significant differences between the groups supplied with/without the conventional accrual funds statements. However, the groups supplied with the cash flow statements performed significantly better than the other two groups. The result of this study supports the usefulness of cash flow data, even though it may be highly contextual as illustrated in this study.

There were two studies that investigated whether or not cash flow data are indeed useful to certain groups of financial users. These studies primarily used a survey questionnaire to obtain participants' attitudes and perceptions on the utility of cash flow data. In 1989, McEnroe replicated, in part, a study conducted by Lee in 1981. Survey questionnaires were sent to 800 audit partners in US accounting firms. This group was selected due to their considerable experience in financial reporting. Other than questions on various forms and dimensions of cash flow accounting, the respondents were also asked whether cash flow data have utility to users. The results showed that the respondents regarded past cash flow data as useful to bankers, lenders, institutional and private shareholders, and suppliers.

The results of another attitudinal study clearly support the findings of the study by McEnroe (1989). Epstein and Pava (1992) surveyed 2,359 shareholders in all states of the USA on the usefulness of corporate annual reports. The findings of this study was compared with the results of an earlier study conducted in 1973 by the same authors. These studies produced statistically significant results. The inferences are that the statement of cash flow does provide investors with useful information, and the statement of cash flow is more widely read, is more easily understood,

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and is becoming substantially more useful than its predecessor the funds statement.

Finally, there was another study which lends support for the assertion that cash flow data are useful and that funds statements be replaced with cash flow data in corporate annual reports. Bradbury and Newby (1989) provided identical annual reports to 30 financial analysts and requested them to answer five questions. Two of these questions involved judgments of a firm's financial position and prospects, and the other three questions involved calculations about the firm's investing and financing activities. The annual reports contained the following sections: Chairman's Review, Directors' Report, Income Statement, Balance Sheet, Notes to the Financial Statements, Statement of Changes in Financial Position (SOCIFP), Auditor's Report, and a Five-Year Comparative Review. The concern of this study is whether the SOCIFP enhances financial statement analysis. The result reveals that the SOCIFP does not enhance financial statement analysis. This evidence also suggests that there is "little point in retaining the SOCIFP as a third financial statement" (Bradbury and Newby, 1992 p. 37).

3.3   Summary

In summation, due to the nature of firm where ownership and management of a firm is separated, and the fact that a firm operates in a political environment, there is a need for a firm to minimise the agency cost (equity and debt) and the political cost. Failure to do so would possibly result in the firm having to experience difficulty to obtain relatively cheaper capital (equity and debt), greater scrutiny and restrictions from shareholders and creditors, and also more interference from the government

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in terms of increased controls, more regulations and higher taxes. The literature suggests that one way of reducing the agency cost and / or the political cost is for a firm to voluntarily disclose useful financial information.

The preceding discussion on studies in relation to economic incentives indicate that there are systematic differences between firms that voluntarily disclosed certain financial information and those that did not. In terms of the usefulness of the cash flow information, the literature reveals that "the usefulness of cash flow data may be highly contextual" (Neill et al, 1991 p. 143). Thus, this study hypothesises (to be elaborated in Chapter 4) that firms adopt the practice of voluntary disclosure of cash flow information because they believe cash flow data is useful to the users and that such practice will reduce agency cost and / or political cost incurred by them.

Recall, the general findings of information content studies reveal that more refined cash flow measures provide a different picture - perhaps more useful - of the firms than that provided by earnings and traditional cash flow measures prepared under accrual accounting. But in failure prediction studies, the usefulness of cash flow variables are mixed. In the next chapter, the relevant hypotheses of this study are formulated based on the accompanying discussion of their rationale and applicability.

CHAPTER 4
THEORY DEVELOPMENT AND
HYPOTHESES FORMULATION

4.0   Introduction

In this study the dependent variable is the disclosure practice of firms, that is either to voluntarily disclose cash flow information or otherwise. The independent variables which may be used to explain the observed phenomenon are derived from contracting theory and the results of previous empirical studies. One of the possible weaknesses of the contracting theoretical framework is the difficulty in operationalising explanatory variables which are considered to be proxies for the likely true explanatory variables. Hence in developing the relevant hypotheses, the rationale explanation for each of the independent variables is presented in the following sections. These explanatory variables are categorised as agency cost variables, political cost variables, and control variables.

4.1   Agency cost variables

In this study, the agency cost variables that are hypothesised to be the explanatory variables are: separation of ownership and control, proportion of assets in place, and financial leverage. While the first two variables attempt to explain the agency cost of equity, the financial leverage variable is primarily concerned with the agency cost of debt. Based on the literature, this study also hypothesises that firms voluntarily disclose cash flow information in order to mitigate or reduce the agency cost incurred by them.

4.1.1   Separation of ownership and control

Due to the agency relationship that exists in firms, there is a separation between the ownership of the firm and the management of the firm. The management in its capacity as agent is responsible for day-to-day operation of the firms. Whilst the principals (that is the shareholders) are only able to monitor the performance of the firms via the annual reports prepared by the management. Thus Jensen and Meckling (1976) and Leftwich, Watts and Zimmerman (1981) note that with the increasing level of non-owner management in the firm, there will also be an associated increase in agency cost.

It is argued in previous empirical studies that where a firm's shares are widely held, there is a greater separation between the firm's decision-making function and its principals than where the firm's shares are held by a relatively small number of shareholders (Craswell and Taylor, 1992). This situation will bring about a higher agency cost borne by the widely held firm than for the closely held firm. McKinnon and Dalimunthe (1993) found moderate support for this ownership diffusion variable in explaining the voluntary disclosure of segment information by listed Australian companies.

Thus, management of widely held firms seek accounting policy choice that will reduce the agency cost. One such choice is the voluntary disclosure of additional information to the principals about the outcomes of the decisions made by the agent on the principal's behalf (Craswell & Taylor, 1992; Watts, 1977; Whittred, 1987). In this study, it is argued that cash flow information is the additional useful information from the principals' perspective. A firm's cash flow information is useful in assessing corporate

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performance (Giacomino & Mielke, 1988; Kalkbrenner et al, 1989; Lee, 1992), corporate financial flexibility, solvency and liquidity (Cassino, 1987; Flanagan, 1992; Lee, 1992).

The voluntary disclosure of cash flow information by the management will reduce the agency cost of the firm. This is because the marginal cost to management of providing this information is much lower than the cost to individual shareholders of ascertaining the same information (McKinnon & Dalimunthe, 1993). Hence, it is hypothesised that the management of widely held firms are more likely to voluntarily disclose cash flow information. Hypothesis H1 is stated as follows:

H1:   Firms that voluntarily disclose cash flow information are more likely to have widely held shareholdings than those firms that do not disclose such information.

4.1.2   Proportion of assets in place

Chow and Wong-Boren (1987) and Bradbury (1992) found no association between the proportion of assets in place and voluntary financial disclosure. In contrast, Leftwich et al. (1981) and Bradbury (cited in Bradbury, 1992) report anomalous results with regard to the proportion of assets in place and voluntary interim reporting. This study hypothesises that this variable ought to be tested again in the context of voluntary disclosure of cash flow information.

This variable is selected based on Myers (1977) suggestion that the value of the firm consists of two components: (1) assets in place, and (2) growth opportunities (or ass ts yet to be acquired). It is argued that agency

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cost is inversely related to a firm's proportion of assets in place. This is because wealth transfers are more difficult with assets that are already owned than with growth opportunities. Therefore firms with a relatively low proportion of assets in place (hence with high agency cost) will seek to minimise their agency cost. Thus Hypothesis H2 is formulated as follows:

H2:   Firms that voluntarily disclose cash flow information are more likely to have a lower proportion of assets in place than those firms that do not disclose such information.

4.1.3   Financial leverage

Another component of the agency cost is the agency cost of debt. Watts (1977) reiterates this point and argues that agency cost, among other things, is a function of the amount of corporate debt outstanding. As leverage increases, lenders and shareholders may demand more information in order to assess the probability of a firm meeting its debt obligations (Jensen and Meckling, 1976). While holders of private debts may resort to private contracting for additional information, shareholders and holders of public debt depend on public disclosure of information. Hence, regardless of the type of debts raised by the firm, the demand for additional information by shareholders and holders of public debts will increase with the level of leverage.

Similar to the preceding discussion on the means to reduce the agency cost of equity, agency cost of debt can also be decreased by voluntary disclosure of additional information by the firms concerned. Cash flow information is certainly important and useful information in assessing corporate financial flexibility, solvency and liquidity (Cassino, 1987;

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Flanagan, 1992; Lee, 1992; Wise and Wise; 1988). Thus the provision of cash flow information will facilitate creditors', shareholders', lenders', and analysts' assessment of a firm's ability to meet its debts.

Based on previous empirical studies a strong association is found in voluntary disclosure of segment information and financial leverage of New Zealand listed companies (Bradbury, 1992); moderate support in the relationship between financial leverage and voluntary lease disclosure (Bazley et al, 1985), voluntary Value-Added Statements (Gay et al, 1993), and voluntary disclosure of interim reports (Leftwich, Watts & Zimmerman, 1981). McKinnon and Dalimunthe (1993) however, found no significant relationship between financial leverage and voluntary disclosure of segment information by Australian companies.

Hence, the financial leverage hypothesis is formulated as follows:

H3:   Firms that voluntarily disclose cash flow information are more likely to have higher leverage ratios than those firms that do not disclose such information.

4.2   Political cost variables

Firms that are politically sensitive are expected to bear higher political cost than those firms that are non-politically sensitive. Deegan and Carroll (1993) highlight five main attributes of the firms which suggest the existence of high political cost. This summary is based on their review of previous empirical studies on political cost. Politically sensitive firms are likely to exhibit:

(1)   large size;

(2)   high rate of return (profitability);

(3)   high market concentration;

(4)   high effective tax rates; and

(5)   high media visibility. (Deegan & Carroll, 1993 p. 222)

Deegan and Carroll (1993) view that "it is very likely that the above attributes will be highly correlated" (p. 222). This study summarises and develops a political sensitivity framework involving only three variables, namely firm size, market concentration, and profitability. Based on this framework, a positive relationship is expected between the level of political sensitivity of firms and the incidence of voluntary disclosure of cash flow information. Furthermore, since the literature has revealed that traditional cash flow measures give similar news or signals to that of earnings. Conversely, more refined cash flow measures provide a different, and perhaps a better picture of the state of affairs of the firms that earnings figure or the traditional cash flow measures.

Thus, this study hypothesises that a larger firm, or a firm with high market concentration ratio, or a firm with high profitability ratio would voluntarily disclose cash flow information in order to mitigate or reduce the political cost incurred by them. These hypotheses are formulated, as suggested by the literature, on the premise that large amount of net profit or high market concentration ratio or high profitability ratio may not correlate with large amount of positive cash flows. The following discussion will elaborate on each of the political cost variables.

4.2.1 Firm size

The majority of previous empirical studies have found that the level of voluntary disclosure of financial information by firms is related to their size, that is the larger the firms, the greater incidence and/or greater motivation for voluntary disclosure (Bazley et al, 1985; Deegan & Hallam, 1991; Bradbury, 1992; Gay et al, 1993; McKinnon & Dalimunthe, 1993). In this study, it is hypothesised that firm size is positively correlated with the incidence of voluntary disclosure of cash flow information.

There are three plausible reasons for size to be an important explanatory variable in this study. First, the proprietary cost explanation as suggested by Craswell and Taylor (1992) and Firth (1979). Basically, it is hypothesised that the collection and dissemination of cash flow information is costly and large firms are likely to be able to devote more resources to it and utilise any economies of scale that may exist. Conceivably, smaller firms may be competitively disadvantaged due to their fuller cash flow information disclosure as compared to the other larger firms in the industry.

The positive relationship between size and voluntary disclosure may also be due to the demand for cash flow information by analysts. It is a market phenomena that larger firms attract more attention from analysts for private information than the smaller firms, and in this case for information about the firms' cash flows (Schipper, cited in McKinnon and Dalimunthe, 1993). It is argued that firms that voluntarily disclose cash flow information may gain two benefits from it. First, Diamond (1985) maintains that from the cost/benefit analysis, fuller disclosure by the firms eliminates the need for the analysts to collect the cash flow information by

themselves at greater cost. Second, where there is demand for financial information (as is the case for cash flow information), its non-disclosure is more likely to be interpreted as bad news by the analysts and hence adversely affect the firm value (Verrecchia, 1983).

The final reason for size to be an important explanatory variable is due to the relationship between size and political visibility. Watts and Zimmerman (1978) assert that a firm's political visibility is an important determinant of management's choice of accounting policy. Thus, larger firms - that is, politically visible - choose or make accounting policy that they believe will reduce the political cost as reflected by the amount of public criticism and / or government intervention in their affairs. Thus, for larger firms it is hypothesised that they will voluntarily disclose cash flow information with the aim of reducing their political visibility. In addition, Craswell and Taylor (1992) suggest that firms that are susceptible to political cost will disclose additional information as a means of enhancing their corporate image.

The results of the firm size variable should be interpreted carefully as forewarned by Bazley et al. (1985) and Gay et al. (1993). This is because there is lack of strong evidence that firm size is correlated with political visibility, and because it can also proxy for other variables. This assertion is based on the arguments that the link between firm size and political cost is tenuous due to "sketchy" theories linking firms size with political processes (Holthausen and Leftwich, 1983). Furthermore, Ball and Foster (1982) and Leftwich et al. (1981) argue that firm size may be a surrogate for other factors such as competitive advantage, information production cost, management ability and advice, political cost, management compensation scheme, mix of public and private debt, and leverage.

Thus in this study it is noted that there may be several rather than a single explanation for a size - voluntary disclosure relation (McKinnon and Dalimunthe, 1993). As an example, in terms of cash flow information, both small and large firms collect such information for internal planning and control purposes.

Therefore, Hypothesis H4 is formulated as follows :

H4:   Firms that voluntarily disclose cash flow information are more likely to be larger than those firms that do not disclose such information.

4.2.2 Market concentration

Market concentration refers to the relative size of the firm in a particular industry within which it operates. Thus the larger the firm is relative to its industry, the higher its concentration (Deegan & Carroll, 1993). Wong (1988) describes firms that have high market concentration ratios to be firms that enjoy 'monopolistic' share of the market. In view of this, Hagerman and Zmijewski (1979) and Wong (1988) suggest that it is the larger firms within an industry that face high political cost.

Deegan and Hallam (1991), and Deegan and Carroll (1993) offer some explanation for this hypothesis. They contend that the potential for wealth transfers may exist because a relatively larger firm within an industry is more visible and allegedly in contravention of existing anti-monopoly legislation. The latter situation certainly would not be in the public interest. Further, the public may view with suspicion a firm with a high concentration ratio in an industry. This will possibly result in the firm

incurring high political cost, and thus risking potential negative wealth transfer.

Similar to the agency cost issue, one way of reducing the political cost faced by these politically sensitive or visible firms is to disclose additional useful information to the government and the public. This study hypothesises that voluntary disclosure of cash flow information by firms having high market concentration will mitigate the possibility of high political cost. Thus, based on the market concentration variable, Hypothesis H5 is formulated as follows:

H5: Firms that voluntarily disclose cash flow information are more likely to have higher market concentration ratios than those firms that do not disclose such information.

Previous empirical studies by Wong (1988), Deegan and Hallam (1991), and Deegan and Carroll (1993) have shown that there is a positive relationship between larger firms with high market concentration, and the voluntary adoption of accounting policy to reduce political cost.

4.2.3 Profitability

Firms with relatively high profitability ratios are deemed to be exhibiting high political visibility (Deegan and Hallam, 1991). This is because a high profitability ratio is an indication that a firm is earning excessive returns relative to other firms. This situation may in turn be used as an excuse for the government and / or the trade unions to intervene for wealth transfers away from the firm (Deegan and Hallam, 1991; Deegan and Carroll, 1993). Thus consistent with this theory, it can be argued that

firms with relatively high profitability ratios will disclose more information (cash flow data as hypothesised in this study), in order to minimise their political cost and also perhaps any undesirable interference from the government and / or the trade unions (Gay et al, 1993). Hence, it is expected that this variable is positively related with political sensitivity and in turn positively related to the incidence of voluntary disclosure of cash flow information. Hypothesis H6 is stated as follows:

H6:   Firms that voluntarily disclose cash flow information are more likely to have higher profitability ratios than those firms that do not disclose such information.

4.3   Control variables

In this study, two additional variables are tested to explain the incidence of voluntary disclosure of cash flow information by Australian listed companies. These variables are: exchange listing, and subsidiary relationship.

4.3.1   Exchange listing

Based on the literature review in the course of this study, no published study has formulated and / or tested the 'exchange listing' variable. In view of the globalisation of the securities market, and with the active promotion of International Accounting Standards by the IASC and the IOSCO as a measure to improve cross-cultural and cross-national harmonisation of financial statements, this study hypothesises that this variable has an important role in motivating firms to voluntarily disclose cash flow information.

It is argued, Australian firms that are also listed in other countries where cash flow disclosure is already mandatory, for example the USA, Canada and New Zealand (in contrast to the situation in Australia) will follow suit and thereby disclose cash flow information in their annual reports to the Australian market. This is over and above the disclosure requirements of the Australian regulations.

Those Australian firms that voluntarily disclose cash flow information as a matter of complying with the overseas market listing requirements stand to benefit from their voluntary policy. One such benefit is that the local Australian market including investors, analysts, and perhaps also the regulators may favourably perceive the firms' behaviour. This would in turn reduce the agency cost and the political cost of the said firms. Thus, the non-discriminatory action of the firms will be to the firms' own advantage. The exchange listing hypothesis is expected to be positively related to the incidence of voluntary cash flow information disclosure, and it is stated as follows:

H7:   Firms that voluntarily disclose cash flow information are more likely also to be listed in Canada or New Zealand or the USA than those firms that do not   disclose such information.

4.3.2   Subsidiary Relationship

Based on the literature review, two studies have tested this subsidiary relationship. Bazley et al. (1985) found that voluntary disclosure of lease information was related to whether the lessee had a foreign parent. Gay et al. (1993) use the same analysis in their study and found that the

relative frequency of voluntary disclosure of a Value Added Statement is related to whether the company is a subsidiary of a UK company.

It should be noted though that both the above studies hypothesised that such a relationship exists because the subsidiaries are likely to adopt the same practices of their parents (Bazley et al., 1985; Gay et al., 1993). Thus in this study, it is also hypothesised that Australian subsidiaries of overseas parents in Canada or New Zealand or the USA (where cash flow reporting is mandatory) are likely to voluntarily disclose cash flow information too.

Firms that are subsidiaries of overseas parents in Canada or New Zealand or the USA will certainly benefit from voluntarily disclosure of cash flow information. This is because such practices would be perceived favourably by external parties including the Australian investors, analysts, and perhaps also the government through its regulators. This favourable perception may in turn further benefit the firms as it may result in lower agency cost and lower political cost to the firms (McKinnon & Dalimunthe, 1993). Thus, Hypothesis H8 is stated as follows:

H8:   Firms that voluntarily disclose cash flow information are more likely to be subsidiaries of foreign parent companies in Canada or New Zealand, and the USA than those firms that do not disclose such information.

4.4   Summary

In summary, this chapter presents the research hypotheses that are believed to be relevant in this study. It is hypothesised that a firm with high agency cost, that is a firm with (1) widely held shareholding, (2) low proportion of assets in place, and (3) high financial leverage, would voluntarily disclose cash flow information to meet the demand for such information. Furthermore, it is also hypothesised that politically visible firm, that is a firm with (4) large amounts of net profit, (5) high market concentration ratio, and (6) high profitability ratio would voluntarily disclose cash flow information because cash flow information do not correlate with accrual earnings figures reported. Finally, this study hypothesises that a firm would voluntarily disclose cash flow information if it is (7) also listed in the Canada or New Zealand or the USA stock exchange, and (8) a subsidiary of an overseas parent in Canada or New Zealand or the USA. In the next chapter, the explanatory variables will be defined and the measures to be used as proxies for these variables will also be formulated. In addition, a brief description of the statistical techniques to be used in this study is presented.

CHAPTER 5
RESEARCH METHODOLOGY

5.0   The Research Question

The purpose of this study is to investigate the economic incentives of Australian listed companies to voluntarily disclose cash flow information in their Annual Reports in 1990. Based on contracting theory as the theoretical framework of this study, it is hypothesised that the results will explain the observed phenomenon in terms of firm-specific characteristics of accounting policy choice by Australian firms.

5.1   Sample Selection

This study is a cross-sectional study of financial reporting practices of cash flow information for firms in 1990. The year 1990 was chosen as the year of study in order to avoid the possible confounding effect of the release of ED 52 in May 1991. In order to compensate for the possible limitation of examining only one year reporting practices of firms, and also due to the lack of any published analysis of cash flow reporting practices prior to this study, the whole AGSM File of 1990 was examined in the sampling design. The possibility of a small number of firms that had voluntarily disclosed cash flow information in 1990, and the time constraint faced in undertaking this study contributed to the approach taken to examine the whole 1990 AGSM File.

The AGSM File consists of the top 500 listed companies in Australia by market capitalisation. The AGSM File that has been used in this study is housed at the Edith Cowan University, Churchlands' campus library.

The sampling design of this study is of two phases. First, companies that voluntarily disclosed cash flow information in 1990 was selected from the AGSM File to form the treatment group. Second, the control group of this study comprises of companies that did not disclose such information. This group was randomly selected from the same population frame. Based on a set ratio of companies in the treatment group and the control group of at least 1:8, the total number of firms in the sample is 172, that is 18 firms in the treatment group, and 154 firms in the control group. Refer to Appendix 2 for the list of the sampled companies in the treatment and the control groups of this study.

5.2   Data sources

A total of 172 firms were selected to form the sample of this study. The population of this study is the firms that are listed on the Australian Stock Exchange in 1990. In order to facilitate data collection and sample selection, the population frame used is the Australian Graduate School of Management (AGSM) Annual Reports Microfiche File of 1990.

This study also acknowledges the limitations of the AGSM File. Deegan and Carroll (1993) note that the AGSM File only consists of the top 500 Australian listed companies by market capitalisation. Thus the results of this study may be more specific to larger firms. Bazley et al. (1985) cite further reservations about the AGSM File. Among others, the file does not include large private companies and allowance has not been made for the different accounting methods used by companies in arriving at balance sheet and profit and loss figures.

From the AGSM File the following information were gathered for all companies in the sample:

(1)   Company name;

(2)   Net profit after tax before extraordinary items;

(3)   Net income before interest and tax;

(4)   Total liability;

(5)   Total tangible assets;

(6)   Total assets;

(7)   Total book value of fixed assets;

(8)   Percentage of shares held by top 20 shareholders;

(9)   Foreign listing status in Canada or New Zealand or the USA (if any); and

(10)   Indication whether the company is a subsidiary of foreign parent companies in Canada or New Zealand or the USA.

There were other sources of data that were utilised to gather information relevant in this study. These other sources and the information collected were as follows.

Industry Classification Report 1990 prepared by the ASX Research Pty Ltd (1990) was used to determine the industry of the sample companies in accordance with the scheme in use by the Australian Stock Exchange (ASX) in 1990. These industry classifications are listed in Table 5.1.

The Stock Exchange Financial and Profitability Study 1992 Report was another source of data. Information gathered from this study is the various industries' net profit after tax before extraordinary items for 1990. This report was published by ASX Research Pty Ltd (1992) and it was

TABLE 5.1

AUSTRALIAN STOCK EXCHANGE (ASX)

INDUSTRY CLASSIFICATION 1990

Alcohol & Tobacco

Banking & Finance

Building Materials

Chemicals

Developers & Contractors

Diversified Industrials

Diversified Resources

Engineering

Entrepreneurial investors

Food & Household

Gold

Insurance

Investment & Financial Services

Media

Miscellaneous Industrials

Miscellaneous Services

Oil & Gas

Other Metals

Paper & Packaging

Property Trusts

Retail

Solid Fuels

Transport

based on a survey of the top 500 listed companies in Australia. Hence, similar to the AGSM File, this report too has the possible drawback of only surveying the larger companies. Nevertheless, there seems no reason to believe that the industry figures reported therein were not representative of each industry.

Finally, the January 1991's issue of the Reserve Bank of Australia Bulletin (1991) was referred to in determining the relevant end-of-month exchange rates. This piece of information is important because it has been discovered that the sample companies contained a number of foreign companies. These companies, whilst listed in Australia, were not required by the ASX and the ASC to lodge financial statements in Australian currency. In fact, the financial statements of these foreign companies were stated in their home country currencies. Though a few companies included converted financial statements in Australian currency as supplements in their annual reports. Thus, this situation posed a problem to this study as all other companies in the sample had their financial statements stated in Australian currency. In order to overcome this problem, the relevant financial information of these foreign companies were converted to Australian currency using the prevailing exchange rates on the date of the financial statements concerned. Thus, the RBA exchange rates were used for the conversion exercise primarily because of the position of RBA as the central bank of Australia.

5.3   Definition of Variables

In this section, the definition and the measurement of the dependent and the independent (explanatory) variables are discussed.

5.3.1 Dependent Variable

There is only one dependent variable that is the focus of this study, namely the disclosure of cash flow information. This variable is measured by a dichotomous dummy variable. Companies that provided cash flow information were given a value of 1 while those that did not were given a value of 0. This study foresees one possible limitation of the dummy variable used to measure the dependent variable.

From the review of the financial reports of the treatment and the control groups that were obtained from the AGSM File, it is found that the description and format of the cash flow information varied between companies. For example there are the direct and indirect methods of presentation, and some firms only disclosed a one-line statement. Review of the annual reports of the companies in the treatment group reveals that 14 companies presented the full Cash Flow Statement (11 used the indirect method; three used the direct method), one company presented Cash Flow Statement - Joint Venture Basis, and four companies presented narrative form (that is, one-line statement) of cash flow information. Appendix 1 presents examples of the various formats of presentation.

The number of alternative formats used and the small sample size of the disclosers make statistical analysis which could classify discloser firms according to the format of presentation rather difficult. In order to make the data more manageable, all the alternative presentation have been treated as functionally equivalent. This of course represents a limitation of the study because although the general information content is similar, the rationale for inclusion and the detailed content may not be the same (Gay et al., 1993).

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5.3.2 Independent (Explanatory) Variables

In this study, there are eleven explanatory variables to be tested. The definition and measurement of each variable follows. Table 5.2 presents a summary of variables employed in this study.

(1) Ownership diffusion (ODIFF)

As ownership diffusion is a measure of how widely the shares of the firms are held, the variable is defined and measured as: percentage of ordinary shares held by other than the top 20 shareholders of the firm. This is consistent with the measurement used by McKinnon and Dalimunthe (1993).

(2) Proportion of Assets in Place (PAIP)

Consistent with the proxy employed by Chow and Wong-Boren (1987), Leftwich et al. (1981) and Bradbury 1992, the measure used for a firm's proportion of assets in place is ascertained by dividing the firm's book value of fixed assets (net of depreciation) by its total assets (net of depreciation).

(3) Leverage (LEV)

This variable has also been measured by different alternatives. Previous studies have used book value of debt divided by firm size (Bradbury, 1992), long term liability divided by total assets less current liabilities (Wong, 1988), and debt divided by assets (Anderson and Zimmer, 1988). McKinnon and Dalimunthe (1993) however used a different measure for the proxy leverage. Their measurement was based on the findings of the surveys of restrictive covenants in public debt issues in Australia conducted by both Whittred and Zimmer (cited in McKinnon and

TABLE 5.2

DESCRIPTION OF VARIABLES

Variable name (expected sign)	Description
Dependent variable	
CFLOW (n.a.)	Voluntary disclosure of cash flow information by firm i in 1990; 0 = non-discloser, 1 = discloser
Independent variable	
Agency costs	
ODIFF (+)	% of ordinary shares held by other than the top 20 shareholders in 1990
PAIP (-)	Firm book value of fixed assets (net of depreciation) divided by its total assets
LEV (+)	Firm total liabilities (excl. contingent liabilities) divided by its total tangible assets
Political costs	
SIZE (+)	Net profit after tax before extraordinary items
MCON (+)	Firm net profit after tax divided by industry's net profit after tax
PROF (+)	Net income before interest and tax divided by total assets
Control variables	
EXCH (+)	Firm overseas listing status in New Zealand or Canada or the USA; 0 = not listed; 1 = overseas listed
SUBS (+)	SUBS = 1 if firm is a subsidiary of overseas parent in New Zealand or Canada or the USA; else SUBS = 0

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Dalimunthe, 1993) and Stokes and Tay (cited in McKinnon and Dalimunthe, 1993). Thus, consistent with McKinnon and Dalimunthe (1993), the measure used for the firm's leverage is the firm's total liabilities (excluding contingent liabilities) divided by the firm's total tangible assets.

(4)   Size (SIZE)

A review of previous studies reveals that there is a number of alternative measures used to proxy for size, for example total assets (Hagerman and Zmijewski, 1979), total book value of assets (Anderson and Zimmer, 1988), sum of market value of equity and the book value of debt (Bradbury, 1992), market capitalisation and net income after tax and before extraordinary items (Wong, 1988). Deegan and Hallam (1991) note that it is likely that all of these measures are highly correlated. Thus, there is no reason to choose one measure of size over another as no proxy for size should outperform another (Hagerman and Zmijewski, 1979). However, Watts and Zimmerman (1986 p. 239) suggest that as the size hypothesis is based on a political cost argument which involves the proposition that there is competition for wealth transfers, a proxy which takes into account the relative magnitude of positive and negative wealth transfers, that is, net income, may be a better proxy of political cost than gross sales for example.

Therefore, consistent with Deagan and Hallam (1991), Deegan and Carroll (1993), and Wong (1988), the proxy employed in this study is net profit after tax and before extraordinary items.

(5)   Market concentration (MCON)

As concentration is an intra-industry comparison of size, the proxy used in this study is based on the contribution the firm makes to the sales of the industry. This ratio is measured by dividing the firm's net profit after

tax before extraordinary items by the industry's net profit after tax before extraordinary items. This measurement is consistent with the one employed by Deegan and Hallam (1991), Deegan and Carroll (1993), and Wong (1988).

(6) Profitability

As with Deegan and Hallam (1991), Deegan and Carroll (1993), and Wong (1988) the measure used for a firm's profitability is by dividing the firm Net income before interest and tax by its total assets.

(7) Exchange listing (EXCH)

Firms were classified as to whether or not they were listed in Canada or New Zealand and or the USA. As this is a dummy variable, firms were allocated a value of 1 if they were listed in Canada or New Zealand or the USA, and 0 if they were not listed in any of those countries.

(8) Subsidiary relationship (SUBS)

SUBS is a dummy variable to represent whether or not the firm is a subsidiary of a foreign listed firm in Canada or New Zealand or the USA. Thus, firms were given a value of 1 if they were subsidiaries of such overseas parents, and 0 if otherwise.

5.4 Methodology

A between groups experimental design was used to test the research hypotheses. Both univariate and multivariate testing was employed to test for a relationship between the proxies and the incidence to voluntarily disclose cash flow information. The univariate tests employed will be the

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one tailed t-tests, non-parametric Mann-Whitney U-test, and chi-square test for nominal variables.

The multivariate tests used in this study were logistic regression analysis and OLS multiple regression. The logistic and OLS regression models can be expressed as follows:

$$y(0,1) = \alpha 1 + \beta 1 \text{ Ownership diffusion level} + \beta 2 \text{ Proportion of Assets}$$
$$\text{in Place} + \beta 3 \text{ Leverage} + \beta 4 \text{ Size} + \beta 5 \text{ Market concentration}$$
$$+ \beta 6 \text{ Profitability} + \beta 7 \text{ Exchange Listing}$$
$$+ \beta 7 \text{ Subsidiary Relationship}$$

where

α is a constant value

$y(0,1)$ is the dependent variable taking the value (1) if the firm
voluntarily disclosed cash flow information and (0) otherwise

βn represents the coefficient of the explanatory variables

5.5   Summary

In summary, this chapter elaborates the research question, defines the relevant research variables, and describes the sample selection, the data sources and the methodology of this study. In the next chapter, this data will be tabulated, cross-tabulated and tested for underlying univariate characteristics which discriminate between cash flow information disclosers and non-disclosers. Further, multivariate logistic and OLS regression analyses will also be performed to discover if the explanatory variables can be used collectively to predict whether or not a firm will disclose cash flow information.

CHAPTER 6
EMPIRICAL RESULTS

6.0   Sample characteristics

It is noted earlier that the objective of this study is to examine the economic incentives motivating Australian listed companies to voluntarily disclose cash flow information in their 1990 annual reports. In this context, the primary statistical analysis will be on the difference, if any, in the explanatory variables between cash flow disclosers (treatment group) and non-disclosers (control group). In addition, two other statistical analyses - bivariate correlations and regression analyses - will be performed to supplement the univariate analysis. The results of these analyses will help to either accept or reject the hypotheses set out in this study.

All the relevant data for this study have been successfully collected except for one company which does not have an ODIFF variable. This missing value has been ignored when the analyses are performed. It is believed however, that the procedure taken would not significantly affect the results of the analyses.

The statistical analyses were performed using the statistical software package "SYSTAT" ("SYSTAT", 1989) and also "SPSS" ("SPSS", 1990). The objective of performing the analyses using two different packages is to enable counter-checking. Though, the results obtained from both packages are identical.

Industry classifications of the sample firms are reported in Table 6.1. All but two industries - Alcohol and Tobacco, and Diversified Resources -

TABLE 6.1

SAMPLE COMPANIES CLASSIFIED BY INDUSTRY

Industry	Treatment Group	Control Group	Total
Banking & Finance	0	3	3
Building Materials	0	4	4
Chemicals	1	0	1
Developers & Contractors	0	8	8
Diversified Industrials	0	6	6
Engineering	0	6	6
Entrepreneurial Investors	1	3	4
Food & Household	0	4	4
Gold	4	23	27
Insurance	0	1	1
Investment & Financial Services	1	22	23
Media	0	3	3
Miscellaneous Industrials	1	12	13
Miscellaneous Services	2	16	18
Oil & Gas	2	9	11
Other Metals	3	10	13
Paper & Packaging	2	2	4
Property Trusts	0	5	5
Retail	1	10	11
Solid Fuel	0	3	3
Transport	0	4	4
Total	18	154	172

were represented in the sample. In addition, the firms that had voluntarily disclosed cash flow information , that is the treatment group, were from ten industries. The gold industry was heavily represented both in the treatment and control groups. Because of the small expected frequencies in at least 70% of the cells, it is rather inappropriate to perform the Chi-Square distribution test to assess for any significant association between industry membership and the decision to disclose cash flow information. Furthermore, this study does not expect the existence of such a relationship or association based on the inconclusive evidence, from previous studies, concerning industry effect on accounting policy choice (Gay et al., 1993).

6.1   Descriptive statistics

Table 6.2 shows the descriptive statistics for the sample (treatment and control groups) in relation to the explanatory variables used to test the hypotheses. The descriptive statistics indicate skewness in all of the explanatory variables resulting in the mean and the median having different values. This analysis was supplemented and confirmed by graphically examining the distribution of all variables using box-whisker plots, histogram and scatterplots. From these analyses, several outliers were identified. Whilst the variables ownership diffusion (ODIFF), proportion of assets in place (PAIP), leverage (LEV) and firm size (SIZE) were positively skewed, the variables market concentration (MCON) and profitability (PROF) were negatively skewed. These findings indicate that the variables were not normally distributed.

Bradley (cited in Tabachnik and Fidell, 1989) reports that statistical inference becomes less and less robust as distributions depart from normality. Thus there is a need to transform the variables to make them

normally distributed. Tabachnik and Fidell (1989) assert that transformation is a remedy for outliers, non-normality, non-linearity, and heteroscedacity. In this study, transformation is appropriate since one of the statistical analysis that has been proposed to perform is the test of mean differences, specifically the student's t-test. Only if the variables were normally distributed that mean is a good measure of central tendency. Furthermore, since this study also proposes to perform multivariate analysis, multivariate normality should be achieved beforehand (Tabachnik and Fidell, 1989).

Erickson and Nosanchuk (1992) discuss transformations using Tukey's ladder of transformations which would normalise the variables' distributions. Tabachnik and Fidell (1989) suggest that "often you need to try first one transformation and then another until you find a transformation that produces skewness and kurtosis values nearest to zero or the fewest outliers" (p. 84). Basically, transformation of variables is a trial-and-error process.

Thus in this study all explanatory variables, except categorical variables - EXCH and SUBS - were transformed to normalise their distributions. Through the trial-and-error process of transformation, square-root transformation were employed for the variables ownership diffusion (ODIFF), proportion of assets in place (PAIP), leverage (LEV), and profitability (PROF). As for the variables firm size (SIZE) and market concentration (MCON), natural logarithmic transformations were employed. Prior to the transformations, firms with negative values in these variables were assigned a minimum value of one, yielding a natural logarithm or a square-root measure of one (Deegan and Hallam, 1993).

TABLE 6.2

SUMMARY STATISTICS AND UNIVARIATE TESTS OF THE RELATION BETWEEN
EXPLANATORY VARIABLES AND THE VOLUNTARY DISCLOSURE OF CASH FLOW INFORMATION

Hypothesis	Variable	Descriptive statistics		Test variable	Univariate tests		t-test (1-tailed prob)	Mann-Whitney (1-tailed prob)
		(1) Treatment Mean Median Std.dev. (n=18)	(2) Control Mean Median Std.dev. (n=154)		(1) Treatment Mean Median Std.dev. (n=18)	(2) Control Mean Median Std.dev. (n=154)		
1. (1) > (2)	ODIFF	26.141 20.755 17.933	22.482 18.350 16.071	Sqrt(ODIFF)	4.832 4.554 1.719	4.464 4.283 1.604	0.865 (0.396)	1224.5 (0.419)
2. (1) < (2)	PAIP	41.705 43.390 20.740	30.289 24.075 27.252	Sqrt(PAIP)	6.217 6.587 1.797	4.717 4.906 2.844	3.115 (0.004)	942.0 (0.026)
3. (1) > (2)	LEV	54.045 53.317 27.191	48.908 44.069 45.259	Sqrt(LEV)	7.146 7.301 1.776	6.362 6.638 2.914	1.634 (0.112)	1131.0 (0.202)
4. (1) > (2)	SIZE	140315.667 18943.000 247895.582	17721.942 1532.000 73574.570	Ln(SIZE)	8.364 9.844 5.048	5.878 7.334 4.397	2.002 (0.029)	919.0 (0.019)
5. (1) > (2)	MCON	1057.582 95.566 8377.906	-419.267 20.591 4003.059	Ln(MCON)	3.770 4.555 3.450	3.046 3.024 2.812	0.857 (0.401)	1320.0 (0.741)

TABLE 6.2 (Continued)

SUMMARY STATISTICS AND UNIVARIATE TESTS OF THE RELATION BETWEEN
EXPLANATORY VARIABLES AND THE VOLUNTARY DISCLOSURE OF CASH FLOW INFORMATION

| Hypothesis | Variable | Descriptive statistics | | Test variable | Univariate tests | | t-test (1-tailed prob) | Mann-Whitney (1-tailed prob) |
		(1) Treatment Mean Median Std.dev. (n=18)	(2) Control Mean Median Std.dev. (n=154)		(1) Treatment Mean Median Std.dev. (n=18)	(2) Control Mean Median Std.dev. (n=154)		
6. (1) > (2)	PROF	7.047 8.499 6.674	2.364 7.539 27.001	Sqrt(PROF)	2.645 2.913 1.015	2.647 2.745 1.325	-0.007 (0.994)	1316.0 (0.726)
		Mean Mode Std. dev.	Mean Mode Std. dev.					χ2 test (prob)
7. (1) > (2)	EXCH	0.833 1.000 0.383	0.052 0.000 0.223					84.945 (0.000)
8. (1) > (2)	SUBS	0.000 - 0.000	0.032 0.000 0.178					0.602 (0.438)

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The results of these transformations as reflected in Table 6.2 substantially reduced the skewness and kurtosis; the means and medians have become almost identical. Graphical examinations of the transformed variables via box-whisker plots and histograms, reveal similar results ; that is, the explanatory variables have become normally distributed and with less outliers.

6.2 Univariate analysis

In this section each of the explanatory variables was tested for differences between groups. For continuous variables, the parametric two independent sample students' t-test was performed and supplemented by the non-parametric Mann-Whitney U-test. Transformed variables were used for the t-test, whilst untransformed variables were used for the Mann-Whitney U-test. The t-test is a statistical technique used to determine if there are any significant differences in the means for two groups in the variables of interest. The Mann-Whitney U-test is analogous to the two independent sample t-test. However, the U-test tests for any significant differences in the rank sums, rather than the means for two groups in the variables of interest. For categorical variables, Chi-Square tests were employed to test for any significant relationship between the variables and the firms disclosures of cash flow information.

Table 6.2 summarises the statistical analyses and the results. The significance level was set at 0.05. In view of the fact that the hypotheses in this study are in uni-directional form, the probability levels reported in Table 6.2 are thus one-tailed probabilities. The discussion on the univariate analysis will be limited to the results revealed through the t-test. Table 6.2

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reveals that the inferences drawn from the results of U-tests are similar to that of the t-tests.

6.2.1 Separation of ownership and control [Sqrt(ODIFF); H1]

The difference in the means of the treatment and control subsamples is the hypothesised direction. A t-test showed no significant differences in the ownership diffusion levels between the disclosers and the non-disclosers of cash flow information (t = 0.865; p = 0.198). Thus hypothesis H1 is not substantiated and can be rejected. This result suggests that the percentage of ordinary shares held by other than the top 20 shareholders are identical between firms that voluntarily disclosed cash flow information and those that did not.

6.2.2 Proportion of assets in place [Sqrt(PAIP); H2]

Table 6.2 reveals a finding that is contrary to this study's expectation with respect to the variable proportion of assets in place (PAIP). The difference in the means of the treatment and control groups is not significant in the hypothesised direction. That is, firms that did not disclose cash flow information had lower levels of proportion of assets in place than those that voluntarily disclosed cash flow information. However, a t-test showed significant differences between the mean score of 6.217 for treatment group and that for control group of 4.717 (t = 3.115; p = 0.002). Even though the result showed significant differences, hypothesis H2 can not be accepted because the differences in the mean scores are not in the hypothesised direction.

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A possible explanation to the contrary finding of direction of the mean scores between the treatment and control subsamples is that the treatment subsample consists of firms that lie in the right end of the distribution curve of all firms. That is, these firms were the largest in terms of total assets and fixed assets among the other firms in the population.

6.2.3 Leverage [Sqrt(LEV): H3]

The third hypothesis deals with the variable leverage. It is hypothesised that firms which voluntarily disclosed cash flow information in their 1990 annual reports were more likely to have higher leverage ratios than those firms that did not. No significant mean differences in the leverage ratios between the treatment and control groups were found through the use of a t-test analysis (t = 1.634; p = 0.056). Thus this hypothesis is also not substantiated and can not be accepted. Interestingly though, the result shows the differences approaching significance.

6.2.4 Size [Ln(SIZE): H4]

The means differences of the treatment and control subsamples are in the hypothesised direction with respect to the variable of firm size; consistent with expectations. In addition, and more importantly, a t-test showed significant differences between the mean natural logarithm size of 8.364 for treatment group and that for control group of 5.878 (t = 2.002; p = 0.029). Thus this hypothesis can be accepted. Disclosers of cash flow information in 1990 annual reports were larger in size (in terms of net profit after tax before extraordinary items) than non-disclosers.

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6.2.5 Market concentration [Ln(MCON): H5]

Hypothesis H4 states that firms that voluntarily disclose cash flow information are more likely to have higher market concentration ratios than those that do not. Although the mean differences between the disclosers (mean = 3.770) and the non-disclosers (mean = 3.046) are in the hypothesised direction, no significant mean differences were found through the use of a t-test analysis (t = 0.857; p = 0.201). Thus this hypothesis can not be accepted.

6.2.6 Profitability [Sqrt(PROF): H6]

Table 6.2 reveals another result of the variable firm profitability that is contrary to this study's expectations. It is hypothesised that firms in the treatment group would have higher profitability ratios than those in the control group. While the descriptive statistics of the untransformed profitability variable support the direction of the hypothesis, this is not the case when the transformed variable was used.

No significant mean differences in the profitability ratios of disclosers and non-disclosers were found through the use of a t-test analysis (t = 0.007; p = 0.497). As a counter check, the result of the U-test indicates a similar conclusion. This hypothesis is not substantiated and therefore, can not be accepted.

6.2.7 Overseas exchange listing [EXCH: H7]

Hypothesis H7 states that there is a relationship between a firm's decision to voluntarily disclose cash flow information and its status as being

also listed in Canada or New Zealand or the USA. The result of a Chi-Square test employed substantiated H7. There is a significant relationship ($\chi2 = 84.945$; $p = 0.001$) indicating that firms that were also listed in Canada or New Zealand or the USA, where mandatory cash flow reporting has been in place earlier than in Australia, were also disclosers of cash flow information in Australia. However, the cross-tabulation of both variables revealed that in certain cells the frequencies were small, and thus made the preceding result suspect. In order to compensate for this, a Fisher Exact Probability test was performed. It is a test that is more useful than Chi-Square test where expected frequencies are small as in this case. The result ($p = 0.001$) support the inference drawn from the earlier Chi-Square test. Thus this hypothesis is substantiated and can be accepted.

6.2.8 Subsidiary relationship [SUBS: H8]

The final univariate analysis is the test whether or not there is any significant relationship between a firm's decision to voluntarily disclose cash flow information and its status as a subsidiary of a foreign parent company in Canada or New Zealand or the USA. A Chi-Square test was employed to test this hypothesis. No significant relationship was found to support the hypothesis ($\chi2 = 0.602$; $p = 0.219$). Hence H8 can not be accepted,

6.3 Correlations among independent variables

A note of caution is appropriate at this juncture in interpreting the results of the preceding univariate analysis. Bazley et al. (1985) assert that:

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if the explanatory variables are independent of each other and also independent of any omitted variables, then a univariate analysis ... would suffice. However, we suspected [as does this study] there may have been some inter-dependence amongst these variables, which could necessitate a multivariate analysis. (p. 57)

However, prior to performing the multivariate regression analysis, it is important to examine the inter-correlations (or multicollinearity) between the independent variables. The resulting problem associated with multicollinearity is that "the computed estimates of the regression coefficients are unstable and their interpretation becomes tenuous" (Afifi and Clark, 1984 p. 147). Both the Pearson Product Moment correlation and the Spearman Rank correlation were performed. In view that both tests revealed similar results, only the results of Pearson Product Moment correlation are presented in Table 6.3.

Farrar and Gaulber (1967) contend that harmful levels of multicollinearity are not present until bivariate correlations reached 0.8 or 0.9. This is the same guidance proffered by Lewis-Beck (1987) when analysing for multicollinearity. In Table 6.3 none of the bivariate correlations reveal any correlation value of more than 0.7. Another measure to check for multicollinearity is the tolerance levels reported when OLS multiple regression is performed. The results of the OLS multiple regression in Table 6.5 also includes the tolerance levels. Wilkinson (1989) suggests that extremely small tolerances signal that the explanatory variables are highly intercorrelated. Conversely, high tolerance indicates that multicollinearity is not present. From these analyses, it would seem

TABLE 6.3

PEARSON PRODUCT MOMENT CORRELATION MATRIX
WITH PROBABILITIES IN PARENTHESES

Variable	Sqrt(ODIFF)	Sqrt(PAIP)	Sqrt(LEV)	Ln(SIZE)	Ln(MCON)	Sqrt(PROF)	EXCH	SUBS
Sqrt(ODIFF)	1.000 (0.000)							
Sqrt(PAIP)	-0.136 (0.074)	1.000 (0.000)						
Sqrt(LEV)	-0.147 (0.053)	0.130 (0.088)	1.000 (0.000)					
Ln(SIZE)	0.330 (0.000)	0.204 (0.007)	-0.066 (0.390)	1.000 (0.000)				
Ln(MCON)	0.1866 (0.014)	0.001 (0.987)	-0.032 (0.670)	0.361 (0.000)	1.000 (0.000)			
Sqrt(PROF)	0.143 (0.060)	0.122 (0.111)	-0.098 (0.199)	0.662 (0.000)	0.192 (0.011)	1.000 (0.000)		
EXCH	0.155 0.042	0.208 (0.006)	0.115 (0.133)	0.269 (0.000)	0.127 (0.097)	0.029 (0.704)	1.000 (0.000)	
SUBS	-0.171 (0.025)	0.021 (0.784)	0.003 (0.962)	0.138 (0.070)	0.064 (0.401)	0.101 (0.185)	-0.066 (0.386)	1.000 (0.000)

that multicollinearity is not present and thus pose no problem to test all explanatory variables in subsequent multivariate regression analysis.

6.4   Multivariate tests results

There are a number of multivariate statistical techniques available in the literature that can be employed in this study. The primary objective of performing a multivariate test is to explain the relationship between independent variables and the dependent variable, and also to predict the outcome based on certain levels of the independent variables. Examples of the available techniques are OLS multiple regression, logistic regression, probit analysis, and multiple analysis of variance (MANOVA).

In this study, the focus is on the logistic regression. This technique was chosen over the OLS regression because the dependent variable in this study is a dichotomous dummy variable with the value of either 0 or 1. Furthermore, OLS is more appropriate for models where all variables (dependent and independent) are measured on interval and / or ratio scales. The choice of logistic regression over the probit model is a matter of self preference, because both techniques yield similar statistical performance and similar results (Aldrich and Nelson, 1984). In addition, Afifi and Clark (1984), based on Steven's classifications (cited in Afifi and Clark, 1984), suggest the use of logistic regression in view of the characteristics of the variables in this study - "logistic regression is applicable for any combination of discrete and continuous variable" (p. 306).

Several previous accounting policy choice studies had employed the logistic regression including Ayres (1986), Bradbury, (1992), Chow (1982),

and Wong (1988). Based on a comparative study of OLS and logistic regressions, Stone and Rasp (1988) conclude that:

> whenever the functional form of the relationship is non-linear [as is usually the case in dichotomous accounting policy choice studies], using OLS rather than logit can result in higher misclassification rates, a number of meaningless probability estimates, and less powerful tests of parameter estimates. Given these problems ... logit rather than OLS ... be the preferable method ... even when sample sizes technically are not "large enough". (p. 184)

Nevertheless, OLS regression was also performed to cross check the results of logistic regression given that OLS regression performs as well as, and frequently better than probit analysis for sample size similar to those used in this study (Noreen, 1988).

6.4.1   Results of Logistic regression

Logistic regression is a multivariate statistical technique used to classify an observation into one of two populations. It regresses a dichotomous dependent variable on a set of independent variables. Logistic regression calculates Maximum Likelihood Estimates (MLE) for the parameters with each independent variables.

Table 6.4 presents the result of the logistic regression. The model Chi-Square ($\chi^2 = 59.237$; df = 8) computed to test the hypothesis that all parameters on the model are simultaneously equal to zero, is significant at the 0.001 level. Afifi and Clark (1984) contend that a large value of the Chi-

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TABLE 6.4

RESULTS OF THE LOGISTIC REGRESSION

Explanatory Variables	Expected Sign of Coefficient	Coefficient	t-Statistic	One-tailed Probability
Constant	+/-	-3.388	-1.675	0.046
Sqrt(ODIFF)	+	-0.163	-0.607	0.270
Sqrt(PAIP)	−	0.056	0.357	0.359
Sqrt(LEV)	+	0.024	0.161	0.436
Ln(SIZE)	+	0.016	0.119	0.452
Ln(MCON)	+	0.013	0.093	0.464
Sqrt(PROF)	+	-0.130	-0.282	0.389
EXCH	+	4.623	5.271	0.001
SUBS	+	-4.609	-0.171	0.432

Model Chi-Square = 59.237 (df = 8; p = 0.001)

Pseudo R^2 = 0.480

% correctly classified = 94.15

Square statistics (or a small p value), as in this result, indicates that the variables are useful in classifications. The model is also able to correctly classify 94.15% of the observations. To compare the strength of this logistic model with that of the OLS regression, a pseudo R^2 was calculated based on the formula developed by Aldrich and Nelson (1984). Table 6.4 reveals that the pseudo R^2 of this logistic model is equal to 0.480. When this figure is compared with the R^2 of the OLS model (R^2 = 0.524 in Table 6.5), it can be deduced that they are almost identical given that each model employs different methodology and assumptions (Aldrich and Nelson, 1984). As a comparison, previous accounting policy choice studies that employed logistic regression yielded lower strength of the models, for example Bradbury (1992) and Wong (1988).

Except for Sqrt(ODIFF), Sqrt(PAIP), Sqrt(PROF) and SUBS, the coefficients reported in Table 6.4 are in the predicted sign. Only the coefficient of EXCH is statistically significant (t = 5.2716; p = 0.001), whilst the other explanatory variables are not significant. The results of the logistic regression generally support the findings of the univariate analysis, particularly that the EXCH variable is the single most significant explanatory variable.

6.4.2   Results of OLS multiple regression

As noted earlier OLS multiple regression was performed as a check "because of a concern over using logistic regression with such a sample size" (Bradbury, 1992 p22). The OLS multiple regression yielded similar results with those of the logistic regression. Table 6.5 shows that the OLS model is statistically significant (F = 22.270; p = 0.001). Furthermore,

TABLE 6.5

RESULTS OF THE OLS MULTIPLE REGRESSION

Explanatory Variables	Expected Sign of Coefficient	Coefficient	Tolerance	t-Statistic	One-tailed Probability
Constant	+/-	0.064		0.763	0.223
Sqrt(ODIFF)	+	-0.008	0.771	-.0686	0.246
Sqrt(PAIP)	-	0.002	0.866	0.281	0.389
Sqrt(LEV)	+	0.000	0.943	-0.148	0.441
Ln(SIZE)	+	0.000	0.398	0.000	0.499
Ln(MCON)	+	0.000	0.856	0.036	0.485
Sqrt(PROF)	+	-0.004	0.529	-0.230	0.408
EXCH	+	0.664	0.837	12.238	0.000
SUBS	+	-0.031	0.916	-0.302	0.381

$R^2 = 0.524$

F-ratio = 22.270 ($p = 0.001$)

52.4% of the variations in firms' voluntary disclosure of cash flow information can be explained by the eight explanatory variables.

The OLS model also reveals and supports the findings of univariate analysis and logistic regression that the variable EXCH is the single most significant explanatory variable. The observed signs of the coefficients are also similar with those of logistic regression and univariate analysis.

6.5   Summary

This chapter deals with the statistical analyses of the variables in this study. In univariate analysis, the focus was on the two-sample independent students' t-test for continuous variables, and the Chi-Square test for categorical variables. The former test sought to determine any significant mean differences between firms that voluntarily disclosed cash flow information and those that did not. The latter test was performed to determine any significant relationship between firms that did or did not voluntarily disclose cash flow information and the foreign exchange listing status, and also foreign subsidiary status.

Subsequently, bivariate analysis was performed to examine the association among the explanatory variables, checking for any strong multicollinearity that would undermine the ensuing multivariate regression analysis. The specific techniques performed were the Pearson Product Moment correlation and the Spearman Rank correlation. In addition, the tolerance levels reported in OLS multiple regression were also analysed.

Finally, multivariate regression analysis was carried out because it is hypothesised that the explanatory variables might have been inter-

dependent and thus perhaps had overstated the findings of the univariate analysis. Two tests were performed, namely the logistic regression and the OLS multiple regression.

Prior to the above analyses, the explanatory variables were subjected to transformations to remedy the problems of non-normality, non-linearity and heteroscedacity of the variables.

Based on the univariate analyses, three explanatory variables were found to be statistically significant; namely firm size (SIZE), proportion of assets in place (PAIP), and foreign exchange listing status (EXCH). This suggests that firms which voluntarily disclosed cash flow information were larger in size, had a higher proportion of assets in place, and had their shares listed in Canada or New Zealand or the USA. The PAIP was positively associated with the firms presentation of cash flow information; a finding that is contrary to expectation. An explanation proffered is the fact that the firms in the treatment group were among the largest of the population. The variable financial leverage (LEV) was approaching significance implying firms in the treatment group had higher level of leverage than the firms in the control group. The other variables, ownership diffusion (ODIFF), market concentration (MCON), profitability (PROF) and subsidiary relationship (SUBS), were not significant.

Thus the incidence of firms that voluntarily disclosed cash flow information was not related to whether their shares were widely held; whether they had higher levels of market concentration ratios and profitability ratios; and whether they were subsidiaries of foreign parents in Canada or New Zealand or the USA.

A possible rationale for the non-significant finding of the variable foreign subsidiary relationship (SUBS) may be attributed to the fact that firms in the treatment group were themselves parent / holding companies. In the case of the variables market concentration (MCON) and profitability (PROF), a potential explanation for the non-significant result may be due to proprietary cost. As discussed in Chapter 4, while voluntary disclosure of cash flow information is likely to have greater information content for investors, creditors and other users, it is also likely to have greater proprietary cost of disclosure.

For profitability (PROF) variables, the multivariate results indicate that it is negatively associated with firms voluntarily presenting cash flow information - a finding that is contrary to expectation. The period 1990 was a time when many firms were experiencing difficulty following the slowdown of the world economy and the world stock market crash in 1987. These situations could have affected the financial performance of the sample companies and in turn affected the analysis in this study.

A possible explanation for the non-significant result of the variable ownership diffusion (ODIFF) may lie in the presence of mandatory funds statement reporting in 1990. Prior to the availability of the cash flow statement, funds statements had been used to calculate the equivalent cash flow estimates (for examples, Bowen et al., 1986; Casey & Bartczak, 1985). Thus either the funds statement or the disclosure of cash flow information were being used by firms as a means to reduce the agency cost associated with the amount of ordinary shares held by other than the top 20 shareholders in a firm.

From the multivariate analysis, it is found that the eight explanatory variables significantly explain 52.4% (R^2 of OLS regression) of the variations in the firms' decisions to voluntarily disclose cash flow information. The R^2 / pseudo R^2 figures reported in this study are relatively higher than those revealed by other voluntary disclosure studies reviewed in Chapter 3 of this thesis. Finally, both the OLS and logistic multivariate regressions reveal that the foreign exchange listing (EXCH) variable is the single most significant explanatory variable influencing the sampled firms' decisions.

CHAPTER 7
CONCLUSION

7.0 Summary

Chapter 2 discusses the development of mandatory corporate cash flow reporting in Australia in the 1980's. At the end of the decade, it has been observed that a number of listed firms were already disclosing cash flow information in their annual reports voluntarily in one form or another. The main focus of this study is to investigate the factors that have influenced Australian listed firms to voluntarily disclose or not disclose cash flow information in their 1990 annual reports.

The same chapter also notes that in 1990, Canada, New Zealand and the USA had already mandated firms to prepare the Cash Flow Statement (replacing the Funds Statement) together with the Balance Sheet and Income Statement. The mandatory requirement by those overseas countries may have played a part in the debate for mandatory cash flow reporting in Australia. Cash flow reporting finally became mandatory in Australia in June 1992 replacing the Funds Statement as the third financial statement.

Chapter 3 deals with the literature review. It is a chapter that analyses previous studies which attempted to shed some light on the choices made by firms toward various accounting policy, including leases, segment information and current cost financial statements. This chapter also reviews previous studies on the usefulness of cash flow data. Based on this review of the literature, relevant theoretical frameworks and possible

explanatory variables were identified, and further explored in the subsequent chapter.

Chapter 4 concerns itself with the theory development and hypotheses formulation. Hypotheses were formulated with contracting theory (incorporating agency cost and political cost) as the underlying theoretical framework. Eight testable hypotheses were formulated based on eight explanatory variables: Agency cost variables - level of ownership diffusion, proportion of assets in place, leverage; Political cost variables - size, market concentration, profitability; and Control variables - foreign exchange listing and foreign subsidiary relationship. The dependent variable in this study is of course, the decision to disclose cash flow information or otherwise.

Data sources and methodology used in this study are elaborated in chapter 5. Data were collected for the period 1990 primarily from the AGSM Annual Reports Microfiche File. Other sources of data include the ASX Statex Service (ASX Research Ltd, 1990 & 1992) and Jobson's Company Yearbook (Dun & Bradstreet (Aust) Pty Ltd, 1991a & 1991b). It is also in this chapter that the independent variables are defined, in congruence with the definitions adopted by previous studies of accounting policy choice.

Univariate tests were then performed for differences and relationships in characteristics between cash flow disclosers and non-disclosers. Bivariate correlation tests revealed no significant strong multicollinearity among the explanatory variables. Subsequently, these variables were used in the multivariate analysis. The results of these tests are detailed in chapter 6.

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7.1 Conclusion

The aim of this study has been to provide an understanding of the incentives that motivated listed companies in Australia to voluntarily disclose cash flow information in their 1990 annual reports. It has been hypothesised that the voluntary disclosure of cash flow information is a means of reducing the agency cost and the political cost imposed by shareholders, auditors, creditors, employees, trade unions and government. It has also been hypothesised that companies voluntarily disclosed cash flow information in annual reports because of overseas countries' (namely Canada, New Zealand and the USA) financial reporting requirements where the shares of these Australian companies were simultaneously listed. Finally, it has been hypothesised that firms voluntarily disclosed cash flow information because they were subsidiaries of foreign parent companies where cash flow reporting was mandatory on or before 1990. A review of previous research provided measures as possible expl-   ~ry variables. In all, eight hypotheses have been developed and tested.

The results of the univariate tests performed in this study indicate that the relative incidence of voluntary disclosure of cash flow information is related to: (1) firm size, (2) foreign exchange listing, and (3) proportion of assets in place, and moderately related to (4) financial leverage of a firm. The decision appears to be unrelated to (5) whether a firm's shares were widely held, (6) market concentration ratios, (7) profitability ratios, and (8) whether a firm is a subsidiary of foreign parent in Canada or New Zealand or the USA.

In addition, the multivariate analysis reveals that 52.4% (R2 of OLS regression) of the variance in the firms' decision to voluntarily disclose cash

flow information has been significantly explained by the eight independent variables. Finally, both the OLS and logistic regressions reveal that the foreign exchange listing (EXCH) variable is the single most significant independent variable influencing the firms' decisions to voluntarily disclose cash flow information.

7.2 Alternative plausible hypotheses

It ought to be acknowledged however, that there are perhaps other plausible explanations why a company may be better off as a result of voluntarily disclosing cash flow information in its annual report. Three plausible reasons are proffered.

First, companies that had voluntarily disclosed cash flow information were in fact early adopters of the cash flow reporting standard. Their decision to disclose cash flow information could be as preparation for anticipated mandatory presentation of the Cash Flow Statement in Australia. This situation would certainly be the case for companies that had lobbied for a cash flow accounting standard in 1991 (Sims and Cantrick-Brooks, 1992).

Second, if a company is contemplating going to the market for additional funds, voluntarily disclosing cash flow information would likely be considered favourably by the market, and this may lead to a potential reduction in the company's cost of capital. Thus a positive relationship is expected by a company's accounting disclosure policy (that is voluntary disclosure of cash flow information) and the subsequent approach to the market for additional funds.

7.3   Limitations of the study

As with previous accounting policy choice studies, this study too suffers some limitations. First, while extensive efforts were made to develop accurate proxies for the agency cost and political cost dimensions of the disclosure model, data constraints may limit the construct validity of the selected variables. As an example, the variable size could be a proxy other than for political visibility of a firm. Second, the empirical tests were performed on large Australian companies (limitation of the AGSM File and ASX database) and may limit the generalisability of the findings. Third, the fact that this is a cross-sectional study may perhaps hinder the generalisability of the findings across time.

Fourth, given the exceedingly complex nature of the business environment, there are inherent limits in the ability of positive empirical research to capture all of the dimensions that influence voluntary disclosure decision making. Fifth, a limitation in the sampling methodology is also noted. The firms in the treatment group were not randomly selected from the population frame. In fact, they were selected from individual examination of every unit in the population frame. The control group however, was systematically random selected. While the sampling method for the treatment group may be a possible limitation, it is an effective and efficient sampling method. This is primarily because, the population distribution of voluntary disclosers is unknown and also the possibility of a small number of voluntary disclosers.

Finally, another limitation of this study is the approach taken in analysing a firm's accounting policy choices. It was inherently assumed in this study that management uses single cash flow disclosure policy to

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reduce or perhaps mitigate agency cost and political cost. However, Zmijewski and Hagerman (1981) found that firms use a portfolio of accounting procedures and policies rather than single accounting policy. Thus, perhaps voluntary disclosure of cash flow information is only one of the many policies that are available at management disposal.

7.4   Suggested areas for future research

The approach taken by this study was a cross-sectional analysis of hypothesis testing, providing only conjectural evidence about causality. Future research could use the alternative time-series approach. Companies that voluntarily disclosed cash flow information could be studied over periods of time, including periods following the 1987 stock market crash and the subsequent economic downturn. Another possible research area concerns the capital market reaction to companies voluntarily disclosing cash flow information. The literature on information content suggests that cash flow information is contextually useful to users (including analysts and shareholders). An extension to this literature is to examine the security price effect following the announcement of cash flow information in corporate annual reports.

A potential area of research concerns the issue of presentation of cash flow information. In the USA, companies are given the choice to present the component of cash flow from operating activities by the direct or indirect method. By contrast, in Australia and New Zealand only the direct method is permitted. A laboratory setting is appropriate for this type of study. The research question is whether the form of presentation influence decision-makers in evaluating the financial statements. The result of this laboratory study may have implications for the accounting

regulators. In particular if the results indicate that users perceive form of presentation is important and that there is a better form of presentation, then future discussion on accounting information disclosure ought to take into account the proposed form of presentation.

Finally, future research could also investigate how different user groups evaluate and utilise the cash flow information. This would provide further evidence on the behaviour of users and also the usefulness of cash flow information.

Although not all of the hypotheses in this study are supported by the findings, it is a significant study in terms of its contribution to the literature. It is a study that expands the Australian literature on accounting policy choice and voluntary disclosure. Furthermore, it manages to identify a new explanatory variable - foreign exchange listing status (EXCH), as the single most significant variable. In summary, the results of this study contribute towards understanding the firms' motivation to voluntary disclosure of cash flow information in Australia in 1990.

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APPENDIX 1

<u>Example 1: Elders Resources NZFP Ltd. 30 June 1990. p47.</u>

CONSOLIDATED 30.06.89 NZ$000			CONSOLIDATED 30.06.90 NZ$000	
		NOTE 30 CONSOLIDATED STATEMENT OF CASH FLOWS		
		Cash flows from operating activities Cash was provided from:		
5,444,280		* receipts from customer	4,717,802	
		Cash was disbursed to:		
4,961,872		* payments to suppliers and employees	4,573,263	
9,728		* tax paid	12,841	
4,971,600			4,586,104	
	472,680	Net cash flows from operating activities		131,698
		Cash flows from investing activities Cash was provided from:		
339,707		* proceeds from sale of forestry assets, plant, property and equipment	45,772	
466,799		* proceeds from sale of investments	341,576	
58,726		* dividends received	11,365	
865,232			398,713	
		Cash was applied to:		
213,121		* cash outflow for plant, property and equipment and mine tenements * cash outflow to acquire:	209,401	
505,653		Elders Resources Limited	-	
280,782		Other investments	254,086	
999,556			463,487	
	(134,324)	Net cash used in investing activities		(64,774)
		Cash flows from financing activities Cash was provided from:		
-		* proceeds of short term debt (net of settlement)	160,634	
3,603,575		* proceeds of long term debt	1,722,800	
59,127		* interest received	52,477	
3,662,702			1,935,911	
		Cash was applied to:		
477,715		* settlement of short term debt (net of proceeds)	-	
3,117,639		* settlement of long term debt	1,617,953	
362,999		* interest paid	279,798	
51,224		* dividend paid	60,700	
4,009,577			1,958,451	
	(346,875)	Net cash used in financing activities		(22,540)
	(18,167)	Net goods and services tax paid		(7,617)
	(26,686)	Net increased/(decreased) in cash held Opening cash brought forward		36,767
132,467		* cash	67,685	
97,025)		* bank loans and overdrafts	(36,306)	
47,019	82,461	* adjustment for bank loans not on demand	24,747	56,126
	351	Effect of exchange rate change on cash		1,167
	56,126	Closing cash carried forward		94,060
		Closing cash carried forward is comprised as follows:		
67,685		* cash	87,141	
-		* short term deposits	30,314	
(36,036)		* bank loans and overdrafts	(99,482)	
24,747	56,126	* adjustments for bank loans not on demand	76,087	94,060

Example 2: Paragon Resources N.L., 31 December 1990, p2.

Cash Flow Statement
for the year ended 31 December

	1990 $	1989 $
Operating Profit (before income tax)	7,447,060	11,964,449
Add Back:		
Non-cash Write Downs		
Amortisation / Depreciation	13,444,409	7,358,565
Exploration	2,788,347	2,883,902
Investments & other	5,259,849	4,278,513
Deferred Income	1,862,830	-
Interest	2,127,951	5,561,344
Gross Operating Cash Flow	32,930,446	32,046,773
Changes in Working Capital:		
Trade Receivables	(58,920)	506,908
Creditors	(1,795,532)	88,515
Net Operating Cash Flow	31,075,994	32,642,196
Deduct:		
Debt Servicing -		
Conventional Loan Repayments	11,000,000	19,000,000
Gold Loan Repayments	14,356,094	9,324,000
Interest	2,127,951	5,561,344
Discretionary Cash Flow	3,591,949	(1,243,148)
Add:		
Cash Balance at beginning of year	6,995,204	3,977,317
Loans Repaid by Other Corporations	2,126,242	-
Gold Loans Raised	6,835,482	12,200,000
Capital Raised	-	20,163,207
Total Cash Available	19,548,877	35,097,376
Applied:		
Inventories	7,046,930	6,143,341
Mine Development and Fixed Assets	7,735,574	8,894,889
Exploration	2,166,358	3,102,485
Investments	-	4,638,770
Loans to Other Corporations	250,000	5,282,390
Other	1,027,293	40,297
Cash Balance at end of year	1,322,722	6,995,204

Example 3: Comalco Limited, 31 December 1990, p33.

CASH FLOW STATEMENT JOINT VENTURE BASIS

Comalco Limited, its subsidiaries and associates

for the year ended 31 December 1990

	1990	1989
	Millions of dollars	
Cash movements from ongoing business:		
Cash profit (excluding profit on divestments)	277.5	384.3
Net fixed assets expenditure (including investments and advances	(186.7)	(155.1)
Net movements in receivables, inventories, prepayments and payables	(37.9)	115.8
Current tax provision	(30.9)	(56.3)
Net cash generated by ongoing business	22.0	288.7
Equity from minority shareholders	4.9	2.0
Dividends paid	(145.7)	(230.5)
Business divestments	16.4	12.4
New business investments	-	(27.9)
Repayments of (increase) borrowings net of movements in liquid funds	(102.4)	44.7

Example 4: Ampol Exploration Ltd, 30 June 1990, p8.

Cash Flow

During the year, funds available to the Company largely comprised cash flow from operations of $48.8 million (1988/89 $38.7 million) and proceeds from the rights issue of $160 million ($176.2 million)

Example 5: Bridge Oil Ltd, 31 December 1990, p6.

Liquidity: At year end 1990, cash resources and undrawn facilities available to the Company amounted to A$123 million. Operating cash flow for the year, prior to exploration expenses, amounted to A$104 million. The cash flow expressed on a per share basis (excluding asset sales and cash received by Aredor) on the increased average capital, compares as follows with the smaller capital in the previous year (1990 - 362 million shares; 1989 - 233 million shares)

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APPENDIX 2

List of companies in the treatment group:

Ampol Exploration Ltd

Battle Mountain Gold Company Ltd

Bridge Oil Ltd

Brierley Investments Ltd

Coles Myer Ltd

Comalco Ltd

Elders Resources NZFP Ltd

FERNZ Corporation Ltd

Fletcher Challenge Ltd

Jarden Morgan Ltd

Kingsgate International Corporation Ltd

M.I.M. Holdings Ltd

Macraes Mining Company Ltd

Memtec

Niugini Mining Ltd

Paragon Resources N.L.

Placer Dome Inc.,

Waste Management Inc.,

List of companies in the control group:

ACM Gold Ltd

Adtrans Group Ltd

AIDC Ltd

Altrack Ltd

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Amcor Ltd

Ariadne Australia Ltd

Argo Investments Ltd

Arimco N.L.

Aspermont Ltd

Atlas Steels Ltd

Australian Assets Corporation Ltd

Australian Mining Investments Ltd

Ballarat Brewing Company Ltd

Barrier Reef Holdings Ltd

Berklee Ltd

Beyond International Ltd

Blackmores Ltd

Bligh Oil & Minerals N.L.

Bougainville Copper Ltd

Brash Holdings Ltd

Bristile Ltd

BT Global Asset Management Ltd

Burswood Property Trust

Caltex Australia Ltd

Capcount Property Trust

Carrington Cotton Corporation Ltd

Centaur Mining & Exploration Ltd

Century Drilling Ltd

Chalmers Ltd

Charters Towers Mines N.L.

Choiseul Plantations (Holdings) Ltd

Claremont Petroleum N.L.

Cluff Resources Pacific Ltd

Cockburn Corporation Ltd

Comada Energy Ltd

Computer Resources Trust

Consolidated Rutile Ltd

Corporate Equities Ltd

Country Road Ltd

Croesus Mining N.L.

Dalgety PLC

D.E.M. Ltd

James (Darrel) Ltd

Defiance Mills Ltd

Devex Ltd

Dominion Mining Ltd

Doral Resources N.L.

Eastmet Ltd

Emperor Mines Ltd

Equitilink Ltd

Eurolynx Ltd

FAI Insurances Ltd

Finemore Holdings Ltd

First National Resource Trust

Foodland Associated Ltd

Forrestania Gold N.L.

Franked Income Fund

Gazal Corporation Ltd

General Property Trust

Gibson's Ltd

Gold Mines of Kalgoorlie Ltd

Golden Shamrock Mines Ltd

Gowing Bros. Ltd

G.U.D. Holdings Ltd

Hammerson Property Investment & Development Corp PLC

Harvey Norman Holdings Ltd

Helix Resources N.L.

Henry Walker Group Ltd

Highlands Gold Ltd

Hoyts Entertainment Ltd

Smith (Howard) Ltd

Independent Holdings Ltd

Indonesian Diamond Corporation Ltd

Ipoh Garden (Aust) Ltd

Jarden Morgan Ltd

Jennings Group Ltd

David Jones Ltd

Kalamazoo Holdings Ltd

Kern Corporation Ltd

Kidston Gold Mines Ltd

Lachlan Resources N.L.

Latec Investments Ltd

Linden & Conway Ltd

Little River Goldfields N.L.

Ludowici (J.C.) & Sons Ltd

Macmahon Holdings Ltd

Mallcap Corporation Ltd

Markalinga Trust

Matine Ltd

McConnel Dowell Corporation Ltd

Meekathara Minerals Ltd

Metal Manufacturers Ltd

Metway Bank Ltd

Minora Resources N.L.

Minerals Mining & Metallurgy Ltd

Mirvac Ltd

Mount Carrington Mines Ltd

Mount Edon Gold Mines (Aust) N.L.

Muswellbrook Energy & Minerals Ltd

Newhaven Park Stud Ltd

Newmex Exploration Ltd

Nilsen (Oliver J) (Australia) Ltd

North Flinders Mines Ltd

Oakbridge Ltd

Oil Company of Australia N.L.

Oroton International Ltd

Pacific Dunlop Ltd

Pacific Mutual Australia Ltd

Palmer Tube Mills Ltd

Panfida Foods Ltd

Paxus Corporation Ltd

Peptide Technology Ltd

Petersville Sleigh Ltd

Plutonic Resources Ltd

Premier Investments Ltd

Prime Finance Ltd

P.A. Property Trust

Q.U.F. Industries Ltd

Raptis Group Ltd

Reece Australia Ltd

Roberts Ltd

Resolute Resources Ltd

Rural Press Ltd

Sagasco Holdings Ltd

Santos Ltd

Schaefer Corporation Ltd

Segenhoe Ltd

Shearer (John) (Holdings) Ltd

Solander Holdings Ltd

Sons of Gwalia N.L.

Spicers Paper Ltd

Steamships Trading Company Ltd

Stockland Trust Group

Strand Holdings Ltd

Strategic Minerals Corporation N.L.

Sylvastate Ltd

Tal Holdings Ltd

Techniche Ltd

TNT Ltd

Trans National Securities Ltd

Tricom Corporation Ltd

Tubemakers of Australia Ltd

Tyndall Australia Ltd

UWL Ltd

VAM Ltd

Victoria Petroleum N.L.

Viking Industries Ltd

Vox Ltd

Wakefield Investments (Australia) Ltd

Webster Ltd

Western Capital Ltd

Westpac Banking Corporation

Whittakers Ltd

Winterbottom Holdings Ltd

Wormald International Ltd