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Firms' voluntary disclosure strategies: the presentation and disclosure of derivative financial instruments

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# **Bibliographic citation**

Chalmers, KG (2001). Firms' voluntary disclosure strategies: the presentation and disclosure of derivative financial instruments. University Of Tasmania. Thesis. https://doi.org/10.25959/23210294.v1

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# **CHAPTER FIVE: HYPOTHESIS DEVELOPMENT**

# 5.1 Introduction

This chapter draws upon the previous three chapters in developing hypotheses to explain and predict firms' voluntary derivative instrument disclosures in financial statements. Chapter 2 provides the chronological account of regulatory developments associated with derivative instrument disclosures. Chapter 3 describes the study's theoretical underpinnings and extant literature on factors influencing voluntary disclosure. Chapter 4 discusses the theoretical arguments and empirical testing of associations between firm characteristics and hedging activities. Hypotheses developed in this chapter draw from chapters 2, 3 and 4 to predict and explain firms' derivative financial instrument disclosures.

The pressure exerted on firms to be transparent with derivative information disclosures, as described in Chapter 2, is the basis of the prediction that disclosure practices will change over the period 1992-1997. The economic and contracting framework described in chapter 4 provides the basis for predicting firms most likely to engage in hedging activities. Assuming hedging activities are substantially carried out using derivative financial instruments, do the benefits derived by the firm as a result of the requirements to make their activities more transparent, exceed the costs imposed by the requirements?<sup>75</sup> Investigating firms' voluntary disclosure practices assists in answering this question. Limited disclosures in financial reports suggest managers perceive the costs of derivative financial instrument disclosures exceed the potential benefits flowing from such disclosure practices.

The purpose of this chapter is to predict the factors motivating firms' voluntary derivative financial instrument disclosures in financial statements. The costs and benefits of voluntary financial information disclosures are described in Section 5.2.

<sup>&</sup>lt;sup>75</sup> Management may use traditional balance sheet tools as substitutes or complements to risk management strategies involving off balance sheet instruments. For example a firm with expected cash inflows from business operations could reduce exposure to currency risk by issuing debt denominated in that foreign currency. However, the assumption is validated by the ASCT's 1994 Corporate Derivatives Survey results where no responding corporation rated the value of derivatives in controlling risk within the organisation as either not important or of little importance. Sixty-one percent of respondents regarded their use as imperative and thirty-five percent rated their use as very important.

The hypothesis development is presented in Section 5.3. The propositions are that voluntary disclosures are a function of legitimacy and reputation concerns (subsection 5.31), a firm's need to engage in hedging (subsection 5.32), information asymmetry (subsection 5.33), information production costs (subsection 5.34) and the proprietary nature of the information (subsection 5.35). A summary of the propositions and hypotheses is provided in Table 5.1. A discussion of the interaction of firm size and voluntary disclosure of derivative financial instruments is included in subsection 5.36. A summary of the chapter and its conclusions are presented in Section 5.4.

# 5.2 Voluntary Disclosure: A Cost/Benefit Analysis

Information disclosures contribute to the company's production, financing and investment strategies being reflected in the firm's share price (Lev 1992). Voluntary reporting involves a non- zero cost and the potential costs and benefits conferred on the firm due to derivative financial instrument disclosures, or lack thereof, are identified in chapter 4 (subsection 4.71).

Management will voluntarily disclose information only if the perceived benefits exceed the associated costs. If outsiders believe management possess value relevant information and elect not to disclose it, this will be construed as an attempt to withhold bad news and may cause a detrimental impact on share price. Similarly, the decision to withhold information being demanded by stakeholders would have a detrimental effect on management's financial reporting reputation. However, the impact of non-disclosure on firm value needs to be traded off against the proprietary costs confronting the firm pursuant to an information disclosure. It may be beneficial for management not to disclose the information if it is proprietary in nature and recipients of the information are likely to act on it in a manner that is detrimental to the firm. This line of argument implies that non-disclosure is capable of an ambiguous interpretation, namely the protection of proprietary information or the desire to withhold bad news. The decision to disclose (or not to disclose) also requires due consideration of other disclosure related costs such as information production and potential political costs.

# 5.3 Hypothesis Development

The following hypothesis development emanates from five general propositions. The propositions are:

- (1) The benefits associated with strong personal and firm reputation and legitimacy influences financial statement preparers' voluntary disclosure strategies;
- (2) A firm's need to engage in hedging activities influences financial statement preparers' voluntary disclosure strategies. Financial distress costs, agency costs of debt, alternative risk management practices and managerial risk aversion are predictors of a firm's hedging activities;
- (3) Information asymmetry influences financial statement preparers' voluntary disclosure strategies;
- (4) Information production costs influence financial statement preparers' voluntary disclosure strategies; and
- (5) The proprietary nature of information influences financial statement preparers' voluntary disclosure strategies.

A discussion of these propositions and the development of testable hypotheses arising from them are contained in subsections 5.31 through 5.35. Subsection 5.36 considers the influence of firm size on revealed preferences. Rather than incorporating firm size as an independent variable, for reasons specified in subsection 5.36 and elaborated on in Appendix 3, it is employed as a control variable. This study's propositions and hypotheses, in addition to the independent variable constructs and their hypothesised direction, are summarised in Table 5.1. Constructs and data sources for the explanatory variables are addressed in Chapter 6.

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|                                       |  | Te den en den 4 Martick Pa | Tabal   | Disalaanna |
|---------------------------------------|--|----------------------------|---------|------------|
| Proposition                           | Hypotnesis   | Constructs                 | Labei   | Prediction |
| Proposition 1: Strong personal and    | H1: Level of disclosures increases over the 1992-1997      |                            |         |            |
| firm reputation and legitimacy        | reporting period   |                            |         |            |
| affect financial statement preparers' | H1a: The increase in derivative financial instrument       |                            |         |            |
| voluntary disclosure strategies       | disclosures is statistically significant from 1994 to 1995 |                            |         |            |
| Proposition 1: Strong personal and    | H2a-H2d: Voluntary disclosure is related to firm           | ASCT Membership (H2a)      | ASCT    | +          |
| firm reputation and legitimacy        | characteristics proxying for legitimacy and reputation     | Big 6 Audit Firm (H2b)     | BIG6    | +          |
| affect financial statement preparers' | concerns   | AASB Representation (H2c)  | AASB    | +          |
| voluntary disclosure strategies       |  | G100 membership (H2d)      | G100    | +          |
| Proposition 2: Financial statement    | H3a-H3e: Voluntary disclosure is related to financial      | Debt Ratio (H3a)           | LEV     | +          |
| preparers' voluntary disclosure       | distress costs and debt contracting costs                  | Interest Coverage (H3b)    | INTCOV  | -          |
| strategies are influenced by the      |  | Growth Opportunities (H3c) | GROWTH  | ?          |
| firm's need to engage in hedging      |  | Earnings Volatility (H3d)  | EVOL    | -          |
| activities due to market              |  | Industry Affiliation (H3e) | IND     | +          |
| imperfections.                        |  |                            |         |            |
| Proposition 2: Financial statement    | H4a-H4d: Voluntary disclosure is related to alternative    | Liquid Assets (H4a)        | LIQUID  | -          |
| preparers' voluntary disclosure       | risk management practices                                  | Risky Assets (H4b)         | RISK    | +          |
| strategies are influenced by the      |  | Dividend Payout (H4c)      | DIV     | +          |
| firm's need to engage in hedging      |  | Convertible Debt and/or    | ALTINST | -          |
| activities due to alternative risk    |  | Preference Shares (H4d)    |         |            |
| management practices.                 |  |                            |         |            |

 Table 5.1:
 Summary of Propositions, Hypotheses and Independent Variables

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| Proposition                             | Hypothesis   | Independent Variable<br>Constructs | Label  | Disclosure<br>Prediction |
|---|--|------------------------------------|--------|--------------------------|
| Proposition 2: Financial statement      | H5a-H5b: Voluntary disclosure is related to            | Management Share Ownership         | SHARE  | +                        |
| preparers' voluntary disclosure         | managerial risk aversion                               | (H5a)                              |        |                          |
| strategies are influenced by the firm's |  | Management Option Schemes          | OPT    | -                        |
| need to engage in hedging activities    |  | (H5b)                              |        |                          |
| due to agency costs confronting the     |  |                                    |        |                          |
| firm <sup>#</sup>                       |  |                                    |        |                          |
| Proposition 3: Financial statement      | H6a-H6c: Voluntary disclosure is related to            | Press coverage (H6a)               | NEWS   | +                        |
| preparers' voluntary disclosure         | information asymmetry                                  | Shareholder Dispersion (H6b)       | DISP   | +                        |
| strategies are influenced by the firm's |  | External financing (H6c)           | EXTFIN | +                        |
| information asymmetry                   |  |                                    |        |                          |
| Proposition 4: Financial statement      | H7: Voluntary disclosure is related to information     | Treasury function (H7)             | TREAS  | +                        |
| preparers' voluntary disclosure         | production costs                                       |                                    |        |                          |
| strategies are influenced by the firm's |  |                                    |        |                          |
| information production costs            |  |                                    |        |                          |
| Proposition 5: Financial statement      | H8: Voluntary disclosure is related to the proprietary | Market concentration (H8)          | CONC   |                          |
| preparers' voluntary disclosure         | nature of the information                              |                                    |        |                          |
| strategies are influenced by the        |  |                                    |        |                          |
| proprietary nature of the information   |  |                                    |        |                          |

 Table 5.1 continued: Summary of Propositions, Hypotheses and Independent Variables

# The agency cost of debt (underinvestment) confronting the firm can also influence the firm's need to engage in hedging activities. Proxies for underinvestment costs are typically related to leverage hence the relationship between leverage variables and disclosure is being examined in hypotheses 3a and 3b. Key: '+' = positive '-' = negative '?' = no prediction

#### 5.31 Legitimacy and Reputation Concerns

Adopting a social view of accounting, organisational legitimacy and the social contract of organisations with society can warrant the disclosure of voluntary accounting information (Mathews 1993). As discussed in Chapter 3, studies of accounting disclosures in this theoretical setting concentrate on environmental, human resource, product and community disclosures. Legitimacy theory posits that organisations respond to demands of diverse groups with the response aimed to legitimise their actions. Figure 5.1 adapts the framework provided by Woodward, Edwards and Birkin (1996) to the context of this study and thereby summarises the theoretical underpinning of the proposition related to legitimacy theory and reputation concerns.

Given that organisations seek to establish congruence between their own activities and the norm of acceptable behaviour in the larger societal system where they operate (Dowling and Pfeffer 1975), disparity between the two value systems will threaten organisational legitimacy. Positioning voluntary disclosures of derivative financial instruments within this framework, media reports associated with derivative financial disasters have made stakeholders conscious of, and concerned with, the use of derivative financial instruments by firms (Brown and Deegan 1998). This creates a demand for transparency of derivative financial instrument activities in the reporting activities of firms.

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#### Figure 5.1: Legitimacy, Derivative Financial Instrument Reporting, and Accountability in a Stakeholder-Agency Framework (Adapted from Woodward et al (1996), Organisational Legitimacy and Stakeholder Information Provision, British Journal of Management, Volume 7, pp. 329-347.)



Financial reporting interest groups are mechanisms by which society's demands and corporate actions can be reconciled. As such the interest groups can be viewed as agents of society. The financial reporting interest groups, some of which are funded by taxpayers, need institutional legitimacy and support (Burchell, Clubb, Hopwood and Hughes 1980). They seek to legitimise their existence by rendering accountability to society by developing and enforcing financial reporting rules and regulations that satisfy community information demands. This self-promotional behaviour sustains or enhances interest groups' reputations and promotes their continued existence. In response to demands for derivative financial instrument disclosures, accounting standard setting boards' inclusion of this matter on their agenda is necessary for legitimising their role and jurisdiction in accounting regulation. Similarly, the ASCT's action to encourage firms to communicate derivative financial instrument usage is socially responsive, maintains their organisational legitimacy and enhances their reputation as a professional body.

Financial statement preparers can be regarded as agents of financial reporting interest groups. Compliance with the demand for derivative financial instrument transparency will depend on the nature of the societal and institutional pressures being exerted. Laughlin (1990) uses a dichotomous classification of contractual and communal pressures. The former is "a formal context resulting in written forms of recording and defining expectations" and the letter embraces "the less formal context and less structured expressing of these expectations." (p.97). The societal pressure for derivative financial instrument transparency, given its informal, unwritten and unstructured nature, is a communal accountability. The pressure exerted by financial reporting interest groups is more formal, structured and written, but in this instance falls short of being legally defined. Hence a trichotomous classification is introduced in Figure 5.1 with the accountability of financial statement preparers to financial reporting interest groups deemed to be 'quasi' contractual given that the various pronouncements were ultimately to be enshrined in law.<sup>76</sup>

Managers and firm stakeholders have an inherent desire, for themselves and the firm, to be perceived as reputable (Fombrun 1996). Reputation reflects the firm's

<sup>&</sup>lt;sup>76</sup> AASB1033 can be seen as the culmination of reaction to social change with an evident time lag between its enactment and what may be acceptable behaviour for financial statement preparers.

relative success in fulfilling the expectations of multiple stakeholders (Freeman 1984). The justifications for desiring corporate reputation are the ability to charge higher prices, attract better applicants, enhance access to capital markets and attract investment (Fombrun and Shanley, 1990).

Corporate reputation consists of perceptions derived from many determinants, with financial reporting practices comprising one of the determinants. In the context of US studies, corporate reputation has been operationalised using Fortune's Most Admired Corporations Survey (Wartick 1992). Until recently there were no such reputational indices for Australian companies. However, a national survey conducted in 2000 elicited stakeholders' views on Australian large firms. The reputation index examines, through stakeholders' perceptions, an organisation's ability to manage activities that directly contribute to reputation.<sup>77</sup> The reputation index includes six scorecards, of which financial performance is one. The stakeholder groups surveyed to comment on firms' financial performance are The Australian Shareholders Association (ASA) and The Institute of Chartered Accountants of Australia (ICAA). The ASA's criteria to assess a company's financial performance include the quality of all forms of information provided to shareholders. Market position is another scorecard included in the index calculation. The Public Relations Institute of Australia rated companies on the basis on their communication of policies and practices, responses to stakeholder groups and demonstration of capacity to manage reputation. Including such criteria in the reputation quotient demonstrates the link between financial reporting communication and firm reputation. Further justification for the existence of financial reporting reputation and the rewards for practicing greater transparency are based on the existence of specialised and influential groups that examine compliance with regulatory standards,<sup>78</sup> and the voluntary submission of

<sup>&</sup>lt;sup>77</sup> Harris Interactive, using methodology referred to as the Reputation Quotient, conducted the survey. This methodology assesses reputation in six areas including management of employees, environmental performance, social impact, ethical performance, financial performance, and market position.

<sup>&</sup>lt;sup>78</sup> The ASIC conducts a surveillance program on company financial reports to monitor compliance with disclosure obligations. The Investment and Financial Services Association also studies the reporting practices of Australia's top 100 companies.

annual reports in the annual report awards managed by ARA Australia Incorporated.<sup>79</sup>

Figure 5.2 depicts that financial reporting reputation can be generated, maintained or enhanced through affiliations and reporting practices. Reporting practices conducive to reputation enhancement focus on the extent to which the financial report conforms to regulatory pronouncements, best practice guidelines and peer reports. Firm affiliations expected to be conducive to financial reporting reputation include membership of the G100, high reputation audit firm, and directors and financial accounting staff held in high professional regard. Firms and managers have reputational incentives to voluntarily disclose information (Skinner, 1994). Firms expected to have superior financial reporting confront greater reputation costs for non-disclosure than firms with less reputational status. Consequently, these firms have a greater incentive to disclose.

Strategic behaviour, ranging from acquiescence and compromise to defiance and manipulation, can occur in response to conformity pressures (Oliver, 1991). The response depends upon: (1) why the pressure is exerted; (2) who exerts it; (3) what the pressures are; (4) how or by what means they are exerted; and (5) where they occur. *Ex ante* efforts to encourage derivative financial instrument disclosures are expected to be effective, but the lack of regulatory sanctions provides financial statement preparers with *ex post* adoption flexibility. It is anticipated firms will provide derivative financial instrument disclosures, but the disclosures will lack completeness relative to the recommended disclosures. This could be attributable to the quality of information available to managers (particularly if the risk management systems lack sophistication) or the proprietary nature of specific disclosure items (refer to subsections 5.34 and 5.35). It can also be explained within a legitimacy framework.

<sup>&</sup>lt;sup>79</sup> Chang, Taylor and Whittred (1999) differentiate annual report disclosure quality on the basis of firms being a recipient of an ARA award.

Figure 5.2: Enhancing Reputation through Affiliations and Reporting Practices



The incentive to make disclosures can be driven by pragmatic legitimacy and/or moral legitimacy (Suchman 1995). Pragmatic legitimisation exists if firms engage in such disclosures to satisfy constituents' demands for that information. Disclosures exhibit moral legitimacy if driven by institutional pressures and the need to adopt a conformist stance. In relation to derivative financial instrument disclosures, the pressure for disclosures is exerted by professional and legal bodies in response to community demands intensified by firms' losses associated with derivative activities. Financial statement preparers disclosing information prior to 1995 would engage in pragmatic legitimacy whereas disclosures made post the ASCT Industry Statement exhibit moral legitimacy. Non-compliance threatens organisational legitimacy and the nature of the threats can be legal, economic or other social sanctions (Dowling and Pfeffer 1975). Failure to disclose voluntary derivative financial information carries no legal sanctions, however social ramifications are likely to be associated with a loss of credibility and reputation suffered by non-disclosers.

Although no specific sanctions for non-conformity were specified, the ASIC stated it would be difficult to attest to the 'truth and fairness' of financial statements in the absence of derivative financial instrument disclosures. This is an example of the principal(s) resorting to stronger incentives to induce more effort from the agent (Demougin and Fluet 1997). This is also described as coercive institutional isomorphism (DiMaggio and Powell 1983). The concept of isomorphism explains the process of homogenisation. Institutional isomorphism recognises that organisations compete for political power and institutional legitimacy for social as well as economic fitness. Institutional isomorphism change can occur through coercive measures stemming from political influences and coercive authority. This suggests that conforming to institutional rules and expectations should be high as conformity will release financial statement preparers from ASIC and professional body scrutiny and afford them institutional legitimacy. This prediction assumes the information disclosures are perceived as non-harmful by management and political self-interests are not contrary to institutional objectives.

#### 5.311 Longitudinal Disclosure Levels

Disclosure levels are measured for the financial reporting years 1992-1997. This time frame covers financial reporting years during which ED59, the ASCT guidelines, ED65 and AASB1033 are released. Technically firms' derivative financial instrument disclosures are voluntary during this period given that AASB1033's operative date is for reporting years on or post 30 December 1997. However, during this time period the environment changes from one in which the disclosures are completely unconstrained to a situation where the ASCT, ASIC, and AASB apply persuasive pressure on preparers to make the disclosures.

Providing the information disclosures are perceived as non-harmful by managers, it is expected that managers will conform to the disclosure requirements in 1995 as this releases them from both ASIC and professional body scrutiny and demonstrates their concern to respond to stakeholder information demands. Such a reaction enhances or consolidates their financial reporting reputation. If managers believe the disclosure has the potential to be harmful, the decision not to disclose would subject them to the attention of the ASIC, potentially damage their standing in the managerial labour market and result in no reduction in agency costs. The consequences of believing the information is harmful yet proceeding to disclose may be less serious. Managers would be released from ASIC and professional body scrutiny, the information gap would reduce and agency costs may or may not increase.

The decision to disclose (or not disclose) is based on managers' conjectures about the disclosure policies of managers of other firms and the history of past disclosures (Dye and Sridhar 1995). Should derivative financial instrument disclosures be forthcoming in a voluntary setting, this will provoke non-disclosing firms to alter their status to a disclosing firm in the ensuing reporting period. Admati and Pfleiderer (1998) similarly argue that disclosure regulation has a role if firm values are correlated and investors valuing firms use disclosures made by other firms. Additionally, agents may act similarly if such actions are perceived to create mutual positive externalities. Disclosures concerning derivative financial instruments may fend off further regulatory intervention if the disclosures satisfy the stakeholders' information demands and demonstrate sound risk management practices. The preceding discussion predicts an increase in disclosure levels, at both the firm level and in aggregate from 1992-1997, with a pronounced increase in 1995 coinciding with the release of the ASCT Industry Statement.

H1: The level of voluntary derivative financial instrument disclosures increases over the 1992-1997 reporting period.

H1a: The increase in derivative financial instrument disclosures is statistically significant from 1994 to 1995.

## 5.312 ASCT Membership

Managers' personal wealth is also related to their perceived value and standing in the managerial labour market. Derivative financial instrument disclosures prior to years ending 30 June 1995 are unconstrained in terms of mandated accounting requirements. However, for financial years ended 30 June 1995 and onwards reporting guidelines issued by the ASCT govern derivative financial instrument disclosures. Although not legally enforceable, these guidelines have the unconditional backing of the ASIC. Presuming the disclosure requirements of the ASCT are accepted as the social and professional norm, managers need to consider any possible damage to their standing in the managerial labour market if they elect not to disclose the recommended information. The threat of being subject to ASIC and professional scrutiny provides an added personal incentive for managers to conform to the disclosure requirements.

Normative isomorphism, in addition to coercive isomorphism, is a mechanism through which institutional isomorphic change occurs. It recognises that professional organisations are a vehicle for the promulgation of normative rules. Di Maggio and Powell (1983) predict that isomorphic change is positively related to the extent of professionalisation in a field. Accordingly, ASCT represented firms are likely to exhibit greater disclosure levels, as the body's proposed disclosure model was circulated to all ASCT members.

Moral legitimacy can exist at the personal level in addition to the organisational level. At the personal level, legitimisation involves individuals acting ethically and responsibly by 'doing the right thing' to enhance their professionalism and perceived value in the market place. Bernheim (1994) recognises that individual conformity occurs because even small departures from the social norm will impact adversely on an individual's status and threaten their reputation. Membership of a professional body confers reputation status to the individual (assuming the professional body is credible and reputable). An accountability relationship exists between the ASCT and its members, with the latter having incentives to fulfill professional obligations and responsibilities demanded by their professional body. Included in the ASCT's code of ethics are the requirements that 'members shall observe legislation and regulation that governs their respective activities, as well as the spirit of the law and contemporary market practice' and 'members shall exercise a duty of care such that their activities are capable of close public scrutiny'. <sup>80</sup>

Cognitive strategies employed by the person accountable in response to pressure exerted by the accountability source include an attitude change towards the source's preference (Gibbins and Newton 1994; Wade, Porac, and Pollock 1997). ASCT members are expected to exercise personal influence to try and ensure the derivative financial instrument disclosures in their employers' financial statements conform to the 'best practice benchmark' initiated by their professional body. This compliant response invokes the impression of diligence on behalf of the member and relates positively to their professional status (Dufwenberg and Lundholm, 1998). The threat of being subject to ASIC and professional body scrutiny provides personal incentive for ASCT affiliation to be positively related to the propensity for voluntary derivative financial instrument disclosures for reporting periods from June 1995.

It is therefore hypothesised:

H2a: The level of voluntary derivative financial instrument disclosures after 1994 is greater for ASCT affiliated firms relative to non-ASCT affiliated firms.

<sup>&</sup>lt;sup>80</sup> The purposes of professional codes include the provision of a moral foundation for the profession, a basis for self-policing of the profession and to serve as a public relations tool (Lindblom and Ruland 1997). These purposes help to foster positive images of the profession amongst the public thus legitimising the professionalism of the institute and its members.

# 5.313 Auditor Affiliation

Viewing accounting as a social construct, congruence between accounting developments and the needs and preferences of society is necessary if the reputation earned by accountants as preparers and auditors of corporate accounts is to be preserved (Mathews 1993). There are significant audit implications, in terms of both audit procedure and presentation and disclosure issues, associated with entities engaging in derivative trades. Audit guidance, released subsequent to the reporting periods examined in this thesis, is provided in AGS 1030 *Derivatives in a Corporate Environment: A Guide for Auditors.* Furthermore, in September 2000, the Auditing and Assurance Standards Board of the Australian Accounting Research Foundation released the Proposed International Auditing Practice Statement ED76 *Auditing Derivative Financial Instruments* for comment. The exposure draft recognises that derivative financial instruments may impact on audit risk for a variety of reasons.<sup>81</sup>

The effectiveness of auditing and the auditor's ability to influence financial statement disclosures is expected to vary with auditor quality. Auditor reputation is used to differentiate audit quality. The two recognised components of audit firm reputation are general brand name and industry specialisation reputations (DeAngelo 1981; Craswell, Francis and Taylor 1995). Audit firms need to consider any possible damage to their identity and/or perceived quality of their work if their audit clients are not disclosing the recommended information. Relative to less reputable auditors, high reputation auditors are more likely to suffer reputation damage associated with auditing non-disclosing firms. To maintain or enhance their reputation status and avoid reputation costs, high audit reputation firms are more likely than lower reputation audit firms to persuade (or demand) their clients adhere to the recommended disclosure regime.

The likelihood of firms audited by high reputation audit firms having greater disclosure levels is also attributable to the audit firm's greater expertise and to

<sup>&</sup>lt;sup>81</sup> The factors impacting upon audit risk, as specified in the exposure draft, include: derivative financial instruments becoming more complex; derivative financial instrument usage becoming more commonplace; expansion in accounting requirements for financial statement measures and disclosures; increasing use of service organisations to manage activities involving derivatives; values may be volatile and impact on recorded amounts; the complexity resulting in management not fully understanding the risks involved in using such instruments; and the characteristics of derivative activities resulting in increased risks for many entities.

enhanced mechanisms for knowledge dissemination within the firm and amongst their clients. In testing the relationship between voluntary derivative financial disclosures and auditor reputation, a classification of Big 6 or non-Big 6 audit firm is employed. This captures the general brand name component of reputation.

The ASIC's position that accounts cannot be signed off as true and fair unless the minimum standards contained in Part A of the ASCT Industry Statement are satisfied, provides a further impetus for audit firms to comply with the disclosure requirements for reporting periods from June 1995. The possibility of media attention associated with ASIC questioning of the accounts has ramifications for the client's and audit firm's financial reporting reputation (Feroz *et al.* 1991, Moreland 1995). Furthermore, the threat and repercussions of litigation, pursuant to any losses associated with derivative trading activity, provides additional incentive for audit firms to adopt audit procedures embracing derivative financial instruments, and to encourage client firms to disclose such information.

Figure 5.2 purports that reputation enhancement by audit firms can occur if the firms are represented on accounting standard setting bodies. Although accounting firm employees on accounting standards boards are not representing their firm or client base, self-interest suggests that it is reasonable to expect that they are protective of their individual and firms' reputations. Therefore, they are expected to encourage their audit divisions to recommend firms disclose the information emanating from the standard setting process. Furthermore, given ED65 was issued in June 1995, accounting standard board representatives are in a privileged position to ensure their audit divisions, and hence clients, are briefed and have sufficient time to incorporate the recommended disclosures into financial statements for the year ended 30 June 1995. Even in the absence of such an information exchange, high reputation audit firms have incentives to be at the forefront of auditing practices.

It is predicted that voluntary reporting disclosure levels will be positively related to the desire of audit firms, and individuals within audit firms, to preserve their reputation. It is therefore hypothesised: H2b: The level of voluntary derivative financial instrument disclosures is higher for firms with 'Big 6' auditors than for firms with 'non-Big 6' auditors.

H2c: The level of voluntary derivative financial instrument disclosures is higher for firms whose audit firm has an employee who is a member of an accounting standard setting body, than for other firms.

#### 5.314 G100 Affiliation

Another proxy to capture reputation costs is a firm's membership of the G100. Firms seek G100 membership and therefore G100 firms are particularly reputation conscious. G100 affiliated firms are larger firms and their reporting practices are more closely monitored than those for smaller firms. Thus the visibility (both politically and communally) of G100 firms creates a necessity for such firms to respond and conform to institutional and community demands for derivative financial instrument disclosures more than for firms less publicly scrutinised. The absence of such disclosures would be more noticeable for G100 firms relative to non-G100 firms and the reputation damage suffered as a consequence of nondisclosure would be higher for G100 firms.

In lobbying the Australian accounting standard setting body on ED65, the G100 supported the exposure. The G100's goals include attainment of "an Australian regulatory environment that best serves to advance the interests of Australian business in the context of international competition." In achieving this goal the group endorses standards of reporting which are compatible with those of leading competitor nations and a regulatory environment that enforces Australia's reputation for compliance. Accordingly, members of the G100 are expected to uphold their reputation and fulfill their professional obligations by exhibiting reporting practices adhering to best international practice. Their visibility in the market place also demands they set the standard for reporting practices in their national domicile. Figure 2.2 in Chapter 2 indicates that SFAS119 *Disclosures about Derivative Financial Instrument and Fair Value of Financial Instruments* was effective in the US for the 1995 reporting period. If SFAS119 is perceived to

Alternatively, if the firm does not pursue hedging as a value maximising strategy (non hedging firm), the costs associated with disclosing this void of risk management strategies are expected to outweigh the benefits arising from the disclosure. The predicted consequence of disclosure is a negative impact on the firm's value. Firms in this position have no incentive to voluntarily provide information on their derivative financial instrument activities, *ceteris paribus*. Furthermore, management would be expected to oppose the requirement to report such information to the market. *Ex post* monitoring and bonding costs would be expected to increase in recognition that management is not employing appropriate financial management practices.

As discussed in Chapter 4, the existence of market imperfections, agency related costs, and the lack of alternative risk management techniques employed by management, are espoused theories explaining a firm's need to engage in risk reduction techniques such as hedging. Subsections 5.321 through 5.323 develop hypotheses relating voluntary disclosure to variables capturing the need for a firm to engage in hedging activities. This need is predicted to be positively associated with derivative financial instrument disclosures. This does not mean disclosures are restricted to firms using derivative financial instruments. Firms not engaging in hedging activities can still pursue a disclosure policy. Responding to transparency demands, firms can explicitly state their non-user status in the annual report.

### 5.321 Financial Distress and Debt Contracting Costs

Firms with a high probability of financial distress and larger agency costs of debt are more likely to engage in hedging activities. Subsections 5.3211 through 5.3214 discuss firm attributes associated with the existence of financial distress and debt contracting costs. Each of these subsections culminates in testable hypotheses.

#### 5.3211 Leverage

Shareholders are residual claimants on the firm's value. Should a firm be entirely financed with equity, business risk is the only risk to which shareholders are exposed. Business risk, the variability in cash flows generated by a firm's assets, arises from a firm's investing activities. Introducing debt finance into a firm's be best international practice, G100 affiliated firms would have an incentive to adopt the reporting practices of their US counterparts.<sup>82</sup>

Given social norm demands a greater effort from firms perceived as high reputation firms, it is therefore hypothesised:

H2d: The level of firms' voluntary derivative financial instrument disclosures is higher for G100 affiliated firms than for non-G100 affiliated firms.

# 5.32 The Need to Engage in Hedging Activities

Chapter 4 discusses firm benefits from implementing effective hedging strategies. Market imperfections, contracting costs, and alternative means of managing risk are factors influencing a firm's hedging strategy. Firm characteristics capturing these factors include: leverage, interest coverage, firm size, managerial shares and options, use of convertible debt and/or preference share financing, liquidity levels, dividend payout and growth opportunities. These characteristics are predicted to influence the firm's revealed preferences in relation to derivative financial instrument disclosures. *Ex ante*, the monitoring and bonding costs imposed on the firm are expected to be greater for firms with such characteristics. Should a firm possessing these characteristics use hedging as a risk management strategy (hedging firms), the disclosure of this information should provide *ex post* benefits by reducing monitoring and bonding costs. Accordingly, management should have no aversion to the disclosure requirements as it is in their best interest to convey effective management practices.<sup>83</sup>

<sup>&</sup>lt;sup>82</sup> It is recognized that Australian firms listed in the US would be required to comply with the SFAS119 requirements. This would increase the likelihood of disclosures being made in the financial reports prepared according to Australian accounting rules and regulations. This is considered in Chapter 7: Results and Analysis.

<sup>&</sup>lt;sup>83</sup> This presumes the disclosure is not suggestive of high-risk concentrations and the information production, proprietary and political costs do not exceed the potential benefit from reducing agency costs.

capital structure increases the firm's financial risk, in addition to business risk, is present. Financial risk is potentially value reducing if the expected costs associated with financial distress exceed the benefits associated with the use of debt. The magnitude of the reduction in value depends on the probability assigned to the likelihood of financial distress occurring and/or the costs associated with financial distress. The likelihood of financial distress occurring increases, the more debt a firm employs.

The presence of debt in the firm's capital structure provides shareholders with an incentive to transfer wealth from debtholders (the fixed claimholders) to themselves. Management, acting as the shareholders' agent, provides the decision-making conduit for this occurrence. Actions such as underinvesting and dividend stripping are examples of mechanisms to achieve this wealth transfer. Debtholders, in recognition of this, price protect themselves by increasing the lending basis points charged over the base rate on firm borrowings and/or the use of more stringent covenants in loan agreements (Smith and Warner 1979, Press and Weintrop 1990).

Shareholders bear the cost of price protection mechanisms implemented by debtholders. Accordingly it is in the interest of the shareholders to reduce such costs. If hedging activities undertaken by the firm are perceived as effective by lenders (who accordingly charge a lower margin on debt finance), hedging is a means of assuring that wealth transfers associated with underinvestment are minimised. Given that underinvestment is positively correlated with the relative level of debt a firm has in its capital structure, it is in the interests of shareholders for the firm to engage in hedging activities to achieve wealth appreciation.

The need to use derivative financial instruments to hedge is extended by the use of debt capital. To be value maximising, debt funding requires management in relation to maturity risk, interest rate risk, and if offshore debt is used, currency risk. Derivative financial instruments can be an efficient and cost effective means of managing such risk exposures. Thus high leverage is associated with a greater need to trade derivative financial instruments to manage interest rate, maturity and possible currency risks.

Given the association between financial distress and debt contracting costs and the need to engage in hedging activities it is therefore hypothesised:

H3a: The level of voluntary derivative financial instrument disclosures is positively related to the level of debt in the firm's capital structure.

H3b: The level of voluntary derivative financial instrument disclosures is negatively related to the firm's interest coverage.

## 5.3212 Growth Opportunities

The availability of high growth opportunities conveys the appearance of risk to the market place.<sup>84</sup> Firms with assets-in-place are perceived as low risk firms relative to firms with high growth opportunities (Myers 1977). This implies that firms with high growth opportunities are likely to engage in hedging activities to capture wealth appreciation by means of reduced agency costs. Firms pursuing this course of action should benefit from disclosing this to firm outsiders. *Ceteris paribus*, it is expected that the benefits of derivative disclosures by high growth opportunity firms will outweigh the associated costs.

The preceding argument suggests that firms with high growth opportunities (having incentives to hedge in order to reduce risk) will engage in a greater level of voluntary disclosure. But are high growth opportunity firms more likely to hedge? Compared to firms with assets-in-place, high growth firms are less likely to have debt contracts due to a lack of collateral to support such contracts. Furthermore, the ability of these firms to obtain external debt financing is likely also to be impeded by greater information asymmetry concerning the quality of their investments. As leverage has been positively related to hedging activity, high growth opportunity firms that are more reliant on equity than debt funds may have less need to engage in hedging activities. Their hedging activities are likely to be further impeded by the investments (representing the growth opportunities) not being correlated with easily hedgeable risk (Froot, Scharfstein and Stein 1993).

<sup>&</sup>lt;sup>84</sup> A distinction is often not made between growth *per se*, growth opportunities and growth options. Utilising an accounting earnings approach to valuation, the value of the firm has been denoted as current earnings plus future growth opportunities (Miller and Modigliani 1961), assets-in-place plus growth options (Myers 1977) and tangible value plus franchise value (Leibowitz 1986). Bradbury and Godfrey (1997) regard growth opportunities as economic goodwill associated with future managerial discretionary decisions.

Theoretical and empirical consideration has been given to determining if the mix of assets in place and growth opportunities affects the sensitivity of the market value of equity to interest rate movements (equity duration).<sup>85</sup> Competing arguments have been presented in the literature with respect to the relation between equity duration and the presence of growth opportunities.<sup>86</sup> Sweeney (1995) examines the relationship between equity duration and growth opportunities for companies listed on the Australian Stock Exchange (ASX). Her findings suggest that the portfolio of firms classified as high growth opportunity firms, based on using market value to net tangible assets as the proxy for growth opportunity firms. However, she obtains conflicting results when the price earnings ratio is used to form the portfolios of high and low growth opportunity firms. Sweeney (1995) suggests that the mix of assets in place and growth opportunities could influence interest rate risk exposure of firms, but conclusions as to the direction and extent of this influence are not possible.

The preceding arguments predict an association between growth opportunities and the need to engage in hedging activities, but the directional nature of this association is unpredictable.

It is therefore hypothesised:

<sup>&</sup>lt;sup>85</sup> While interest rate risk is only one of many risk exposures confronting the firm that can be managed with derivative financial instruments. Nevertheless this constricted consideration of risk is relevant to the discussion of the need to hedge in the presence of growth opportunities.

<sup>&</sup>lt;sup>86</sup> Differences in the predicted relationship between equity duration and the presence of growth opportunities arise from using different firm valuation models (the matrix of models comprising equity, asset, cash flow and earnings approaches) and whether the change in nominal interest rates is due to a change in real rates or the effect of a change in inflation. Arguments supporting the conclusion that *high* growth opportunities results in high equity duration (Casabona, Fabozzi and Francis 1984, Gould and Sorensen 1986, Ben-Horim and Callen 1989) imply that firms with *high* growth opportunities should engage in more hedging activities to reduce the interest rate sensitivity of equity values. Arguments supporting the conclusion that *low* growth opportunities are associated with higher equity duration (Leibowitz and Kogelman 1993 and Hevert, McLaughlin, and Taggart 1994) imply that firm with *low* growth opportunities should engage in more hedging activities to reduce the interest rate sensitivity of equity values.

H3c: The level of voluntary derivative financial instrument disclosures is related to extent of growth opportunities in the firm's investment opportunity set.

## 5.3213 Earnings Variability

The costs associated with financial distress are higher for firms exhibiting higher variability in accounting earnings or cash flows relative to firms with lower variability in earnings or cash flows. The lower the debtholders' confidence in the firm being able to meet its fixed claims, the higher are the monitoring and bonding costs. Hedging allows the hedger to reduce the loss that would be associated with adverse price movements in the physical market by taking out an opposite position in the derivative market.<sup>87</sup> By definition, hedging enables firms to reduce variability in firm value. Firms employing hedging strategies to reduce earnings volatility are unlikely to be adversely affected by the disclosure of such practices, providing the information production costs are not substantial. Assuming the profit (loss) on the hedging transaction is recognised at the same time that the loss (profit) on the underlying transaction is recognised, the suitability of the hedging practices should be reflected in lower earnings volatility.<sup>88</sup> Firms with high earnings volatility will incur higher agency related costs. The presence of persistent higher earnings volatility implies minimal hedging activities for the purpose of risk reduction. The disclosure requirements force such firms to publicly acknowledge their lack of management with respect to risk reduction. Conveying such ineffective or inappropriate risk management practices would be detrimental to the firm's value.

It is therefore hypothesised:

<sup>&</sup>lt;sup>87</sup> Section 2.32 in Chapter 2 discusses a broader perspective of hedging. Hedging can be used as a means of achieving a desirable level of risk that may be higher or lower than the risk in a non-hedged environment.

<sup>&</sup>lt;sup>88</sup> The alternative accounting methods for hedging activities are presented in Chapter 2 Figure 2.1. Should the firm's accounting treatment differ from recognising the gain/loss on the hedged item and hedging instrument in the same period, no reduction in earnings volatility may be visible. However, if the firm is concerned with risk management and the appearance of minimising risk, it is probable the accounting method adopted would be the one that minimises the volatility in the profit and loss statement.

H3d: The level of voluntary derivative financial instrument disclosures is negatively related to the firm's earnings volatility.

# **5.3214 Industry Classification**

Derivative financial instrument disclosures have the potential to affect all firms. Chapter 4 relates high financial distress costs to a greater need to engage in hedging activities and identifies industry specific characteristics associated with higher expected financial distress costs. This suggests that a firm's industry affiliation influences the need to engage in hedging activities. Importantly for derivative disclosures, the industry variable is likely to capture complexity in commodity markets and variability in a firm's earnings and cash flows. A firm operating in markets subject to volatile commodity prices has a greater incentive to protect itself from unfavourable price movements. Two industries particularly subject to variability and complexities in commodity markets are oil and mining industries.<sup>89</sup> Firms operating in such industries and effectively managing their exposures should benefit from conveying this pursuit to the market. Conversely, should a firm operating in this industry have to report a lack of commodity risk management, a detrimental effect on firm value is suggested.

It is therefore hypothesised:

H3e: The level of voluntary derivative financial instrument disclosures is higher for firms engaged in mining and oil activities than for other firms.

#### 5.322 Alternative Risk Management Practices

The need to employ hedging as a risk management technique depends on the extent to which other risk management strategies are present. The alternative strategies identified in Chapter 4 (section 4.6) include larger investments in liquid

<sup>&</sup>lt;sup>89</sup> It is acknowledged that firms operating in the banking and finance industry are particularly exposed to maturity and interest rate risk exposure. Consequently this industry should be regarded as a 'sensitive' industry. For the purpose of this thesis financial institutions are excluded from the analysis. The rationale for their exclusion is based on disclosure requirements for financial institutions being the subject of a separate accounting pronouncement. Thus financial institutions' disclosures are governed by two accounting pronouncements.

assets, investments in less risky assets<sup>90</sup>, lower dividend payouts, and the presence of convertible debt and/or redeemable preference shares. Such strategies are able to replicate the objectives of hedging, namely to reduce the probability of expected financial distress costs and/or enhance the likelihood of fixed claims being satisfied by restricting wealth distributions from debtholders to shareholders. It is proposed that firms pursuing these alternative risk management policies reduce the need to use derivative financial instruments to hedge. Thus, such firms will be less affected by the imposition of derivative financial instrument disclosures. Firms not pursuing these alternative policies have a greater need to enhance value by hedging and are more likely to capture the benefits and be subject to the costs associated with the disclosures. It is expected that such firms have greater incentives to voluntarily disclose derivative financial information.

It is therefore hypothesised:

H4a: The level of voluntary derivative financial instrument disclosures is negatively related to the firm's investment in liquid assets.

H4b: The level of voluntary derivative financial instrument disclosures is positively related to the firm's investment in risky assets.

H4c: The level of voluntary derivative financial instrument disclosures is positively related to the firm's dividend payout.

H4d: The level of voluntary derivative financial instrument disclosures is negatively related to the existence of convertible debt and/or preference shares in the firm's financing mix.

<sup>&</sup>lt;sup>90</sup> The firm's investment in risky assets reflects its investment opportunity set. Less risky assets can therefore be analogous to more assets-in-place relative to growth opportunities. Proceeding from this line of argument, more assets-in-place can support more debt in the firm's capital structure. The presence of more debt increases the agency costs of debt. Pursuing hedging strategies can reduce agency costs of debt and benefit the firm. This suggests an alternative means of viewing the relationship between a firm's investment in risky assets and the need for, and benefits to be derived from, hedging activities.

# 5.323 Managerial Risk Aversion

Management compensation schemes, linking management's remuneration to firm performance, are designed to reduce agency costs due to the separation of ownership and control. A positive (negative) association between share (option) compensation schemes and hedging activities is likely. Managers with substantial wealth invested *via* share schemes have an incentive to hedge to reduce firm value volatility. However, granting options to managers creates a disincentive to hedge. This is because an option's value is positively related to share price volatility. Based on the desire to engage in hedging to reduce volatility in firm value, a positive (negative) relationship between managers' share ownership (option holdings) is predicted.

Furthermore, assuming the derivative financial instrument disclosures contain value relevant information, the disclosures can impact upon managerial compensation. Should managers perceive that the disclosures would have a positive impact on the market's perception of their risk management practices, managers should support the disclosures, as they will share in the wealth appreciation. Should managers believe that the disclosures would be detrimental to firm value and/or their performance assessment, resistance to the disclosures is likely.

It is therefore hypothesised:

H5a: The level of voluntary derivative financial instrument disclosures is positively related to the presence of management share ownership.

H5b: The level of voluntary derivative financial instrument disclosures is negatively related to the presence of management option schemes.

## 5.33 Information Asymmetry

A permanent information gap can exist between insiders and outsiders as the 'truth' may never come out (Lev 1992). The magnitude of the information gap determines the costs and difficulties outsiders encounter in evaluating management's performance. The presence of an information gap reduces firm

value due to higher monitoring and bonding costs. Disclosing value relevant information constricts the information gap. The 'flow on' effect is a reduction in agency related costs. Lev (1992) states that the information gap and agency costs are particularly pronounced for firms not in 'the public mind set'. As costs associated with the information gap and agency relationships can be mitigated by the voluntary disclose of information, it is expected that firms perceiving themselves as not in the 'public mind set' have a greater incentive to make voluntary disclosures.

To develop testable hypotheses in relation to the proposition that voluntary disclosure is a function of the agency costs confronting firms due to information asymmetry, it is necessary to consider the firm attributes related to information asymmetry. The extent of press coverage and shareholder dispersion, are firm attributes that determine the extent of the information gap.<sup>91</sup> Should a firm be seeking external financing, strong incentives exist for management to enhance disclosures to avoid undervaluation of the firm. Accordingly, hypotheses relating to press coverage, shareholder dispersion and external financing needs are developed in subsections 5.331, 5.332 and 5.333 respectively.

## 5.331 Press Coverage

Users of financial statements are generally regarded as a heterogeneous group and accordingly will vary in their ability to handle accounting information. The argument for greater disclosure on the basis that more is better may be a misconception as disclosures may exceed users' needs. However, if the outputs from the financial reporting system are received indirectly (as opposed to directly) the audience becomes a fairly homogeneous group. The user environment can be perceived as one involving analysts, users and consumers and the availability of processed financial data from analysts and journalists may have an effect on the extent to which users utilise remaining sources of information. Should analysts

<sup>&</sup>lt;sup>91</sup>The extent of analytical following for a firm will also impact upon the size of the information gap and reduce agency costs. The greater transparency afforded to the firm permits more efficient and effective monitoring of the firm's performance. Analytical following is not included as a separate independent variable as a strong positive correlation is expected between analytical following and press coverage. Collection of an analytical following variable is also impeded by the data access constraints.

and the media service users' data needs, then an increase in the volume and sophistication of disclosures may be warranted. As noted by Birnberg (1995):

"...if analysts are generally more abstract information processors than are investors, then there is an increase in the level of complexity possible before the processing system is overloaded. This would mean that attempts to expand the volume of data disclosed could be successful, for they would be addressed to the audience most able to utilise them in an efficient manner" (p. 462).

Assuming analysts and the media are information intermediaries, the information is relevant, credible and not available elsewhere at the same or lower cost, all firms have an incentive to provide information voluntarily in expectation that enhanced disclosures attract greater analytical following.<sup>92</sup> Why is it desirable to increase analytical following? The benefits include lower information asymmetry, greater investor following, more accurate earnings' forecasts and reduced uncertainty about the firm's operations. Greater analytical following enhances the dissemination of information in the market place, providing outsiders with better information to evaluate the firm and management's performance. The narrowing of the information gap and the consequential reduction in monitoring and bonding costs creates shareholder value.

The preceding rationale suggests a firm's press coverage (and analytical following), is positively related to incentives to provide derivative financial instrument disclosures. This presumes analysts and the media will view favourably the information disclosed. Should management believe the information could be interpreted as suggesting inappropriate firm risk management practices, disclosure is less likely. The argument advanced assumes that more disclosure attracts greater analytical following and press coverage. A reversal of causality is plausible. It may be that greater analytical following and press coverage enables pressure to be exerted on firms for more disclosures with respect to derivative financial instruments. As such, a positive association between press coverage and disclosure levels is likely. The argument in the preceding paragraph also presumes that enhanced disclosures attract media attention and analytical following by reducing information search costs and providing information that enables users to

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<sup>&</sup>lt;sup>92</sup> This assumption is not unreasonable given the findings of a shareholder survey on the usefulness of annual reports conducted by Anderson and Epstein (1995). The survey results suggest that individual shareholders rely more heavily on the advice of their stockbroker and the financial press than on the annual report for making investment decisions.

make a more informed assessment of the firm's financial status. This premise may be inaccurate. Rather than regarding analysts and the media as information intermediaries, they could be classified as information providers. This classification presumes the media and analysts compete with firm provided disclosures. Accordingly, analysts in particular, prefer less firm disclosures providing the information is available from alternative sources. It is not expected that greater firm disclosures with respect to derivative financial instruments will substitute for, or reduce the value of, the analyst's report. It is unlikely that analysts have informational advantage with respect to firms' risk management practices, as access to this information from sources other than the firm is nonexistent or too costly to access. Furthermore, any devaluation of the analyst's report due to increased derivative financial instrument disclosures by the firm depends on the sophistication of other market participants. Investors may not be capable of processing the information and impounding it into share price (Skinner 1996).

It is therefore hypothesised:

H6a: The level of voluntary derivative financial instrument disclosures is positively related to the firm's press coverage.

#### 5.332 Shareholder Dispersion

An association between agency related costs, due to information asymmetry, and shareholder dispersion is predicted. Greater shareholder dispersion implies a larger information gap as more shareholders incur search costs in assessing information to evaluate firm and management performance. This suggests the more dispersed a firm's shareholder base, the greater the incentive to voluntarily disclose information to reduce agency costs arising from the information gap. However, reverse causality is possible. The larger number of shareholders can be a consequence of a narrower information gap. Exogenous factors (such as greater analytical following and press coverage) may result in more investors being suitably informed about the firm. The possible consequence of this is an increase in the likelihood of investors purchasing shares in the company.

Firms like to attract the support of institutional investors as, like analysts, institutional investors' perceptions have a strong impact on general investors' perceptions. Furthermore, a large institutional ownership facilitates new share or bond issues by companies (Lev 1992). Lev (1992) also claims that institutional investors are effective evaluators of firm and management performance. Hence, strong institutional support for a firm conveys a favourable assessment to the market of the firm's ability to generate shareholder wealth. Institutional investors, like analysts, require enhanced value relevant disclosures to assist them in their decision-making capacity.<sup>93</sup> They possess the capacity to absorb, understand and utilise sophisticated information such as that related to derivative financial instruments. As noted by Lev (1992):

"Institutional investors require sophisticated, future-orientated information, suggesting that the provision of such information will increase their demand for the firm's securities" (p. 20).

Accordingly, firms striving to obtain the support of institutional investors have a greater incentive to disclose information concerning derivative financial instruments. This presumes the disclosures convey effective and efficient risk management practices by the firm.

The argument suggesting that greater shareholder dispersion should be associated with an increased propensity to disclose is further enhanced by examining risk attributes of institutional investors relative to general investors. Large shareholders are expected to possess greater risk tolerance. Previously it was argued that non-disclosure can be perceived as 'bad news' and a non-disclosing firm's shares will be discounted accordingly. The greater the risk tolerance of a firm's shareholders (in the absence of derivative disclosures), the smaller the increase in the discount rate applied to the firm's expected future cash flows. Should management expect minimal change in the discount rate or expected future cash flows, they may be more inclined to pursue a policy of non-disclosure. It is therefore hypothesised:

<sup>&</sup>lt;sup>93</sup> This presumes that the information is not available elsewhere. Should alternative sources exist for information, any erosion in the informational advantage they possess would render them less amenable to greater disclosures in the annual financial statements.

## 5.333 External Financing Requirements

The extant literature suggests that increases in disclosure levels coincide with planned equity capital issues. Full disclosure facilitates the raising of external finance in a cost effective and efficient manner (Choi 1973, Clarkson, Kao and Richardson 1994). If management perceives that their firm's shares are undervalued and there are costs associated with this undervaluation, an incentive is created for management to reveal information that is likely to have a positive impact on firm value. In the case of derivative financial instrument disclosures, a firm failing to make any disclosures regarding such activities is likely to be penalised when accessing additional equity funds. Firms are expected to respond to the transparency demands particularly if they intend to access capital markets for funding purposes.

It is therefore hypothesised:

H6c: The level of voluntary derivative financial instrument disclosures is positively related to the firm's external financing needs.

### 5.34 Information Production Costs

Enacting new disclosure requirements imposes information production costs on firms currently not producing the information for internal or external reporting purposes. Most of these costs relate to initial costs in establishing or upgrading accounting systems to produce the required information. The subsequent incremental costs are insignificant relative to the initial 'start up' costs. Firms employing managers with specialised information to manage a hedging program are less likely to be concerned with the information production costs that accompany increased disclosure requirements than firms without specialist managers. This is premised on the employment of specialised human knowledge associated with the establishment of a separate treasury function in the organisation. The presence of a treasury function suggests information production costs incurred to satisfy the disclosure requirements will be lower. It is most likely that the firms have previously devoted resources to upgrade their information systems to accommodate the information needs of a treasury department. This translates to less time, cost and effort imposed on the firm in relation to extracting, collating, and presenting the required information. Information production costs are therefore expected to be a less significant cost consideration in the voluntary disclosure decisions for firms with a separate treasury function. The infrastructure (both in human capital and product capital) should already be present to facilitate and expedite the production of the information required by the accounting standard setting bodies.

The presence of a separate treasury function reduces knowledge transfer costs if the risk management decisions remain within the ambit of a manager without such expertise. However, the delegation of responsibility associated with organising transactions within a treasury function introduces the possibility of goal conflicts between the treasurer and other stakeholders. In pursuit of their own goals, betterinformed agents (treasury staff) have incentives to selectively release or distort information flowing to management (King and Wallin 1996).

Managers delegating the risk management function recognise the need for corporate government mechanisms to ensure goal congruence between the treasurer and firm stakeholders. The disclosure of derivative financial instrument activities is such a mechanism and should be supported by management. Assuming the informed agent has information and the information can be communicated in a credible manner, mandating derivative financial instrument disclosures will force information to be released. This reduces the information asymmetry between treasury personnel and top management.

Given that disclosures are recommended in relation to the firm's internal control systems, the existence of a treasury implies control systems are in place. Firms would want to convey the presence of adequate control systems. Furthermore, treasury would want to maintain credibility with management so there are aligned internal and external reporting considerations.

It is therefore hypothesised:

H7: The level of voluntary derivative financial instrument disclosures is positively related to the existence of a separate treasury function in the firm.

#### 5.35 **Proprietary Information**

Information related to a firm's derivative financial instrument transactions could impose costs on the firm if the information is proprietary and/or political in nature. Proprietary information is information that may be used by other parties in a manner that is detrimental to the firm. A tradeoff exists between the firm's desire to achieve value enhancement through increased disclosures aimed at reducing the information gap and the need to protect proprietary information. The tradeoff affects the interpretation of non-disclosure behaviour. Is the non-disclosure a function of the news being 'bad' or is it driven by the need to avoid proprietary costs? Derivative financial instrument disclosures can be proprietary due to their commercial sensitivity. This particularly applies to information related to a firm's underlying risk.

Effective management of on-balance sheet risks hedging instruments reduces the variability in earnings and cash flows and will be rewarded by higher firm value. This suggests that effective risk management techniques can provide a competitive edge in the market place. Requirements to make the extent, nature and source of risk management techniques more transparent have the potential to erode competitive advantages due to such strategies. Competitors may implement changes to their risk management strategies in response to the practices being employed by other firms, or use the information to secure more favourable deals in the market place. Alternatively, firms exhibiting the competitive advantage may alter their hedging behaviour to distort the disclosure of proprietary information. Such behaviour is likely to lead to sub optimal hedging strategies, assuming that the original strategies were most efficient.

The strategic decision involving the release of proprietary information is often linked to the competitiveness of the industry in which the firm operates although consensus of how competition affects disclosure behaviour is lacking.<sup>94</sup> The

<sup>&</sup>lt;sup>94</sup> Other proprietary cost surrogates used in empirical studies include strike incidence, average weekly pay rates, and the firm's return on assets *versus* the industry's return (Scott 1994).

theories relating voluntary disclosure to competitiveness endogenise proprietary costs in the context of an entry game - the information disclosures are related to the threat of further competition in the firm's product and financial markets (Darrough 1993). Verrecchia's (1983) model of voluntary disclosure purports that voluntary disclosure is more prevalent the less competitive the firm's industry. The commercial sensitivity of derivative financial instrument disclosures is predicted to be greater for firms operating in a competitive environment (Peters 2000). Accordingly, such firms are less likely to voluntarily disclose information concerning their risk management strategies. To do so could provide competitors with a valuable insight into their risk management practices and relationships with financial market participants.

It is therefore hypothesised:

H8: The level of voluntary derivative financial instrument disclosures is negatively related to the competitiveness of the market in which the firm operates.

# 5.36 Firm Size

Empirical studies suggest a positive association between firm size, and disclosure levels.<sup>95</sup> *Ceteris paribus*, larger firms should therefore engage in greater derivative financial instrument disclosures. Are the costs/benefits of derivative financial disclosures similar for all firms irrespective of size? Firm size is expected to be associated with scale economies, agency costs due to information asymmetry, information production costs, political costs, financial reporting reputation and competitive advantage. A discussion of the impact of size on these factors is included in Appendix 3. The impact is not unidirectional, suggesting that size can be related to both cost impositions and cost reductions. This inhibits a definitive prediction of the relationship of firm size and the costs/benefits associated with mandated financial instrument disclosures. The ambiguity surrounding the

<sup>&</sup>lt;sup>95</sup> Refer to Ball and Foster (1982) for a summary of early empirical observations relating to firm size.
interpretation of any association found between firm size and disclosure levels warrants including firm size as a control variable.

# 5.4 Summary and Conclusions

This chapter develops hypotheses predicting firms' derivative financial instrument disclosures. The hypotheses are designed to test the association between voluntary disclosure strategies and firm attributes. The attributes examined relate to: (1) legitimacy and reputation concerns of individuals and firms; (2) the firm's need to engage in hedging activities due to market imperfections, contracting costs and alternative risk management strategies; (3) the extent of the firm's information asymmetry; (4) the costs associated with information production; and (5) the release of proprietary information. Chapter 6 proceeds to describe the research design and data collection methods employed to enable the hypothesis testing.

# **CHAPTER SIX: RESEARCH DESIGN**

# 6.1 Introduction

The preceding chapter develops propositions and hypotheses relating to financial statement preparers' decisions to voluntarily disclose derivative financial instrument information in annual reports. This chapter describes the research design employed to capture the dependent and explanatory variables and test the voluntary disclosure model developed in Chapter 5. The chapter proceeds as follows. Sections 6.2 and 6.3 describe the test period and sample selection criteria respectively. The measurement of the dependent variable, a firm's voluntary derivative financial instrument disclosures (VRDI), is detailed in section 6.4. Constructs, labels and measurement of the explanatory variables are provided in section 6.5. A summary of the chapter and its conclusions are presented in Section 6.6.

# 6.2 Test Period

To test hypotheses relating to firms' voluntary derivative financial instrument disclosures, data for reporting periods when such disclosures are unregulated are required. This precludes test periods beyond June 1997 given that AASB1033 applies to reporting periods on or after 31 December 1997. Rather than focus the study on one reporting period a multiple reporting period, 1992-1997, is selected. This test period permits a richer examination of voluntary reporting of derivative financial instruments as it enables cross sectional and time series data analysis. This time window incorporates the release dates of pronouncements expected to influence disclosure strategies (refer to Figure 2.2 in Chapter 2). The first Australian accounting pronouncement - ED59 *Financial Instruments* - was issued in March 1993. The ASCT Industry Statement, issued in March 1995, followed this. The Australian accounting standard setting bodies issued ED65 *Presentation and Disclosure of Financial Instruments* in June 1995, and released *AASB1033 Presentation and Disclosure of Financial Instruments* in December 1996 with an operative date for reporting periods ending on or post December 1997.

Effectively, this study focuses on derivative financial instrument disclosures during a two-phase disclosure regime: (1) pure voluntary disclosure (1992-1994); and (2) coercive voluntary disclosure (1995-1997). The release of professional body recommendations and an exposure draft in 1995 herald the commencement of the coercive disclosure regime. The selection of this test period provides an interesting insight into managers' and regulators' responses to information demands by stakeholders in the absence (presence) of actual (quasi) regulation. The selection of a 1992-1997 test period is further justified on the basis that during this period significant lagges are projected by experimentations in connection.

during this period significant losses are reported by organisations in connection with derivative financial instrument dealings (refer to Table 2.2 in Chapter 2). This intensifies the demand exerted on financial statement preparers to be socially responsible and disclose information concerning their firm's derivative activities.

# 6.3 Sample Selection

To be included in the sample of firms on which the hypotheses are tested, firms must:

- be ranked in the Top 500<sup>96</sup> (as measured by market capitalisation) as at 31 March 1996.<sup>97</sup>
- (2) be listed on the Australian Stock Exchange during the entire period spanning 1988-1996;<sup>98</sup>
- (3) belong to an industry classification other than Banking and Finance; and
- (4) have a financial reporting year within one month of 30 June.

<sup>&</sup>lt;sup>96</sup> The selection of the Top 500 firms potentially introduces a size bias into the study. However, given firm size is not an explanatory variable in the voluntary reporting model developed, this initial sampling criterion is acceptable. For a discussion on the influence exerted by firm size on voluntary reporting refer to Appendix 3. Furthermore the use of legitimacy and institutional theories as explanatory frameworks further justifies Top 500 selection. Hypotheses derived from these theories are strengthened, as the firms are more likely to be subject to institutional forces and a high degree of public trust.
<sup>97</sup> The Top 500, as measured by market capitalisation as at 31 March 1996, is obtained from

<sup>&</sup>lt;sup>97</sup> The Top 500, as measured by market capitalisation as at 31 March 1996, is obtained from Business Review Weekly (1996).

<sup>&</sup>lt;sup>98</sup> The decision to include voluntary disclosures for the 1997 reporting period is made pursuant to the sample selection. Given that there is considerable merger activity in 1996/97, particularly amongst mining firms, the decision is made not to alter this sample selection criterion to listing spanning the 1988-1997 period. Such an alteration to the sample selection criterion would have reduced the sample size and accordingly reduced the richness of the dataset. There are 26 (12) annual reports unavailable in 1997 (1996).

Table 6.1 documents the number of companies remaining or deleted as a consequence of applying these sampling criteria. A discussion of each criterion follows:

(1) The Connect4 database<sup>99</sup> and Shareholder<sup>100</sup> are used to search for derivative financial instrument disclosures in annual reports and to access financial statement information. As these databases generally capture information on the Top 500 Australian listed firms (by market capitalisation), the commencing point for the sample becomes the Top 500 as at 30 June 1996. Firms are subsequently deleted from this sample if sampling criteria 2-4 are not satisfied.

(2) Hypothesis tests require measures of beta risk. For this purpose a minimum of 60 price observations is recommended.<sup>101</sup> Using monthly data, it is therefore necessary for firms to be listed on the ASX for a period spanning at least 1988-1997.<sup>102</sup> This requirement eliminates 214 firms from the 500 initially selected. Hypothesis testing also requires measuring a firm's earnings volatility over a five-year time span prior to and including the disclosure year. Given that the firm's disclosure is being measured from 1992, this necessitates access to earnings information in 1988.

(3) Any firm with an industry classification of Banking and Finance is deleted from the sample. Jobson's Year Book of Public Companies and Jobson's Mining Year Books (Jobson's) are used to classify firms into industry categories. Firms operating in the Banking and Finance Industry are excluded due to their use of derivatives in dealing and/or trading activities. Furthermore, derivative financial instrument activities and disclosures by banks and finance companies are subject to the guidelines established by the Bank for International Settlements and accounting standard setting bodies have developed separate accounting pronouncements governing the presentation and disclosure of financial

<sup>&</sup>lt;sup>99</sup> The Connect4 database is a selection of annual reports from companies who are listed on the Australian Stock Exchange with the reports captured electronically and stored on CD-Rom.

<sup>&</sup>lt;sup>100</sup> Shareholder is an annual database compiled by Ian Huntly Pty Limited containing summarised financial statement information for Australia's Top 500 companies.

<sup>&</sup>lt;sup>101</sup> Peirson et. al. (1995) note that it is generally accepted that 60 monthly observations are suitable to estimate variables in the market model (p. 518).

<sup>&</sup>lt;sup>102</sup> The equity beta for reporting period ended June 1992 is based on four, rather than five, years of monthly historical returns. This is done to avoid 1987, the year of the sharemarket crash.

instruments for financial institutions<sup>103</sup>. Accordingly, such firms are subject to different pressures and requirements in relation to the disclosure of this information. Application of this sampling criterion necessitates the elimination of a further 7 firms from the sample.

(4) The final criterion is a financial year ending on, or within one month of, 30 June. The study aims to examine the extent of voluntary reporting at common points in time. Should a firm have a balance sheet date other than within one month of 30 June, the extent to which the firm's voluntary disclosures are influenced by regulatory and professional body pronouncements issued at different times throughout the year may differ. For example, a firm with a financial year ended 31 March may not have had a chance to 'gear up' and satisfy the Industry Statement disclosure requirements (released March 1995) to the same extent as a firm with a 30 June financial year-end. In such an instance, the voluntary disclosure levels of the firms in 1995 may not be comparable. This sampling criterion eliminates a further 63 firms from the sample.

Application of the above criteria results in a sample of 216 firms. It is necessary to delete a further 17 firms for the following reasons:

(1) 6 firms had a transitional year (changing their year-end date) during the period 1992-1996;

(2) 4 firms had financial statements denominated in amounts other than AUD; and(3) Financial statements are unavailable for all periods for a further 7 firms.

These sample deletions leave the final sample at 199 firms. The industries represented in the sample are detailed in Appendix 4. The unavailability of a firm's financial statements for a specific year necessitates the firm being excluded for that particular year. Firms' financial statements were obtained from the Connect 4 database. If the reports were unavailable through this medium, firms were contacted to request a printed copy of the report. Not all firms responded to this request.

<sup>&</sup>lt;sup>103</sup> ED63 Additional Disclosures by Financial Institutions was issued in March 1995. AASB1032 Specific Disclosures by Financial Institutions, issued by the PSASB and AASB in December 1996, applies to reporting periods ending on or after 31 December 1997.

periods

**Final Sample** 

| Sampling Criteria                    | Number of I | Firms   |  |  |  |  |
|--------------------------------------|-------------|---------|--|--|--|--|
|                                      | Deleted     | Balance |  |  |  |  |
| Top 500 Companies                    |             | 500     |  |  |  |  |
| Less firms not satisfying the        |             |         |  |  |  |  |
| following criteria:                  |             |         |  |  |  |  |
| 1. ASX listing throughout the period | 214         | 286     |  |  |  |  |
| 1988-1996                            |             |         |  |  |  |  |
| 2. Banking and Finance Industry      | 7           | 279     |  |  |  |  |
| classification                       |             |         |  |  |  |  |
| 3. Financial year end within one     | 63          | 216     |  |  |  |  |
| month of 30 June                     |             |         |  |  |  |  |
| Less Further Deletions as a result   |             |         |  |  |  |  |
| of:                                  |             |         |  |  |  |  |
| 4. Firms with a transitional year    | 6           | 210     |  |  |  |  |
| 5. Financial Statements denominated  | 4           | 206     |  |  |  |  |
| in non AUD                           |             |         |  |  |  |  |
| 6. Unavailability of financial       | 7           | 199     |  |  |  |  |
| statements for all the reporting     |             |         |  |  |  |  |

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# Table 6.1: Sample Selection Criteria and Influence on Sample Size

# 6.4 Dependent Variable Measurement

This section explains the measurement of the dependent variable – a firm's voluntary disclosure of derivative financial instruments (VRDI). Two approaches can be used to developing a disclosure-scoring scheme: (1) based on presentation of the information (i.e. word count, sentences); or (2) a dichotomous procedure whereby an item scores 1 (0) depending on its disclosure (non-disclosure) (Copeland & Fredericks 1968). The extent of voluntarily disclosed derivative financial instrument information by firms is captured by a disclosure index described in subsection 6.41. The weight attached to each of the index items is discussed in subsection 6.42. Tests of index measurement reliability are detailed in section 6.43. Other derivative disclosure information collected, but not included in the voluntary disclosure index, is described in subsection 6.44. Finally, limitations of the dependent variable measurement are discussed in subsection 6.45.

#### 6.41 Index Composition

Chapter 3 alludes to the various methods applied by researchers in the construction of disclosure indices. Marston and Shrives (1991) state the 'need to create an index that is valid in the particular research environment being investigated' (p.198). The authors suggest this involves three steps: (1) a decision on which user perception to adopt; (2) consideration of the purpose of the study; and (3) the method of item selection. This study adopts their process, but not in this order.

The purpose of the study is to investigate the determination of managers' decisions to disclose derivative financial instrument information. Consequently, the disclosure index is based on the type and extent of derivative financial instrument disclosures that could be made by management. This study aims to examine voluntary disclosures of derivative financial instruments in an unregulated environment, but during a period when regulation is considered and professional demands are imposed on managers. It is therefore appropriate to use the recommendations of the accounting regulatory bodies and the professional treasurer's body as the basis for selecting items to be included in the index.

The attributes of the VRDI for this study are largely composed from the derivative financial instrument disclosures suggested in the Industry Statement and/or ED65.

These pronouncements provide an authoritative and objective source for construction of the index. Given that the accounting standard setting bodies' pronouncements apply to disclosures required in general purpose financial reports they should capture the information requirements of financial report users in general rather than a specific user group. Thus, the VRDI should reflect the extent to which managers reveal information perceived to be useful by general users of financial reports.

Table 6.2 documents the components of the VRDI. The index comprises information relating to the firm's policies, risk information, and net market value information.

#### 6.42 Index Weighting

The weighting or non-weighting of index items requires consideration. The literature referenced in Chapter 3 highlights a lack of consensus on this issue. Scott (1994), in a study of voluntary disclosures of defined benefit pension plan information, argues that the lack of any obvious order to the plan details, either with respect to their relative importance or in terms of any pattern, warrants the items being coded as present or not rather than the degree of presence. If the index is to be weighted, perceptions as to the relative importance of the items need to be elicited. Perceptions are usually based on a particular user group (i.e. financial analysts, banking representative, auditors). Courtis (1992) examines the nature and extent of perception consensus using a meta-analysis of perception based studies, concluding that if used judiciously, the use of per-item perception means has some support.

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| Table 6.2: | Components of the Derivative Financial Instrument Voluntary Re | porting Disclosure Index (VRDI) |
|------------|--|---------------------------------|
|------------|--|---------------------------------|

| INFORMATION  | Reference in<br>ED65 | Reference in<br>Industry              | Score |
|--|----------------------|---------------------------------------|-------|
|  |                      | Statement                             |       |
| Policy Information Disclosures   |                      |                                       |       |
| Does the firm specify its hedging policy?  |                      |                                       | 1     |
| Does the firm specify the objectives for holding or issuing derivative financial instruments?                                      | Par 52               | Part A                                | 1     |
| Does the firm specify the accounting policies and methods adopted for derivative instruments (other then foreign surrancy hadges)? | Par 43a              | Part A                                | 1     |
| Deep the firm english their policy in giving (or obtaining) colleteral security and eradit errongements?                           | Par 66h              | Dart A                                | 1     |
| Does the firm specify their policy in giving (of obtaining) contactal, security and credit an angenicities:                        |                      | Dort A                                | 1     |
| Does the firm generally specify how they monitor and control the risk associated with derivatives?                                 |                      |                                       | 1     |
| Does the firm specify specific financial controls in place to monitor the risks?   |                      | Part A                                | 1     |
|  | -                    |                                       |       |
| Risk Information   | -                    |                                       |       |
| Does the firm segregate information by risk categories (i.e. interest rate risk, credit risk)?                                     | •                    | Part B                                | 1     |
| Does the firm provide the following information for its derivative instruments?  |                      |                                       |       |
| Principal, stated value, face value, notional value or other similar amount  | Par 43bi             | Part B                                | 1     |
| Date of maturity   | Par 43biii           | Part B                                | 1     |
| Weighted average/ effective interest rate  | Par 43bii/ Par       | Part B                                | 1     |
|  | 55b                  |                                       |       |
| Does the firm specify to whom they have credit risk exposure?  | Par 66ci             | Part B                                | 1     |
| Does the firm comment on their estimated credit risk at reporting date?  | Par 66a              | Part B                                | 1     |
|  |                      |                                       |       |
| Net Market Value Information   |                      |                                       |       |
| Does the firm provide net market value information of derivative instruments?  | Par 78a              | Part B                                | 1     |
| Does the firm specify the methods adopted in determining net market value?   | Par 78b & c          | Part B (only for                      | 1     |
|  |                      | trading activities)                   |       |
| MAXIMUM POSSIBLE SCORE   | 1                    | · · · · · · · · · · · · · · · · · · · | 14    |

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To identify perceptions as to the importance of the items in this study's disclosure index, a postal survey sent to eighty-one equity analysts from twenty randomly selected sample companies asked the analysts to assign importance weightings to the disclosure items constituting the index. The analysts registered similar mean values for each item comprising the index.<sup>104</sup> This lack of differentiation in item importance, combined with concerns about using the mean calculation for each item, justifies the use of a non-weighted index.<sup>105</sup> Furthermore, an unweighted index permits an analysis independent of the perceptions of a particular user group. Support for attaching equal importance to each item in the index is found in Spero (1979) and Robins and Austin (1986). In addition, Williams and Tower (1997) find consistency in results testing environmental and social annual report disclosures when three alternative dependent variable constructs are employed, namely a non-weighted disclosure index, a weighted disclosure index and content analysis.

Reviewing the annual reports of sample firms, a score of 1 (0) is assigned to each item of information disclosed (not disclosed).<sup>106</sup> A total score is calculated by summing the scores assigned to each of the information items. A firm's VRDI for a given year (VRDI<sub>xy</sub>), expressed as a percentage, is measured by dividing the total score by the maximum possible score (refer to Equation 6.1).

<sup>&</sup>lt;sup>104</sup> Sixteen useable responses were received representing a response rate of 20%. Respondents were asked to rate the level of importance of disclosure items. The verbal anchor points were: 5 = very important, 4 = important, 3 = moderately important, 2 = slightly important, and 1 =-unimportant. The resultant mean scores are: 4.60 (objectives for holding derivative financial instruments), 4.313 (accounting policies pertaining to derivative financial instruments), 3.438 (collateral policies), 3.5 (monitoring derivative financial instrument trades), 3.5 (financial controls in place with respect to derivative financial trades), 4.60 (segregation of information by risk categories), 3.813 (statement of principal, nominal or face value of instruments), 3.875 (maturity profile), 4.250 (effective or weighted average rate), 3.438 (credit exposure estimation), 3.313 (credit parties), 3.625 (net market value disclosures), and 3.563 (determination of net market values).

<sup>&</sup>lt;sup>105</sup> The concerns with perception-based measures are non-response bias, the internal validity of the questionnaire construction, and the lack of supervision accompanying the survey instrument (Courtis 1992).

<sup>&</sup>lt;sup>106</sup> Using the search function on the Connect4 database, various search terms relating to derivative instruments are used to locate any references to derivative instruments throughout firms' entire annual reports. Any pertinent information located is printed with the hardcopies used for the VRDI calculation and data reliability testing. For instances where the annual report is not in electronic format, the hard copy of the report is read to identify any relevant disclosures. A summary sheet recording the presence (absence) of each item in the disclosure index for every sample firm is constructed and entered into a database.

 $VRDI_{j} = {}^{n_{j}}\sum_{i=1} (x_{ij} / n_{j}) \times 100$ [Equation 6.1] where: VDRIj = voluntary reporting disclosure index for a set of accounts for firm j  $n_{j}$  = number of possible items for jth firm  $x_{i} = 1$  if ith item disclosed and 0 if ith item not disclosed.

### 6.43 Index Reliability

To test the reliability of the VRDI measure, two procedures are used. Stability is examined by recoding the data after a time lapse to test the consistency of coding over time. To test the reproducibility, a second coder scores a random sample of 89 firms across 1994-1997. Inter-rater reliability, as measured by the coefficient of agreement (Cohen's kappa), is .709 (p < .000) for disclosing/non disclosing status and .313 (p < .000) for the VRDI. Differences in the raters' VRDI scores rarely vary by more than one index item. Differences are examined and discussed between the raters. For the majority of cases the first coder's VRDI is accurate, suggesting that the dependent variable coding is sufficiently robust.

#### 6.44 Other Disclosure Information Collected

Although not scored as part of the VRDI, the location of the information disclosure in the annual report and the firm's statement on the purpose for using derivative financial instruments are recorded. This information is used to assess the credibility of the disclosures and whether derivatives are primarily being used for hedging or speculative purposes. The location of the disclosure(s) is coded according to whether it is contained in the notes to the financial statements, the director's report and/or the chairman's report. Statements made by the firm as to why they use derivative financial instruments are coded: 0 = no statement; 1 = use to hedge and not for speculative or trading purposes; 2 = use to hedge and no mention made of use for trading or speculative purposes; 3 = use to hedge and speculate or trade; and 4 = do not use derivative financial instruments.

#### 6.45 Limitations of Dependent Variable Measurement

The inherent problem associated with a voluntary disclosure study of this nature is the inability to identify firms using derivative financial instruments ('user firms') unless disclosures are forthcoming. The potential bias introduced in this study is that a firm can register a zero disclosure score and be classified as a nondisclosing firm when in fact it has nothing to disclose. The non-disclosure could be due to no or immaterial derivative financial instrument usage rather than adherence to a non-disclosure policy. The alternative bias is to classify firms as non-users on the basis that no voluntary disclosures are forthcoming (Berkman *et al.* 1997). Such an assumption reduces the richness of the data, as effectively there will be no firms identified as non-disclosing firms. Whilst cognisant of the potential misclassification of non-users as non-disclosing firms, this treatment is justifiable.

To respond to transparency demands, non-user firms can make an explicit statement identifying themselves as non-users.<sup>107</sup> Furthermore, some firms are early adopters of AASB1033 in the 1997 reporting period, permitting the differentiation between a prior period non-discloser/non-user as compared to a non-discloser/user in 1997.

By 1998 it is possible to differentiate users and non-users as the disclosure status changes from voluntary to mandatory. For this reason, an analysis of derivative financial instrument disclosures for the 1998 reporting period is undertaken. Capturing this data permits retrospective classification of firms as derivative instrument users (non-users) based on their 1998 user status. This facilitates robustness testing, given that prior to 1998 no distinction can be made between non-disclosing firms who are users (non-users). A potential bias still exists given that a firm's status as a derivative user/non-user in 1998 is not necessarily representative of their status in prior periods.

This study presumes that the firm's need to engage in hedging activity influences their voluntary disclosure strategy. The ratio of the firm's derivative position to the risk exposure subject to hedging is the best measure of a firm's hedging. However, even in the current mandatory reporting regime, insufficient information would be available to calculate this ratio information. Recent studies proxy derivative usage by the notional amount of derivative financial instruments disclosed (e.g. Barton 2001). Given that this thesis investigates disclosures in an unregulated environment, notional amounts are not necessarily disclosed. This limits the study as it precludes testing the relationship between firm characteristics, extent of derivative usage and disclosures.

# 6.5 Explanatory Variable Constructs

The preceding sections detail the measurement of the dependent variable (voluntary reporting disclosure level). This section describes the measurement of the explanatory variables employed in the voluntary disclosure model. Recapping, the independent variables represent:

- (1) Legitimacy and reputation concerns of firms and managers;
- (2) Firms' need to engage in hedging activities due to market imperfections, contracting costs, and alternative risk management practices;
- (3) Information asymmetry;
- (4) Information production; and
- (5) Proprietary costs.

Subsections 6.51 through 6.55 describe the constructs, labels and measurement of the explanatory variables and control variable used to operationalise these propositions. This information is summarised in Table 6.3. All Statement of Financial Position and Performance items are obtained from Connect4. If this database does not contain a sample firm's annual report for any of the test periods, alternative data sources are sought.<sup>108</sup>

<sup>107</sup> Some firms in the sample made such statements in their annual reports.

<sup>108</sup> Firms without an annual report on the Connect4 database are contacted to request a printed copy of the annual report. Should this not be forthcoming, the items are sought from Shareholder.

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| Proposition  | Independent Variable Constructs | Label  | Measurement  | Data Source                         |
|--|---------------------------------|--------|--|-------------------------------------|
| Voluntary disclosure is<br>influenced by legitimacy and<br>reputation concerns   | ASCT membership (H2a)           | ASCT   | Employee member of ASCT<br>(1=yes, 0=no)   | Annual ASCT membership<br>directory |
|  | Big 6 audit firm (H2b)          | BIG6   | Big 6 audit firm (1=yes, 0=no)   | Connect4                            |
|  | AASB representation (H2c)       | AASB   | Audit firm employee on AASB<br>(1=yes, 0=no)   | Connect4                            |
|  | G100 membership (H2d)           | G100   | Firm member of G100 (1=yes,<br>0=no)   | CEO G100                            |
| Voluntary disclosure is<br>influenced by the firm's need to<br>engage in hedging activities due<br>to market imperfections and | Debt ratio (H3a)                | LEV    | Total liabilities/ Total Assets<br>Total Liabilities/ (Book value debt<br>+ market value equity) | Connect4/ Shareholder               |
| agency costs of debt   | Interest coverage (H3b)         | INTCOV | Log of (Profit before interest,<br>abnormals & tax/ Interest)                                    | Connect4                            |
|  | Growth Opportunities (H3c)      | GROWTH | Book value equity/ market value equity   | Connect4/ Shareholder               |
|  |                                 |        | Property, plant & equipment/ (Book<br>value debt + market value equity)                          | Connect4                            |
|  | Earnings volatility (H3d)       | EVOL   | Difference between maximum & minimum income over a 3 year  | Connect4                            |
|  |                                 |        | Three year earnings coefficient of variation   | Connect4                            |
|  | Industry affiliation (H3e)      | IND    | Mining/oil firm (1=yes, 0=no)  | ASX Industry classification         |

 Table 6.3:
 Explanatory Variable Constructs, Labels and Measurement

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| Proposition  | Independent Variable Constructs              | Label Measurement |  | Data Source                  |
|--|--|-------------------|--|------------------------------|
|  |  |                   |  |                              |
| Voluntary disclosure is influenced<br>by the firm's need to engage in        | Liquid assets (H4a)                          | LIQUID            | Current assets/ current liabilities  | Connect4                     |
| hedging activities due to alternative risk management practices.             | Risky assets (H4b)                           | RISK              | Firm's equity beta adjusted for leverage   | Bloomberg                    |
|  | Dividend payout (H4c)                        | DIV               | Dividend Paid or provided/ Net income  | Connect4                     |
|  | Convertible debt/ preference<br>shares (H4d) | ALTINST           | Convertible debt or preference<br>shares on issue (1=yes, 0=no)                          | Connect4                     |
| Voluntary disclosure is influenced<br>by managerial risk aversion            | Management share ownership<br>(H5a)          | SHARE             | Directors' share holdings/ Number<br>of issued ordinary shares                           | Connect4                     |
|  | Management option schemes<br>(H5b)           | OPT               | Directors' option holdings (1=yes,<br>0=no)  |                              |
| Voluntary disclosure is influenced<br>by the firm's information<br>asymmetry | Press coverage (H6a)                         | NEWS              | Log of number of firm related<br>news items appearing on<br>Bloomberg news service       | Bloomberg                    |
|  | Shareholder dispersion (H6b)                 | DISP              | 1 less % shares held by Top20<br>shareholders  | Connect4                     |
|  | External financing (H6c)                     | EXTFIN            | Issue of new equity in the 12<br>months proceeding the reporting<br>period (1=yes, 0=no) | Connect4/ Jobsons Year Books |

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Table 6.3 continued: Explanatory Variable Constructs, Labels and Measurement

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| Proposition                        | Independent Variable Constructs | Label | Measurement  | Data Source                      |
|------------------------------------|---------------------------------|-------|--|----------------------------------|
|                                    |                                 |       |  |                                  |
| Voluntary disclosure is influenced | Centralised treasury (H7)       | TREAS | Centralised treasury operation                               | Survey of sample firms           |
| production and proprietary costs   |                                 |       | (1-yes, 0-n0)  |                                  |
|                                    | Market concentration (H8)       | CONC  | Four firm concentration ratio                                | IBIS Information (as reported in |
|                                    |                                 |       |  | Business Review weekly)          |
| Control Variable                   | Firm Size (control)             | Size  | Log of sum of market value of equity plus book value of debt | Connect4 / Shareholder           |
|                                    |                                 |       | Log of total assets  | Connect4                         |
|                                    |                                 |       | Log of total revenue   | Connect4                         |
|                                    |                                 |       | Log of number of shareholders                                | Connect4                         |

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| Table 6.3 continued: Ex | planatory <b>'</b> | Variable ( | Constructs, | Labels and | Measurement |
|-------------------------|--------------------|------------|-------------|------------|-------------|
|-------------------------|--------------------|------------|-------------|------------|-------------|

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### 6.51 Legitimacy and Reputation Concerns

This section describes the measurement of legitimacy and reputation explanatory variables, including the data sources accessed.

## ASCT Membership (ASCT)

It is predicted that membership of the ASCT, by a firm's employee, will influence voluntary reporting of derivative financial instruments. It is expected that ASCT members hold senior positions within organisations. Accordingly, they are influential in identifying and formulating disclosure strategies regarding treasury activities.<sup>109</sup> The ASCT Membership Directories for the years 1992 to 1997 are used to construct this variable. If the firm has an employee who is (is not) an ASCT member in a particular reporting year, a classification of 1 (0) is assigned for that reporting period.

# Auditor Affiliation (Big6/AASB)

The voluntary disclosure model predicts that firms with a Big 6 auditor and/or representation on the AASB, labelled 'Big6' and 'AASB' respectively, have a greater propensity to engage in voluntary disclosures. A firm's auditor in each of the test periods is identified using Connect4 or Jobson's Year Book. A coding of 1 (0) is assigned if the audit firm is a Big 6 (non-Big 6 firm). This coding is consistent with previous disclosure studies incorporating audit firm as an explanatory variable (Dolley and Priest 1994, Firth 1979, Raffournier 1995).

Considering whether the audit firm has an employee who sits on the AASB refines the audit firm variable. The composition of the AASB for each reporting period is considered and firms audited by an audit firm with (without) an employee on the AASB are coded as 1 (0). To the author's knowledge, this variable has not previously been incorporated as a determinant of disclosure. The timing of ED65 (June 1995) pursuant to the release of the Industry Statement (March 1995)

<sup>&</sup>lt;sup>109</sup> To become a member of the ASCT a person must have earned at least 100 member points. Sixty of the points must be obligatory (related to direct treasury experience, responsible for all treasury functions within the business entity or be a full member of other approved Treasury associations). The remaining forty points are optional (relate to academic qualifications, contribution to ASCT, participation in ASCT seminar program or membership of other relevant societies). Titles of ASCT

provides an opportunity to investigate the communication of information discussed/ decided at the interim AASB meetings to audit firms and ultimately client firms.

### G100 Membership (G100)

Member firms of the Group of 100 are predicted to have greater derivative financial instrument transparency. This is due to their: (1) standing in the financial community; (2) requirement to adhere to best reporting practices; and (3) desire to maintain their financial reporting reputation and legitimacy. A coding of 1 (0) is assigned to sample firms with (without) G100 membership. There is no publicly available list of G100 members. Instead, the Chief Executive Officer of the G100 identified member firms in each reporting period 1992-1997 after being provided with a list of sample firms.

# 6.52 Need to Engage in Hedging Activities Due to Market Imperfections, Contracting Costs, and Alternative Risk Management Practices

This subsection recounts the variables employed to operationalise the proposition that a firm's need to engage in hedging activities influences their voluntary disclosure strategy. Positive relationships between hedging activities, market imperfections (particularly financial distress costs) and agency costs of debt are espoused. Explanatory variables capturing these states include leverage, interest cover, growth opportunities, earnings volatility, and industry membership. The use of alternative risk management practices reduces the need for a firm to engage in hedging activities. Alternative risk management practices, reducing the need to hedge, include all, or some of, the following: high liquidity levels; low asset risks; low dividend payouts; and the use of convertible debt and/or preference shares. The following paragraphs describe the data sources and construction for these variables.

members include Executive Director, Treasury Manager, Director of Finance, Treasurer, Financial Controller and Chief Auditor.

### Leverage (Lev)

Debt in a firm's capital structure provides shareholders with an incentive to transfer wealth away from debtholders to themselves. Hedging activity alleviates the wealth transfer problem associated with underinvestment. Furthermore, disclosure of value relevant information reduces the cost of price protection mechanisms instigated by debtholders. Measurement of a firm's leverage, (Lev), is necessary to test for the existence of a positive relationship between debt levels and disclosure decisions. A firm's leverage can be specified in a number of ways (refer to Chapter 3, Table 3.2). Identification of the most appropriate measure to proxy for this variable is lacking (Mitchell, Chia, and Loh 1995). This thesis uses two alternative constructs for leverage. Using a balance sheet approach and information collected from the Connect4 database, a firm's total liabilities are expressed as a percentage of their total asset base (TL/TA). An alternate proxy, book value of debt as a percentage of book value of debt plus market value of equity, is used to test the sensitivity of the results to the specification of this variable (BVD/(MVE+BVD)).<sup>110</sup>

#### Interest Cover (Intcov).

An additional construct to capture the agency costs of debt and the need to engage in hedging activity is a firm's interest cover (Intcov). Interest cover is a firm's earnings before interest and taxes divided by interest expense (Earnings/Interest). The data are obtained from firms' annual reports via Connect4. Consistent with Berkman and Bradbury (1996), interest cover is measured as the log of the earnings before interest and taxes divided by the interest expense.<sup>111</sup> The numerator is set equal to one if the firm has negative earnings and interest expense is set to one if the firm has no debt.

### Growth Opportunities (Growth)

Chapter 5 discusses an association (non-directional) between a firm's investment opportunity set (IOS) and the need to engage in hedging activities. Numerous proxies for a firm's investment opportunity set appear in the accounting literature.

<sup>&</sup>lt;sup>110</sup> Business Review Weekly details the market value of equity for the Top 500 companies in Australia. If required 'Shareholder' is used as an alternative information source.

These are categorised as price based, investment based or variance measures (Kallapur and Trombley 1999). To facilitate the construction of appropriate growth proxies, Kallapur and Trombley (1999) examine the association between realised growth and IOS proxies used in previous studies. Their findings suggest that book to market measures (price based) are most highly and consistently negatively correlated with realised growth.<sup>112</sup> Accordingly, this study uses two alternative constructs of market to book value measures to measure growth opportunities (Growth). The first measures the ratio of book to market value of equity (BVE/MVE). The second construct is the ratio of book value of property, plant and equipment to firm value (PPE/MVA), where firm value is the book value of debt plus the market value of equity. These two constructs are consistent with Kallapur and Trombley's (1999) price based investment opportunity set proxy variables.

#### Earnings Volatility (Evol)

A negative association between earnings volatility (Evol) and derivative disclosures is predicted on the premise that hedging enables a firm to reduce variability in firm value and a firm would not be adverse to disclosure of firm value maximising behaviour. Consistent with the extant literature (Mitchell *et al.* 1995), earnings volatility is measured using:

- (1) the difference between the maximum and minimum operating income before tax and abnormals over a three year period including the period of interest divided by the mean operating income for the corresponding period; and
- (2) the three year earnings coefficient of variation.<sup>113</sup>

<sup>&</sup>lt;sup>111</sup> All logarithmic transformations are to base e (In function).

<sup>&</sup>lt;sup>112</sup> Future growth is an implication of a firm's investment opportunity set. Kallapur and Trombley (1999) evaluate alternative the various proxies on the basis that investment opportunity sets, on average, lead to actual investment and therefore affect realised growth within a three to five year period. <sup>113</sup> Mitchell *et al* (1995) use five years of earnings to measure earnings volatility. Although it is

<sup>&</sup>lt;sup>113</sup> Mitchell *et al* (1995) use five years of earnings to measure earnings volatility. Although it is initially planned to calculate earnings volatility over five years the restricted number of pre 1992 annual reports on Connect4 for sample firms necessitates restricting the calculation to three years.

### Industry Membership (Ind)

The inclusion of an industry variable, (Ind), captures volatility in commodity markets and hence variability in a firm's earnings and cash flows. The operating activities of mining and oil firms result in exposure to volatile markets and hence price risk. A dummy variable classifies sample firms as mining/oil (code = 1) or non-mining/oil (code = 0). Firms are coded on the basis of their principal business activity using the ASX industry code.<sup>114</sup> Firms with (not with) an industry classification of gold, other metals, solid fuels, oil and gas, and/or diversified resources, are recorded as mining/oil firms (non-mining/oil firms).

### Liquidity (Liquid)

Liquidity management is a means of managing financial distress. It is hypothesised that firms with high liquidity have less need to engage in hedging activity and hence are less likely to disclose. Consistent with Nance et al. (1993), the liquidity ratio (Liquid) is used to reflect the firm's investments in liquid assets. The ratio is measured as the book value of current assets to current liabilities at end of period reporting date.<sup>115</sup>

#### Asset Riskiness (Risk)

The need to employ hedging as a risk management tool is lowered if the firm invests in less risky assets. The firm's investment in risky assets is represented by the firm's asset beta, labelled 'Risk'. The firm's asset beta reflects the firm's beta assuming it is all equity financed. The firm's equity beta is calculated and adjusted for the firm's financial leverage. The equity beta obtained from Bloomberg is based on five years of monthly return data up to, and including the reporting period end month.<sup>116</sup> When using the market model to estimate beta it is problematic as to time period chosen (in this study 5 years) and the length of the

<sup>&</sup>lt;sup>114</sup> This information is ascertained from the Australian Stock Exchange Profitability Studies Reports.

<sup>&</sup>lt;sup>115</sup> Variations of this liquidity measure exist. An alternative measure excludes inventory from current assets. Whilst this is regarded as a more 'stringent' test of liquidity, there is no support for it being a 'better' measure of liquidity for this study.

<sup>&</sup>lt;sup>116</sup> As previously discussed, the equity beta for reporting period ended June 1992 is based on four, rather than five, years of monthly historical returns. This is done to avoid 1987, the year of the sharemarket crash.

return period (in this case monthly). The market model beta is converted to an asset beta by applying the following equation (equation 6.2):

$$\beta_{asset} = \beta_{equity} / (1 + D/E)^{117}$$

[Equation 6.2]

#### Dividend Payout (Div)

As discussed in Chapter 4, a firm's need to engage in hedging activities is reduced if the firm adopts a conservative dividend payout. To calculate association between a firm's dividend policy and its voluntary derivative financial instrument disclosures, the dividend payout is calculated. This explanatory variable, Div, is the ordinary dividends paid or provided during the reporting period divided by the distributable earnings for the corresponding reporting period.

### Convertible Debt and/or Preference Shares (Altinst)

Convertible debt and preference shares are alternative capital instruments that can reduce the firm's need to engage in hedging activities involving off balance sheet instruments. Convertible note issues have the effect of conserving cash flow, risk synergy and/or reducing agency costs. Preferred stock issues decrease the probability of financial distress costs since a dividend omission, unlike interest payment default, cannot instigate bankruptcy proceedings. The presence (absence) of convertible debt or preference shares in the firm's capital structure in a particular reporting period, Altinst, is coded as 1 (0).

#### Management Share Ownership (Share) and Options (Opt)

Agency costs associated with equity affect the firm's need to engage in hedging activities. The diversification of managers is linked to their share ownership (Share) and options granted (Opt). These are problematic variables to capture for Australian firms given that directors' interests in shares and options can be

<sup>117</sup> This conversion is discussed in Peirson *et al.* (2000). The conversion assumes a no tax environment. The various relationships between a firm's asset and equity beta are discussed in Taggart (1991).

where D = Book value of firm's debt E = Book value of firm's equity

disclosed in a variety of formats.<sup>118</sup> Management share ownership is proxied by the proportion of shares held by directors (directors' holding of ordinary shares/number of ordinary shares on issue). It is recognised that inconsistencies in the disclosure of directors' interests potentially render this proxy unreliable and incomparable on a cross sectional basis. However, no advantage is to be gained by reverting to a dichotomous variable (share ownership or non-share ownership by directors) given that, for nearly every sample firm, directors have share interests. This is not the case for option schemes, so a dichotomous variable is used to record the presence (absence) of directors' interests in a firm's options.

#### 6.53 Information asymmetry

Press coverage and shareholder dispersion are used to measure a firm's information asymmetry. The specification and measurement of these variables follows.

#### Press Coverage (News)

The extant literature uses analytical following and/or press coverage to capture information asymmetry. Empirical evidence supports higher disclosures being positively related to analytical following (Lang and Lundholm 1996). The discussion in Chapter 5 notes a high degree of correlation between analytical following and media press coverage. As proxy data on press coverage, 'News', are more readily observable, this is used to represent analytical following.<sup>119</sup> The construct for this variable is the number of firm specific news items appearing on the Bloomberg news service in a particular reporting period.<sup>120</sup> The 'all news' service on Bloomberg displays news stories, research reports and multi-media presentations related to a selected security. It therefore captures analytical following (research reports) as well as press commentaries. For each reporting

<sup>&</sup>lt;sup>118</sup> The disclosure could relate to directors' beneficial interests in own name, non-beneficial interests, beneficial proprietary company or fund interests relevant interest, directly held interest, or indirectly held interest

<sup>&</sup>lt;sup>119</sup> Analytical following of Australian firms can be obtained from the I/B/E/S summary tape. The number of analysts following a firm in a particular reporting period is the number of analysts providing an estimate of the firm's annual earnings. The lack of accessibility to the I/B/E/S data is why a press coverage construct is used to capture information asymmetry.

<sup>&</sup>lt;sup>120</sup> Such a construct fails to capture the extent of coverage given to the firm. Word or paragraph counts could overcome this limitation, but this study does not propose to do this given the test period adopted for this study.

period, a search of the Bloomberg news service identifies the number of articles pertinent for each of the sample firms.

### Shareholder Dispersion (Disp)

Consistent with the extant literature, information asymmetry is also captured by a firm's shareholder dispersion. The percentage of ordinary shares not held by the Top 20 shareholders proxies for shareholder dispersion. The percentage of shares held by the Top 20 shareholders is disclosed in the firm's annual report. Subtracting this percentage from 100% provides the measurement of this variable, labelled 'Disp'. An alternative measure of shareholder dispersion is the number of shareholders. The concern that such a variable is simply a surrogate for size precludes its inclusion as an alternative specification of the variable of interest.

### **External Financing (Extfin)**

Voluntary disclosure strategies are related to firms' financial market valuation concerns. It is proposed that firms with a need for external financing, labelled Extfin, are more likely to make voluntary disclosures to reduce information asymmetry. The proxy used to capture financial market considerations is whether the firm raises any equity financing (excluding dividend reinvestment schemes and exercise of share options) in the twelve month period subsequent to the annual report date. The Jobson's yearbook details capital raisings by firms. This data source is used to capture Extfin. If access to equity capital markets is (is not) evident, the variable is coded 1 (0).

### 6.54 Information Production and Proprietary Costs

The final propositions relate voluntary disclosure to information production and product market considerations. The former is captured by the existence of a centralised treasury operation and the latter by a four-firm concentration ratio. A discussion of each variable follows.

### Central Treasury Function (Treas)

Information production costs relating to derivative financial instrument disclosures will be greater for firms not already producing the required information for internal reporting purposes. Firms with a centralised treasury function are posited to have the necessary information systems in place and therefore have negligible incremental information production costs. To ascertain the presence (absence) of a sophisticated treasury reporting system, a postal survey on risk management practices sent to all sample firms<sup>121</sup> includes a question specifically asking if risk management activities are centralised (decentralised), and the year centralisation occurred. The response is coded 1 (0) for centralised (decentralised) for each of the periods 1992-1997.<sup>122</sup> Assuring the respondent, and responding firm, anonymity reduces the potential bias from respondents. Bias is also reduced by explicitly stating that the information would be used for no other purpose other than university research.

#### Market Concentration (Conc)

The market concentration, (Conc), represents barriers to entry and is proxied using a four firm concentration ratio (Hagerman and Zmijewski 1979, Press and Weintrop 1990). This ratio represents the percentage of revenue controlled by the top four firms for each industry sector. The construct of this variable is based on data compiled by IBIS Business Information and reported in Business Review Weekly's (BRW) special yearly edition of the Top 1000 Australian entities. The companies included in this publication are ranked within 18 industry sectors. These industry groupings do not correspond precisely to ASX industry classifications. Sample firms are located in the BRW publication and their industry grouping, as per this publication, is used to calculate the market concentration ratios. Based on revenue, the revenue of the top four ranked in the

<sup>&</sup>lt;sup>121</sup> A copy of the survey is included as Appendix 5. The information elicited from this survey regarding firm's attitudes to proposed derivative instrument accounting rules is reported in Chalmers and Godfrey (2000).

<sup>&</sup>lt;sup>122</sup> Fifty firms responded to the survey (25% response rate). Of these 50 firms, 6 identified themselves, as non-users of derivative instruments and 3 did not indicate the nature of their treasury operations. Of the remaining 41 firms, only 2 did not have a centralised treasury prior to 1996/97 reporting period. Given the number of firms with missing data for this variable, it is omitted from multiple regression models but limited analysis of the variation in the disclosure levels of responding firms is possible.

particular industry group is added and expressed as a percentage of the industry group's total revenue.<sup>123</sup>

#### 6.55 Firm Size: A Control Variable

Studies inevitably find a positive relationship between firm size and voluntary disclosure. This study, for reasons outlined in Chapter 5, employs size as a control variable. A number of alternative constructs are used including: (1) natural logarithm of the sum of market value of equity plus book value of debt; (2) natural logarithm of the total assets; (3) natural logarithm of total revenue; and (4) natural logarithm of the number of shareholders. A high correlation between these variables is expected, and it is anticipated the hypothesis testing will not be sensitive to the alternative specifications.

# 6.6 Summary and Conclusions

This chapter focuses on the study's research design. The chapter explains the procedures used to determine the appropriate period over which to investigate firms' voluntary derivative financial instrument disclosures. It also describes the sample selection procedures and proxy variable measurement. Data collection sources and methods are also described. Limitations associated with the data and data collections are recognised. The purpose of Chapter 7 is to present and analyse the results of testing the hypotheses developed in Chapter 5 and operationalised in Chapter 6.

<sup>&</sup>lt;sup>123</sup> The concentration ratio for firms in the finance/investment (insurance) groups is based on total assets (insurance premiums) rather than revenue.

# **CHAPTER SEVEN: RESULTS and ANALYSIS**

# 7.1 Introduction

Using the research design discussed in Chapter 6, this chapter describes and analyses the results from testing hypotheses developed in Chapter 5. Section 7.2 discusses the extent and characteristics of derivative financial instrument disclosures in firms' 1992-1997 annual reports. Univariate results, reported in section 7.3, indicate that individual and firm legitimacy and reputation concerns, leverage, industry affiliation, information asymmetry, and size are associated with derivative financial instrument disclosures. Multivariate analysis, reported in section 7.4, strongly supports industry affiliation, size, and ASCT membership as factors influential in firms' derivative financial instrument disclosures and G100 membership and leverage. No support, or inconsistent findings, is evident for a relationship between disclosure and variables related to alternative risk management practices, managerial risk aversion, information asymmetry and market concentration. Section 7.5 presents a summary and conclusion of the chapter.

# 7.2 Derivative Financial Instrument Disclosures: 1992-1997

The longitudinal nature of this study requires data for multiple periods, and analysis of incentives in different periods from when derivative financial instrument disclosures are completely voluntary to when they are coercive. Subsection 7.21 reports the number of disclosing firms in individual reporting periods, while subsection 7.22 describes the location of the disclosures in the annual reports. Knowing where information is disclosed provides a qualitative enrichment of the understanding of disclosure incentives that derives from statistical analysis The extent of derivative financial instrument disclosures is presented in subsection 7.23 and tests of the voluntary reporting disclosure index (VRDI) are detailed in subsection 7.24.

### 7.21 Number of Disclosing Firms

Table 7.1 details the user status of sample firms throughout 1992-1997. It reports an increase in the number of firms making voluntary derivative financial instrument disclosures. During the disclosure regime (1992-1994), the number (%) of disclosing firms is 19 (10%), 29 (15%) and 41 (21%) respectively.<sup>124</sup> The number of disclosing firms increases in the 1995–1997 coercive disclosure regime. The increase is particularly evident in the first reporting period of this regime (1995) when 96 (49%) of firms disclose derivative information. This increases to 105 (56%) in 1996 and 101 (58%) in 1997. These results indicate the pronounced growth in the number of firms disclosure regime. This suggests that firms respond positively to quasi-contractual disclosure regulation.

| USER STATUS   | Pure ve       | Pure voluntary disclosure Coercive |               |               |               | ve voluntary disclosure |  |  |
|---|---------------|------------------------------------|---------------|---------------|---------------|-------------------------|--|--|
|   |               | regime                             |               |               | regime        |                         |  |  |
|   | 1992<br>n (%) | 1993<br>n (%)                      | 1994<br>п (%) | 1995<br>n (%) | 1996<br>n (%) | 1997<br>n (%)           |  |  |
| Unknown <sup>a.</sup>   | 164 (90)      | 164 (85)                           | 152 (79)      | 93 (47)       | 74 (40)       | 61 (35)                 |  |  |
| User  | 19(10)        | 29 (15)                            | 41 (21)       | 96 (49)       | 105 (56)      | 101 (58)                |  |  |
| User but no transactions (or<br>material transactions)<br>outstanding at balance date |               |                                    |               | 1 (1)         | 3 (2)         | 2 (1)                   |  |  |
| Non user (explicit)   |               |                                    |               | 6 (3)         | 5 (2)         | 6 (4)                   |  |  |
| Non user (implicit)   |               |                                    |               |               |               | 3 (2)                   |  |  |
| Total Firms   | 183           | 193                                | 193           | 196           | 187           | 173                     |  |  |

 Table 7.1:
 Firms' Derivative Financial Instrument User Status: 1992-1997

a. A firm's user status is 'unknown' if there is no specific reference to derivative financial instruments in the annual report. A firm's user status is 'non-user (explicit)' if the annual report contains a statement to this effect. A firm's user status is 'non-user (implicit)' if no derivative disclosures is evident pursuant to the adoption of AASB1033.

#The number (n) of firms is shown with the percentage (%) of all firms in parentheses.

Interesting to note is that some firms elect to make an explicit statement as to their non or immaterial user status from 1995 onwards. In 1995 (1996) [1997], 7 (8)

[8], firms make such a statement.<sup>125</sup> For statistical analysis, these firms have been excluded from the sample in the particular year(s) of the explicit statement. Given the ASCT's push, supported by ASIC, for recommended disclosures in relation to derivative financial instrument usage, such a disclosure strategy could have been pursued by other non-user firms.

### 7.22 Location of Disclosures

Given that the number of firms making disclosures increases, it is interesting to examine the location and content of the disclosures. The impact of disclosures on outsiders' perceptions of the firm depends on the credibility of the information. Managers' reporting credibility matters enough to ensure that disclosures are truthful (Stocken 2000). Incorporating information into the financial statement notes subjects the information to audit, a process that confers credibility on the information presented. However, the notes to the accounts can be difficult for some shareholders to understand and they are not widely read relative to the Director's or Chairman's address (Anderson and Epstein 1995). Also, unsophisticated investors are unable to identify the accounting data's true cash flow implications (Anderson and Epstein 1995, Hand 1990). Anderson and Epstein (1995) find sophisticated shareholders regard the notes to the accounts as useful. Accordingly, disclosure of derivative financial instrument information in multiple places including the notes to the accounts would satisfy the information demands of both sophisticated and unsophisticated investors.

Firms electing to voluntarily disclose derivative financial instrument information are increasingly doing so either solely in the notes to the accounts, or in any of the Chairman's Review, Corporate Governance section and/or Review of the Firm's Operations, as well as the notes to the accounts (Refer to Table 7.2).

<sup>&</sup>lt;sup>124</sup> A firm registering a score for any item in the voluntary reporting disclosure index (VRDI) is classified as a disclosing firm.

<sup>&</sup>lt;sup>125</sup> Some firms adopted AASB1033's requirements in 1997. For such firms the differentiation between a prior period non- disclosing/ non-user firm, as compared to a non-disclosing/ user firm, is possible in 1997. There are 3 firms in 1997 classified as non-user on the basis that AASB1033 is adopted and no derivative disclosures result. These firms are referred to as 'implicit non-user' firms and have been excluded from the statistical analysis for 1997.

| Location in Annual Report           | Pure vo            | luntary di | sclosure | Coercive voluntary disclosure |         |         |  |
|-------------------------------------|--------------------|------------|----------|-------------------------------|---------|---------|--|
| •<br>•                              |                    | regime     |          |                               | regime  |         |  |
|                                     | 1992               | 1993       | 1994     | 1995                          | 1996    | 1997    |  |
|                                     | n (%) <sup>#</sup> | n (%)      | n (%)    | п (%)                         | n (%)   | n (%)   |  |
| Director's Report only              | 1 (5)              | 1 (4)      | 1 (2)    | 2 (2)                         | -       | 1 (1)   |  |
| Chairman's Report only              | 1 (5)              | 1 (4)      | 2 (5)    | -                             | -       | -       |  |
| Notes to the Accounts only          | 7 (37)             | 15 (51)    | 18 (44)  | 57 (60)                       | 47 (45) | 66 (65) |  |
| Multiple places including the Notes | 3 (16)             | 5 (17)     | 12 (29)  | 31 (32)                       | 50 (47) | 29 (29) |  |
| to the Accounts                     |                    |            | :        |                               |         |         |  |
| Other <sup>a.</sup>                 | 7 (37)             | 7 (24)     | 8 (20)   | 6 (6)                         | 8 (8)   | 5 (5)   |  |
| Total                               | 19                 | 29         | 41       | 96                            | 105     | 101     |  |
| Disclosing Firms                    |                    |            |          |                               |         |         |  |

# Table 7.2: Location of Derivative Financial Instrument Disclosures

#The number (n) of firms disclosing in a particular location is reported with the percentage (%) of all disclosing firms in parentheses.

a. The disclosures included under the 'other' category include disclosures made in places such as the finance report or the section detailing the firm's general operations.

Analysis is based on the sample of firms excluding firms implicitly or explicitly identifying themselves in particular years as non or immaterial derivative users.

Prior to 1995 approximately thirty percent of the disclosures are in locations other than the notes to the accounts. This percentage falls to around eight percent for periods inclusive of, and post, 1995. By 1995 (1996) [1997], all but 8 (8) [6] of the disclosing firms incorporate derivative financial instrument information into the notes to the accounts. The inclusion of the information in the notes to the accounts is consistent with the ASCT's recommendations. The tendency for disclosures to be made in multiple places rather than just the notes to the accounts, suggests managers are conscious of satisfying the demands of sophisticated and unsophisticated investors. The former category, including institutional investors and analysts, is more likely to utilise the more detailed disclosures in the notes to the accounts. Less sophisticated investors, who may bypass the notes, are still provided with elementary disclosures in a section of the annual report they are more likely to read.

#### 7.23 Extent of the Disclosures

The extent of firms' derivative financial instrument disclosures progressively increases over the period of interest.<sup>126</sup> In each of the 1992-1994 reporting periods, only one disclosing firm achieves a VRDI in excess of 50%. Pursuant to the 1995 quasi-regulation, more extensive disclosures appear. The ASCT statement and ED65 identify the information deemed to be important to users, thus providing best practice disclosure guidelines for report preparers. In 1995 (1996) [1997], 24 of the 96 (26 of the 105) [35 of the 101] disclosing firms make sufficient disclosures to register a VRDI exceeding 50%.

Despite the increase in the quantity of information disclosed, firms selectively choose the items to disclose. Considerable progress is needed before firms would conform to the recommended disclosure levels.<sup>127</sup> A breakdown of the disclosure frequency of specific items in the VRDI index appears in Table 7.3. The table indicates that the propensity of firms to voluntarily disclose net market value information, collateral details and financial controls is low. This is not surprising given the objections raised to these reporting requirements in companies' responses to ED59 and ED65. These are interesting observations given that: (1) ED65 requires net market value disclosures whereas IAS32 permits an exemption from such disclosures if it is deemed impractical; and (2) the financial control disclosures recommended in the industry statement are not incorporated into ED65 requirements. Firms' reluctance to disclose net market value information suggests further dissention with Australian standard setters is likely if fair value accounting for derivative instruments is prescribed. Using Verrecchia's (1990) argument, management's concerns with the quality (reliability and volatility) of this information item could explain the low disclosures. Alternatively, low disclosure rates could reflect the proprietary nature of this information (Verrecchia 1983). The commercial sensitivity of derivative disclosures is particularly relevant to commodity disclosures, interest rate risk disclosures and foreign exchange risk disclosures. Commodity disclosures reveal the firm's hedging strategies, exposure

<sup>&</sup>lt;sup>126</sup> Researchers often assume a positive correlation between quantity and quality. Botosan (1997) notes that this assumption is reasonable given the importance of managers' reporting reputations and the legal liability constraints confronting managers.

<sup>&</sup>lt;sup>127</sup> By 1998, the mandatory reporting period, 43 of the 108 disclosing firms achieve a VRDI in excess of 50% and a further 47 score in excess of 75%.

to commodity prices and product costs. Interest rate and foreign exchange risk disclosures reveal the firm's method of operations and market activities in relation to interest and foreign exchange risk management.

The most frequently disclosed item is the firm's objective for holding derivative instruments. Table 7.4 reports the purpose for which derivative financial instruments are utilised. From 1995 onwards, approximately 15% of disclosing firms state that they use derivatives for trading, in addition to, hedging purposes. Some firms (approximately 45%) state their usage is restricted to hedging only purposes. Hedging, without discounting trading purposes, is specified by 40% of disclosing firms, and the remaining 5% fail to specify the objective for which the instruments are held. Despite impressions created by media reports of corporate losses related to derivative financial instrument usage, report that they do not use the instruments for speculative purposes and convey this to the market place. Alternatively, the negative press associated with derivative dealing may have been instrumental in firms reviewing derivative usage and initiating policies precluding speculative trading.

| Voluntary Disclosure                 | Voluntary | Disclosure | Regime  | Coercive Disclosure Regime |         |         |  |
|--------------------------------------|-----------|------------|---------|----------------------------|---------|---------|--|
| Index Item                           | 1992      | 1993       | 1994    | 1995                       | 1996    | 1997    |  |
|                                      | (n=19)    | (n=29)     | (n=41)  | (n=96)                     | (n=105) | (n≈101) |  |
| Specification of hedging             | 6 (32)    | 7 (24)     | 14 (34) | 26 (27)                    | 30 (29) | 32 (32) |  |
| policies                             |           |            |         |                            |         |         |  |
| Objective for holding                | 13 (68)   | 17 (59)    | 29 (71) | 89 (93)                    | 96 (91) | 93 (92) |  |
| derivative instruments               |           |            |         |                            |         |         |  |
| Accounting policies                  | 4 (21)    | 10 (35)    | 15 (37) | 73 (76)                    | 81 (77) | 76 (75) |  |
| Collateral                           | 2(11)     | 3 (10)     | 4 (10)  | 14 (15)                    | 16 (15) | 24 (24) |  |
| Monitoring                           | 3 (16)    | 3 (10)     | 6 (15)  | 40 (42)                    | 58 (55) | 57 (56) |  |
| Financial controls                   | 0         | 0          | 0       | 5 (5)                      | 6 (6)   | 7 (7)   |  |
| Segregation                          | 4 (21)    | 4 (14)     | 7 (17)  | 45 (47)                    | 46 (44) | 59 (59) |  |
| Principal or face value              | 9 (47)    | 15 (52)    | 22 (54) | 55 (57)                    | 58 (55) | 66 (65) |  |
| Maturity                             | 9 (47)    | 15 (52)    | 15 (37) | 52 (54)                    | 56 (53) | 64 (63) |  |
| Weighted average rate                | 10 (53)   | 15 (52)    | 20 (49) | 34 (35)                    | 38 (36) | 51 (51) |  |
| Credit risk parties                  | 2 (11)    | 2 (7)      | 3 (7)   | 36 (38)                    | 35 (33) | 40 (40) |  |
| Credit risk information              | 0         | 0          | 2 (5)   | 31 (32)                    | 29 (28) | 36 (36) |  |
| Net market value                     | 1 (5)     | 1 (3)      | 4 (10)  | 16 (17)                    | 22 (21) | 32 (32) |  |
| information                          |           |            |         |                            |         |         |  |
| Determination of net<br>market value | 0         | 0          | 1 (2)   | 10 (10)                    | 16(15)  | 22 (22) |  |

# Table 7.3: Frequency of Disclosure of Voluntary Disclosure Index Items

Analysis is based on disclosing firms. A firm with a VRDI > 0% is classified as a disclosing firm. n = the number of disclosing firms in the reporting period. The number (n) of firms with a particular disclosure is reported with the percentage (%) of all disclosing firms in parentheses.

| Stated purpose            | Pure vo            | luntary dis | Coercive disclosure • |         |         |         |
|---------------------------|--------------------|-------------|-----------------------|---------|---------|---------|
|                           |                    | regime      |                       | regime  |         |         |
| A                         | 1992               | 1993        | 1994                  | 1995    | 1996    | 1997    |
|                           | n (%) <sup>#</sup> | n (%)       | n (%)                 | n (%)   | n (%)   | n (%)   |
| Hedging Only              | 4 (21)             | 4 (14)      | 5 (12)                | 41 (43) | 44 (42) | 45 (44) |
| Hedging and no mention of |                    |             |                       |         |         |         |
| speculation               | 8 (42)             | 17 (59)     | 23 (56)               | 42 (44) | 41 (39) | 40 (40) |
| Hedging and Speculation   | 4 (21)             | 5 (17)      | 9 (22)                | 13 (13) | 16 (15) | 13 (13) |
| Purpose not stated        | 3 (16)             | 3 (10)      | 4 (10)                | -       | 4 (4)   | 3 (3)   |
| Total Disclosing Firms    | 19                 | 29          | 41                    | 96      | 105     | 101     |

#The number (n) of disclosing firms with a particular stated purpose is reported with the percentage (%) of all disclosing firms in parentheses.

Analysis is based on all disclosing firms. A firm with a VRDI > 0% is classified as a disclosing firm.

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### 7.24 Tests of the Voluntary Reporting Disclosure Index

The mean VRDI, for sample firms in each of the 1992-1997 reporting periods, is reported in Table 7.5 (Panel A). Given that the index is compared across time, the analysis is restricted to firms with an annual report available for each of the years 1992-1997. The mean VRDIs are 2.08%, 2.27%, 4.15%, 19.20%, 23.03%, and 28.62% respectively. Student t-values indicate that the mean disclosure index is different from zero for all reporting periods. Tests of significance of the change in the disclosure index for consecutive years (mean VRDI<sub>t</sub> - VRDI<sub>t-1</sub>) show a significant difference between 1993/1994, 1994/1995, 1995/1996, and 1996/1997, with the change most pronounced in 1994/1995.

By 1998 it is possible to differentiate users from non-users as the disclosure regime changes from coercive to mandatory.<sup>128</sup> In 1998, 108 of the 199 sample firms are identified as derivative users; 35 as non-users based on no reference to derivative financial instruments in their financial instrument note to the accounts; 6 as having no material transactions outstanding at balance date; and 3 have an unknown user status.<sup>129</sup> The robustness of results reported in Table 7.5 is examined by retrospectively classifying firms as derivative financial instrument users (non-users) based on their 1998 user status and excluding non-users from the analysis (hereafter referred to as 'sample 1'). This assists in alleviating the concern about classifying firms as non-disclosing when they have nothing to disclose. However, another potential bias is introduced as the process assumes a firm's 1998 user status is representative of its user status in prior periods.

Using sample 1, the mean VRDI throughout 1992-1997 increases as follows: 2.59%, 2.81%, 5.15%, 23.85%, 28.93%, and 35.24% (refer to Table 7.5, Panel B). Consistent with the results reported in panel A, the mean VRDI is statistically different from zero for all reporting periods. The change in the disclosure index between consecutive years is significantly different between 1994/1995, 1995/1996, and 1996/1997.

<sup>&</sup>lt;sup>128</sup> Some firms elected to adopt the requirements of AASB1033 for the 1997 reporting period. For such firms the differentiation between a prior period non-discloser/non-user as compared to a non-discloser/user is possible in 1997.

<sup>&</sup>lt;sup>129</sup> The considerable merger activity that occurred in this period, particularly in the mining industry, results in the absence of annual reports for 47 firms.

The results reported in Table 7.5 (Panels A and B) support H1 and H1a, namely that the level of derivative financial instrument disclosure increases over the 1992-1997 reporting period with the increase being statistically significant from 1994 to 1995. This supports a correlation between changes in disclosure practices and regulatory environment status. Firms became more responsive to derivative disclosure demands particularly from 1995 onwards. This suggests the ASCT Industry Statement and/or the release of ED65, combined with the increased probability of the development of, and compliance with, a prospective accounting promulgation influenced disclosure levels.<sup>130</sup>

An analysis of the 1992-1997 VRDI scores for disclosing firms only (Table 7.5, Panel C) shows the mean VRDI as 23.63%, 22.66%, 24.74%, 39.14%, 39.93%, and 46.61% respectively. The mean VRDI for disclosing firms is statistically different from 100% (complete disclosure) for all reporting periods. This suggests that disclosing firms are not conforming to all the ASCT Industry Statement and ED65 disclosure requirements. The change in the mean VRDI for disclosing firms between consecutive periods is statistically significantly different for all periods except 1992/1993. This indicates that the disclosing firms are progressively providing more details regarding their derivative financial instruments.

<sup>&</sup>lt;sup>130</sup> Alternatively, the greater disclosures could be associated with more firms using derivative instruments. It is difficult to gather comprehensive information on the size of derivative markets, particularly the over the counter market. Examining the volume of contracts traded on the Sydney Futures Exchange provides elementary evidence that derivative usage in 1995 was not significantly greater compared to 1994. Whilst the number of SFE agricultural commodities and SFE share futures, SFE interest rate options and SFE share index futures, SFE interest rate options and SFE share index options decreased. The number of ASX derivative contracts traded also fell in 1995 (refer to Table 2.1).

| PANEL A: Analysis of all sample                              | Pure voluntary disclosure regime      |                |                                       | Coercive voluntary disclosure regime  |               |               |
|--|---------------------------------------|----------------|---------------------------------------|---------------------------------------|---------------|---------------|
| finne  | 1992 (n=160)                          | 1993 (n=160)   | 1994 (n=160)                          | 1995 (n=154)                          | 1996 (n=152)  | 1997 (n=152)  |
| lirms  |                                       |                | •                                     |                                       |               |               |
| Mean VRDI % (std deviation)                                  | 2.08 (7.99)                           | 2.27 (8.19)    | 4.15 (11.17)                          | 19.20 (24.45)                         | 23.03 (26.14) | 28.62 (29.46) |
| Test statistic: Mean VRDI = 0%                               |                                       |                |                                       |                                       |               |               |
| <i>t</i> -value (prob)                                       | 3.305 (.000)                          | 3.503 (.000)   | 4.701 (.000)                          | 9.745 (.000)                          | 10.860 (.000) | 11.860 (.000) |
| Mean VRDI <sub>t</sub> - VRDI <sub>t-1</sub> (std deviation) |                                       | .18 (3.53)     | 1.88 (8.03)                           | 14.89 (20.93)                         | 3.95 (10.06)  | 5.03 (13.09)  |
| Test statistic: Mean VRDI <sub>t</sub> = VRDI <sub>t-1</sub> |                                       | . ,            |                                       | , , , , , , , , , , , , , , , , , , , |               | × ,           |
| t-value (prob)   |                                       | .649 (.259)    | 2.953 (.002)                          | 8.827 (.000)                          | 4.837 (.000)  | 4.694 (.000)  |
| DANEL P. Analysis of complet forms                           | 1002 (                                | 1002 (         | 1004 (120)                            | 1005 (                                | 1006 (        |               |
| FAILED: Analysis of sample 1 firms                           | , 1992 (n=129)                        | 1993 (0=129)   | 1994 (n=129)                          | 1995 (n=123)                          | 1996 (n=121)  | 1997 (n=121)  |
| Mean VRDI (std deviation)                                    | 2.59 (8.83)                           | 2.81 (9.05)    | 5.15 (12.24)                          | 23.93 (25.23)                         | 28.93 (26.23) | 35.24 (28.89) |
| Test statistic: Mean VRDI = 0%                               |                                       |                |                                       |                                       |               |               |
| <i>t</i> -value (prob)                                       | 3.330 (.000)                          | 3.534 (.000)   | 2.971 (.002)                          | 10.518 (.000)                         | 12.132 (.000) | 13.417 (.000) |
| Mean VRDI, - VRDI, (std deviation)                           |                                       | .22 (3.93)     | 2.33 (8.89)                           | 18.53 (21.95)                         | 5.08 (10.93)  | 6.20 (14.28)  |
| Test statistic: Mean VRDI <sub>t</sub> = VRDI <sub>t-1</sub> |                                       |                |                                       |                                       |               | · /           |
| t-value (prob)   |                                       | .648 (.259)    | 2.971 (.002)                          | 9.362 (.000)                          | 5.110 (.000)  | 4.773 (.000)  |
| PANEL C: Analysis of disclosing firms                        | 1992 (n=19)                           | 1993 (n=29)    | 1994 (n=41)                           | 1995 (n=96)                           | 1996 (n=105)  | 1997 (n=101)  |
| Mean VRDI (std deviation)                                    | 23.63 (16.46)                         | 22.66 (13.41)  | 24.74 (14.82)                         | 39.14 (19.61)                         | 39.93 (20.79) | 46.61 (22.69) |
| Test statistic: Mean VRDI = 100%                             | , , , , , , , , , , , , , , , , , , , | · · ·          | , , , , , , , , , , , , , , , , , , , |                                       | × ,           | · · · ·       |
| t-value (prob)   | 20.229 (.000)                         | -31.056 (.000) | 32.518 (.000)                         | 30.411 (.000)                         | 29.601 (.000) | 23.648 (.000) |
| Mean VRDL - VRDL (std deviation)                             |                                       | 2 76 (7 70)    | 7 86 (15 83)                          | 29 18 (19 22)                         | 7 07 (12 12)  | 7 64 (15 67)  |
| Test statistic: Mean VRDI, = VRDI.                           |                                       | 2              | ,                                     |                                       |               | ,, (10.07)    |
| t -value (prob)  |                                       | 1.644 (.058)   | 3.139 (.001)                          | 14.720 (.000)                         | 5.892 (.000)  | 4.877 (.000)  |

 Table 7.5:
 Voluntary Reporting Disclosing Index: 1992-1997

Panel A is based on all firms for which an annual report is available for every period 1992-1997, excluding firms explicitly identifying themselves in particular years as non or immaterial users ('sample'). The number of firms included in the analysis for 1992-1994 is 160. In 1995 (1996) [1997], 6 (8) [8] of these firms identify themselves as immaterial or non-users and are excluded from the analysis. Panel B excludes implicit non-user firms from the sample in addition to explicit non-users (sample 1). A firm identified as a non-user pursuant to adopting AASB1033 in either 1997 or 1998 is retrospectively classified as a non-user in previous reporting periods and excluded from the analysis.

Panel C reports statistics for a sample restricted to firms identified as disclosing firms. A firm with a VRDI > 0% is classified as a disclosing firm.

VRDI<sub>t</sub> = Voluntary Reporting Disclosure Index in time period t

VRDI<sub>t-1</sub> = Voluntary Reporting Disclosure Index in time period t-1

n = number of firms.
#### 7.3 Descriptive Statistics and Univariate Tests

Univariate testing is restricted to individual reporting years 1994-1997. This restriction does not impede testing voluntary disclosure levels pre and post the release of the ASCT Statement and ED65. Prior to 1994, the limited change in number of firms disclosing and mean disclosure scores (refer to Tables 7.2 and 7.3 respectively) does not justify conducting statistical analysis for the periods 1992 and 1993. Subsection 7.31 reports the univariate test results comparing firm characteristics for disclosing and non-disclosing firms. Unless otherwise stated, the results are based on a sample of firms excluding those firms explicitly identifying themselves in particular years as non or immaterial users. Subsection 7.32 presents univariate tests for alternative independent variable specifications and subsection 7.33 tests the robustness of the univariate results for: (1) an interval rather than nominal dependent variable; and (2) when the analysis is restricted to sample 1 firms.

### 7.31 Univariate Comparison of Firm Characteristics for Disclosing and Non-Disclosing Firms

Table 7.6 reports descriptive statistics for the independent variables used in the empirical disclosure model, for 1994-1997 pooled sample firm years. For each of these variables, Table 7.7 reports the means of the independent variables (H2 – H8) for firms that disclose ('D' firms) and for those that do not disclose ('ND' firms). The significance of the differences in the means for these two groups is assessed using a parametric student *t*-test and a nonparametric Mann Whitney U test.<sup>131</sup> The univariate tests are reported for each of the 1994 to 1997 reporting periods (Panels A, B, C and D respectively) and for pooled data (Panel E). The data are pooled for the 1994 and 1995 reporting periods only. Given that the number of firms disclosing increases significantly from 41 (1994) to 96 (1995), pooling data for 1994-1997 periods is likely to include multiple observations and violate the independence criterion.<sup>132</sup>

<sup>&</sup>lt;sup>131</sup> The t statistic reported is the equal (unequal) variance t-value when the Levene test for equality of variances indicates that equality of variances should (should not) be accepted.

<sup>&</sup>lt;sup>132</sup> Once a firm discloses derivative information it is highly probable that disclosures in pursuing years will occur as a firm's disclosure policy is not independent from one period to the next. This dependency would result in overstated test statistics.

The student *t*-tests and Mann Whitney U tests produce consistent and statistically significant results supporting hypotheses H2a, H2b, H2c, H2d, H3e, H5a and H6a in each of the 1994-1997 reporting periods and using the pooled data. The statistically significant variables in each year are ASCT, BIG6, AASB, G100, IND, SHARE, NEWS and SIZE. Proposition 1 predicts that voluntary derivative financial instrument disclosures are influenced by legitimacy and reputation concerns. The proxy variables capturing legitimacy and reputation are ASCT (H2a), BIG6 (H2b), AASB (H2c), and G100 (H2d). All of these variables are statistically significant at p < .01 (one tailed) and are in the predicted direction. These results indicate support for legitimacy and reputation concerns of firms and individuals involved in the preparation of financial statements, influencing the firms' derivative financial instrument disclosures.

Proposition 2 predicts a relationship between voluntary disclosure and a firm's need to engage in hedging activities due to market imperfections. Of the variables used in hypothesis testing of this proposition (H3a – H3e), only industry affiliation, IND, is statistically significant (at p < .01) across all reporting periods. As predicted by H3e, this suggests that firms engaged in mining/oil activities have a greater propensity to make derivative financial instrument disclosures relative to non-mining/oil firms.<sup>133</sup> In contrast to the *t*-tests, the Mann Whitney U test statistics find a statistically significant relationship between disclosure and leverage (H3a) for reporting periods 1995, 1996 and 1997. A positive relationship between leverage and disclosure is posited. The difference in the means is in the hypothesised direction for 1995 and 1996, however the directional nature of the relationship changes in 1997.

<sup>&</sup>lt;sup>133</sup> An alternative interpretation of this result is that mining/oil firms have greater information asymmetry due to the unobservable nature of their major resource values and they disclose more to reduce the agency costs imposed by that information asymmetry.

Chapter 7: Results and Analysis

| Variable         Label         n         Mean         Standard<br>Deviation         First Quartile         Median         Third Quartile           Continuous Variables         Debt ratio:         Deviation  | Table 7.6: Descrip           | otive Statistic            | <u>s of In</u> d | ependent V | ariables for Pooled Sa | ample Firm-Years | 1994-1997 |                |
|--|------------------------------|----------------------------|------------------|------------|------------------------|------------------|-----------|----------------|
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | Variable                     | Label                      | n                | Mean       | Standard<br>Deviation  | First Quartile   | Median    | Third Quartile |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  | Continuous Variables         |                            |                  | -          |                        |                  |           |                |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | Debt ratio:                  |                            |                  |            |                        |                  |           |                |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | TL/TA                        | LEV                        | 712              | .42        | .39                    | .23              | .42       | .53            |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  | TL/(MVE+BVD)                 | LEV <sub>2</sub>           | 682              | .29        | .19                    | .14              | .28       | .42            |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $  | Interest coverage            | INTCOV                     | 704              | 1.95       | 4.03                   | .66              | 1.74      | 3.17           |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | Growth opportunities:        |                            |                  |            |                        |                  |           |                |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | BE/MVE                       | GROWTH                     | 682              | .68        | .42                    | .43              | .61       | .89            |
| Earnings volatility:         Max-Min Income_t-3<br>Mean       EVOL1       682       .25       10.93       .13       .42       1.00         Earnings coefficient<br>of variation t-3       EVOL2       682       .13       5.63       .07       .22       .54         Liquid assets       LIQUID       713       2.70       6.34       1.11       1.64       2.33         Risky assets       RISK       690       .47       .61       .21       .40       .60         Dividend Payout       DIV       709       .60       1.32       .00       .49       .77         Management share       SHARE       659       .11       .19       .00       .01       .15         ownership       -       -       .122       1.56       .00       .69       2.48         Shareholder dispersion       DISP       677       31.29       17.41       17.95       29.54       41.66         Market concentration       CONC       689       .53       .17       .38       .56       .66         Control Variable       SiZE1       715       12.23       1.71       11.00       12.00       13.17         MVE+BVD       SiZE3  | PPE/(MVE+BVD)                | <b>GROWTH</b> <sub>2</sub> | 680              | .22        | .23                    | .04              | .18       | .31            |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | Earnings volatility:         |                            |                  |            |                        |                  |           |                |
| Mean<br>Earnings coefficient<br>of variation $_{(e_3)}$ EVOL2682.135.63.07.22.54Liquid assets<br>Risky assetsLIQUID7132.706.341.111.642.33Risky assetsRISK690.47.61.21.40.60Dividend PayoutDIV709.601.32.00.49.77Management shareSHARE659.11.19.00.01.15ownership  | <u>Max-Min Income 1=3</u>    | EVOL                       | 682              | .25        | 10.93                  | .13              | .42       | 1.00           |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | Mean                         |                            |                  |            |                        |                  |           |                |
| of variation $_{t=3}$ Liquid assetsLIQUID7132.706.341.111.642.33Risky assetsRISK690.47.61.21.40.60Dividend PayoutDIV709.601.32.00.49.77Management shareSHARE659.11.19.00.01.15ownership.77.12.9.741.7.95.9.54.41.66Press coverageNEWS7231.321.56.00.69.2.48Shareholder dispersionDISP67731.29.7.4117.95.9.54.41.66Market concentrationCONC689.53.17.38.56.66Cantrol VariableSize111.54.2.5510.3411.6612.86No. of shareholdersSIZE <sub>1</sub> 71512.231.7111.0012.0013.17MVE+BVDSIZE <sub>2</sub> 68212.721.5211.5912.3613.58No. of shareholdersSIZE <sub>4</sub> 7151.43.7077.919.18Dichotomous VariablesYesNoNoASCT membershipASCT723188 (26)535 (74).535 (74)BIG6 audit firmBIG6723539 (75)184 (25).54.55  | Earnings coefficient         | EVOL <sub>2</sub>          | 682              | .13        | 5.63                   | .07              | .22       | .54            |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | of variation (=3             |                            |                  |            |                        |                  |           |                |
| Risky assets       RISK       690       .47       .61       .21       .40       .60         Dividend Payout       DIV       709       .60       1.32       .00       .49       .77         Management share       SHARE       659       .11       .19       .00       .01       .15         ownership  | Liquid assets                | LIQUID                     | 713              | 2.70       | 6.34                   | 1.11             | 1.64      | 2.33           |
| Dividend Payout         DIV         709         .60         1.32         .00         .49         .77           Management share         SHARE         659         .11         .19         .00         .01         .15           ownership         Press coverage         NEWS         723         1.32         1.56         .00         .69         2.48           Shareholder dispersion         DISP         677         31.29         17.41         17.95         29.54         41.66           Market concentration         CONC         689         .53         .17         .38         .56         .66           Control Variable         Size         Size         . <td< td=""><td>Risky assets</td><td>RISK</td><td>690</td><td>.47</td><td>.61</td><td>.21</td><td>.40</td><td>.60</td></td<>  | Risky assets                 | RISK                       | 690              | .47        | .61                    | .21              | .40       | .60            |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | Dividend Payout              | DIV                        | 709              | .60        | 1.32                   | .00              | .49       | .77            |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | Management share             | SHARE                      | 659              | .11        | .19                    | .00              | .01       | .15            |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | ownership                    |                            |                  |            | •                      |                  |           |                |
| Shareholder dispersion       DISP       677       31.29       17.41       17.95       29.54       41.66         Market concentration       CONC       689       .53       .17       .38       .56       .66         Control Variable       Size       Total assets       SIZE1       715       12.23       1.71       11.00       12.00       13.17         MVE+BVD       SIZE2       682       12.72       1.52       11.59       12.36       13.58         Total revenue       SIZE3       711       11.54       2.35       10.34       11.66       12.86         No. of shareholders       SIZE4       695       8.18       1.43       7.07       7.91       9.18         Dichotomous Variables       Yes       No         ASCT membership       ASCT       723       188 (26)       535 (74)       184 (25)         BIG6       723       539 (75)       184 (25)       184 (25)       184 (25)   | Press coverage               | NEWS                       | 723              | 1.32       | 1.56                   | .00              | .69       | 2.48           |
| Market concentration<br>Control Variable<br>SizeCONC $689$ $.53$ $.17$ $.38$ $.56$ $.66$ Control Variable<br>SizeImage: Control Variable <br< td=""><td>Shareholder dispersion</td><td>DISP</td><td>677</td><td>31.29</td><td>17.41</td><td>17.95</td><td>29.54</td><td>41.66</td></br<> | Shareholder dispersion       | DISP                       | 677              | 31.29      | 17.41                  | 17.95            | 29.54     | 41.66          |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | Market concentration         | CONC                       | 689              | .53        | .17                    | .38              | .56       | .66            |
| Size       Total assets       SIZE1       715       12.23       1.71       11.00       12.00       13.17         MVE+BVD       SIZE2       682       12.72       1.52       11.59       12.36       13.58         Total revenue       SIZE3       711       11.54       2.35       10.34       11.66       12.86         No. of shareholders       SIZE4       695       8.18       1.43       7.07       7.91       9.18         Dichotomous Variables       Yes       No       No       Size1       Size2       Size2       Size2       Size3  | <u>Control Variable</u>      |                            |                  |            |                        |                  |           |                |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | Size                         |                            |                  |            |                        |                  |           |                |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | Total assets                 | SIZE                       | 715              | 12.23      | 1.71                   | 11.00            | 12.00     | 13.17          |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | MVE+BVD                      | SIZE <sub>2</sub>          | 682              | 12.72      | 1.52 -                 | 11.59            | 12.36     | 13.58          |
| No. of shareholders         SIZE <sub>4</sub> 695         8.18         1.43         7.07         7.91         9.18           Dichotomous Variables         Yes         No         No         No         No           ASCT membership         ASCT         723         188 (26)         535 (74)         539 (75)         184 (25)  | Total revenue                | SIZE <sub>3</sub>          | 711              | 11.54      | 2.35                   | 10.34            | 11.66     | 12.86          |
| Dichotomous Variables         Yes         No           ASCT membership         ASCT         723         188 (26)         535 (74)           BIG6 audit firm         BIG6         723         539 (75)         184 (25)   | No. of shareholders          | SIZE <sub>4</sub>          | 695              | 8.18       | 1.43                   | 7.07             | 7.91      | 9.18           |
| ASCT membership         ASCT         723         188 (26)         535 (74)           BIG6 audit firm         BIG6         723         539 (75)         184 (25)  | <u>Dichotomous Variables</u> |                            |                  |            | <u>Yes</u>             | No               |           |                |
| BIG6 audit firm         BIG6         723         539 (75)         184 (25)   | ASCT membership              | ASCT                       | 723              |            | 188 (26)               | 535 (74)         |           |                |
|  | BIG6 audit firm              | BIG6                       | 723              |            | 539 (75)               | 184 (25)         |           |                |
| AASB audit tirm AASB 723 409 (57) 314 (43)   | AASB audit firm              | AASB                       | 723              |            | 409 (57)               | 314 (43)         |           |                |
| G100 membership G100 723 144 (20) 579 (80)   | G100 membership              | G100                       | 723              |            | 144 (20)               | 579 (80)         |           |                |
| Industry IND 723 217 (30) 506 (70)   | Industry                     | IND                        | 723              |            | 217 (30)               | 506 (70)         |           |                |
| Convertible debt/ ALTINST 712 151 (21) 561 (79)  | Convertible debt/            | ALTINST                    | 712              |            | 151 (21)               | 561 (79)         |           |                |
| preference shares  | preference shares            |                            |                  |            |                        |                  |           |                |
| Management options OPT 661 263 (40) 398 (60)   | Management options           | ОРТ                        | 661              |            | 263 (40)               | 398 (60)         |           |                |
| External financing EXTFIN 661 112 (17) 549 (83)  | External financing           | EXTFIN                     | 661              |            | 112 (17)               | 549 (83)         |           |                |
| Centralised treasury TREAS 164 145 (88) 19 (12)  | Centralised treasury         | TREAS                      | 164              |            | 145 (88)               | 19 (12)          |           |                |

#### Key:

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| Number of observ                             | vations change due to data availability.   |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
| Variable descrip                             | tions:   |  |  |  |  |  |  |
| Continuous                                   | LEV <sub>1</sub> = Total liabilities/ Total Assets   |  |  |  |  |  |  |
|  | LEV <sub>2</sub> = Total Liabilities/ (Book value debt + market value equity)              |  |  |  |  |  |  |
|  | INTCOV = Log of (Profit before interest, abnormals & tax/ Interest) <sup>134</sup>         |  |  |  |  |  |  |
|  | GROWTH <sub>1</sub> = Book value equity/ market value equity                               |  |  |  |  |  |  |
|  | GROWTH <sub>2</sub> = Property, plant & equipment/ (Book value debt + market value equity) |  |  |  |  |  |  |
|  | EVOL <sub>1</sub> = Difference between maximum & minimum income over a 3 year period/      |  |  |  |  |  |  |
|  | mean income for the period   |  |  |  |  |  |  |
|  | $EVOL_2$ = Three year earnings coefficient of variation                                    |  |  |  |  |  |  |
| LIQUID = Current assets/ current liabilities |  |  |  |  |  |  |  |
|  | RISK = Firm's equity beta adjusted for leverage  |  |  |  |  |  |  |
|  | DIV = Dividend Paid or provided/ Net income  |  |  |  |  |  |  |
|  | SHARE = Directors' share holdings/ Number of issued ordinary shares                        |  |  |  |  |  |  |
|  | NEWS = Log of number of firm related news items appearing on Bloomberg news                |  |  |  |  |  |  |
|  | service  |  |  |  |  |  |  |
|  | DISP = 1 less % shares held by Top20 shareholders  |  |  |  |  |  |  |
|  | CONC = Sum of revenue of top four ranked firms in industry/ total industry revenue         |  |  |  |  |  |  |
| Control                                      | $SIZE_1 = Log of total assets$   |  |  |  |  |  |  |
|  | $SIZE_2 = Log of sum of market value of equity plus book value of debt$                    |  |  |  |  |  |  |
|  | $SIZE_3 = Log of total revenue$  |  |  |  |  |  |  |
|  | $SIZE_4 = Log of number of shareholders$   |  |  |  |  |  |  |
| Dichotomous                                  | ASCT = Firm has an employee who is a member of the ASCT                                    |  |  |  |  |  |  |
|  | BIG6 = Firm's audit firm is a Big 6 audit firm   |  |  |  |  |  |  |
|  | AASB = Firm's audit firm is represented on accounting standard setting boards              |  |  |  |  |  |  |
|  | G100 = Firm belongs to the G100  |  |  |  |  |  |  |
|  | IND = Firm is engaged in mining/oil  |  |  |  |  |  |  |
|  | DISP = 100 less % of shares held by the Top 20 shareholders                                |  |  |  |  |  |  |
|  | ALTINST = Convertible debt or preference shares on issue                                   |  |  |  |  |  |  |
|  | OPT = Directors' option holdings   |  |  |  |  |  |  |
|  | EXTFIN= Firm made a new share issue in the proceeding year                                 |  |  |  |  |  |  |
|  | TREAS = Centralised treasury operation   |  |  |  |  |  |  |
| The dichotomous                              | s variables are coded $1 = yes$ and $0 = no$ .   |  |  |  |  |  |  |

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<sup>&</sup>lt;sup>134</sup> All logarithmic transformations are to base e (In function).

A firm's alternative risk management practices are predicted to influence derivative financial instrument disclosures (proposition 2: H4a-H4d). Of the four variables used to capture this characteristic (LIQUID, RISK, DIV, and ALTINST), only a firm's liquidity (LIQUID) produces statistically significant results for both the student *t*-tests and the Mann Whitney U tests. The difference in the mean liquidity ratio is in the predicted direction (D < ND) and is statistically significant in all reporting periods except 1994.

Proposition 2 (H5a and H5b) relates derivative financial instrument disclosures to managerial risk aversion as captured by management share ownership (SHARE) and management option schemes (OPT). Tests of H5a generate statistically significant U and *t*-statistics for all reporting periods of interest, however the direction of association is counterintuitive to that developed in Chapter 5. The results indicate a statistically significant negative relationship between management share ownership and voluntary derivative financial instrument disclosures. No support for OPT (H5b) exists.

Tests of proposition 3 (H6a-H6c), relating derivative disclosures to information asymmetry, support H6a only. Disclosing firms have greater press coverage than nondisclosing firms (p < .01). Propositions 4 (H7) and 5 (H8) relate disclosures to information production costs and the proprietary nature of the information, TREAS and CONC respectively. The variable TREAS has no statistically significant relationship in any individual reporting period, however it is statistically significant (*t*-test and Mann Whitney U test) for the pooled data set. The CONC variable is statistically significant in 1994 and pooled data (t-tests and Mann Whitney U tests) and in 1995 (Mann Whitney U test only). However the relationship is not in the predicted direction. Higher, rather than lower, concentration in an industry is positively related to the propensity to disclose.

Firm size is included as a control variable and the univariate test results show statistical significance for this variable (p < .01) for all panels in Table 7.7. Larger firms are more likely to disclose derivative financial instrument information relative to smaller firms.

| Hypothesis/   | Variable                 | Disclosing | Non-       | Student- | Mann      | Prob   |
|---------------|--------------------------|------------|------------|----------|-----------|--------|
| Control       |                          | Firms      | disclosing | t        | Whitney U | U      |
| Expectation   |                          | (n=41)     | Firms      |          |           |        |
| DANEL A. 104  | l                        |            | (n=152)    |          |           |        |
| PANEL A: 19   |                          | Niean      | wiean      |          | <u> </u>  |        |
|               | Continuous<br>Variables  |            |            |          |           |        |
| H3a: D > ND   | LEV                      | .39        | .40        | .117     | .700      | .242   |
| H3b: D < ND   | INTCOV                   | 1.33       | 2.68       | 2.210    | 1.979     | .024   |
| H3c: $D = ND$ | GROWTH                   | .57        | .61        | .623     | .698      | .242   |
| H3d: D < ND   | EVOL                     | .74        | .16        | .292     | .701      | .241   |
| H4a: $D < ND$ | LIQUID                   | 2.23       | 3.71       | .828     | .890      | .141   |
| H4b: $D > ND$ | RISK                     | .62        | .43        | 1.357    | 2.446     | .007** |
| H4c: $D > ND$ | DIV                      | .36        | .59        | 1.719    | 1.646     | .050   |
| H5a: $D > ND$ | SHARE                    | .057       | .12        | 2.199    | 3.634     | .000   |
| H6a: $D > ND$ | NEWS                     | 1.94       | .57        | 4.840**  | 5.249     | .000** |
| H6b: D > ND   | DISP                     | 28.14      | 31.78      | 1.217    | 1.395     | .081   |
| H8: D < ND    | CONC                     | .56        | .50        | 2.317    | 3.023     | .001** |
|               | Control                  |            |            |          |           |        |
|               | Variable                 |            |            |          |           |        |
| D = ND        | SIZE                     | 13.03      | 11.77      | 3.886    | 3.981     | .000   |
|               | Dichotomous<br>Variables |            |            |          |           |        |
| H2a: $D > ND$ | ASCT                     | .44        | .18        | 3.013    | 3.390     | .000** |
| H2b: $D > ND$ | BIG6                     | .85        | .70        | 2.231    | 1.924     | .027   |
| H2c: $D > ND$ | AASB                     | .71        | .51        | 2.429**  | 2.287     | .011   |
| H2d: D > ND   | G100                     | .39        | .12        | 3.336    | 4.044     | .000** |
| H3e: $D > ND$ | IND                      | .66        | .21        | 5.464**  | 5.512     | .000** |
| H4d: D < ND   | ALTINST                  | .34        | .21        | 1.569    | 1.705     | .044*  |
| H5b: D < ND   | OPT                      | .39        | .38        | 0.178    | 0.178     | .429   |
| H6c: $D > ND$ | EXTFIN                   | .30        | .16        | 1.781    | 2.023     | .021   |
| H7: D > ND    | TREAS                    | .93        | .74        | 1.681    | 1.421     | .078   |

# Table 7.7:Univariate Comparison of Firm Characteristics for Disclosing<br/>and Non-Disclosing Firms

| Hypothesis/<br>Control<br>Expectation | Variable                 | Disclosing<br>Firms<br>(n=96) | Non-<br>disclosing<br>Firms<br>(n=93) | Student-<br>t | Mann<br>Whitney U | Prob<br>U |
|---------------------------------------|--------------------------|-------------------------------|---------------------------------------|---------------|-------------------|-----------|
| PANEL B 199                           | 5                        | Mean                          | Mean                                  |               |                   |           |
|                                       | Continuous<br>Variables  |                               |                                       |               |                   |           |
| H3a: $D > ND$                         | LEV                      | .44                           | .39                                   | .986          | 3.245             | .000**    |
| H3b: D < ND                           | INTCOV                   | 1.36                          | 2.01                                  | 1.076         | 1.282             | .100      |
| H3c: $D = ND$                         | GROWTH                   | .76                           | .76                                   | .045          | .819              | .206      |
| H3d: D < ND                           | EVOL                     | 1.59                          | .31                                   | .675          | 2.253             | .012*     |
| H4a: $D < ND$                         | LIQUID                   | 1.77                          | 3.19                                  | 2.409*        | 1.811             | .035*     |
| H4b: D > ND                           | RISK                     | .49                           | .44                                   | .651          | .984              | .162      |
| H4c: $D > ND$                         | DIV                      | .51                           | .46                                   | .472          | .242              | .404      |
| H5a: $D > ND$                         | SHARE                    | .06                           | .13                                   | 2.798**       | 3.721             | .000**    |
| H6a: $D > ND$                         | NEWS                     | 1.39                          | .49                                   | 4.413**       | 4.375             | .000**    |
| H6b: $D > ND$                         | DISP                     | 31.64                         | 29.55                                 | .782          | .776              | .219      |
| H8: D < ND                            | CONC                     | .54                           | .51                                   | 1.143         | 1.886             | .029*     |
|                                       | Control<br>Variable      |                               |                                       |               |                   |           |
| D = ND                                | SIZE                     | 12.93                         | 11.32                                 | 7.156**       | 6.525             | .000**    |
|                                       | Dichotomous<br>Variables |                               |                                       |               |                   |           |
| H2a: $D > ND$                         | ASCT                     | .40                           | .08                                   | 5.335**       | 4.949             | .000**    |
| H2b: $D > ND$                         | BIG6                     | .85                           | .63                                   | 3.550**       | 3.461             | .000**    |
| H2c: $D > ND$                         | AASB                     | .70                           | .45                                   | 3.515**       | 3.417             | .000**    |
| H2d: D > ND                           | G100                     | .33                           | .04                                   | 5.500**       | 5.068             | .000**    |
| H3e: $D > ND$                         | IND                      | .42                           | .20                                   | 3.229**       | 3.142             | .001**    |
| H4d: D < ND                           | ALTINST                  | .26                           | .17                                   | 1.478         | 1.470             | .071      |
| H5b: D < ND                           | OPT                      | .34                           | .35                                   | .118          | .118              | .453      |
| H6c: $D > ND$                         | EXTFIN                   | .09                           | .15                                   | 1.160         | 1.159             | .123      |
| H7: D > ND                            | TREAS                    | .87                           | .90                                   | · .238        | .241              | .405      |

# Table 7.7 continued: Univariate Comparison of Firm Characteristics forDisclosing and Non-Disclosing Firms

| Table 7.7 continued: | Univariate Comparison of Firm Charac | eteristics for |
|----------------------|--------------------------------------|----------------|
|                      | Disclosing and Non-Disclosing Firms  |                |

| Hypothesis/<br>Control<br>Expectation | Variable                 | Disclosing<br>Firms<br>(n=105) | Non-<br>disclosing<br>Firms<br>(n=74) | Student-<br>t | Mann<br>Whitney U | Prob<br>U |
|---------------------------------------|--------------------------|--------------------------------|---------------------------------------|---------------|-------------------|-----------|
| PANEL C 199                           | 6                        | Mean                           | Mean                                  |               |                   |           |
|                                       |                          |                                |                                       |               |                   | <b></b>   |
|                                       | Continuous<br>Variables  |                                |                                       |               |                   |           |
| H3a: D > ND                           | LEV                      | .45                            | .30                                   | 4.498         | 4.667             | .000**    |
| H3b: D < ND                           | INTCOV                   | 1.69                           | 2.67                                  | 1.434         | 1.478             | .139      |
| H3c: $D = ND$                         | GROWTH                   | .73                            | .68                                   | .887          | .295              | .384      |
| H3d: D < ND                           | EVOL                     | 78                             | .62                                   | .727          | 2.631             | .004      |
| H4a: D < ND                           | LIQUID                   | 1.80                           | 3.26                                  | 2.307         | 2.903             | .002**    |
| H4b: D > ND                           | RISK                     | .50                            | .48                                   | .274          | 1.053             | .146      |
| H4c: $D > ND$                         | DIV                      | .65                            | .52                                   | .864          | .279              | .390      |
| H5a: D > ND                           | SHARE                    | .07                            | .12                                   | 2.107         | 2.940             | .001**    |
| H6a: $D > ND$                         | NEWS                     | 1.89                           | .69                                   | 6.075**       | 5.280             | .000**    |
| H6b: D > ND                           | DISP                     | 31.18                          | 32.64                                 | .540          | .704              | .241      |
| H8: D < ND                            | CONC                     | .56                            | .53                                   | 1.172         | 1.184             | .118      |
|                                       | Control<br>Variable      |                                |                                       |               |                   |           |
| D = ND                                | SIZE                     | 12.91                          | 11.33                                 | 7.575**       | 6.374             | .000**    |
|                                       | Dichotomous<br>Variables |                                |                                       |               |                   |           |
| H2a: $D > ND$                         | ASCT                     | .38                            | .09                                   | 4.882**       | 4.276             | .000**    |
| H2b: $D > ND$                         | BIG6                     | .84                            | .62                                   | 3.217**       | 3.278             | .001      |
| H2c: $D > ND$                         | AASB                     | .67                            | .43                                   | 3.159         | 3.108             | .002**    |
| H2d: D > ND                           | G100                     | .33                            | .03                                   | 6.130         | 4.970             | .000**    |
| H3e: $D > ND$                         | IND                      | .34                            | .23                                   | 1.670         | 1.628             | .052      |
| H4d: D < ND                           | ALTINST                  | .26                            | .15                                   | 1.816         | 1.743             | .040*     |
| H5b: D < ND                           | OPT                      | .46                            | .39                                   | .954          | .954              | .170      |
| H6c: $D > ND$                         | EXTFIN                   | .16                            | .23                                   | 1.171         | 1.205             | .114      |
| H7: $D > ND$                          | TREAS                    | .91                            | .88                                   | .285          | .288              | .386      |

•

| Hypothesis/   | Variable                 | Disclosing | Non-          | Student- | Mann      | Prob   |
|---------------|--------------------------|------------|---------------|----------|-----------|--------|
| Control       |                          | Firms      | disclosing    | t        | Whitney U | U      |
| Expectation   |                          | (n=101)    | Firms         |          |           |        |
|               |                          |            | <u>(n=61)</u> |          |           |        |
| PANEL D: 19   | 97                       | Mean       | Mean          |          |           |        |
|               | Continuous<br>Variables  |            |               |          |           |        |
| H3a: $D > ND$ | LEV                      | .47        | .50           | .306     | 2.949     | .001** |
| H3b: D < ND   | INTCOV                   | 1.43       | 1.92          | .632     | 1.453     | .073   |
| H3c: $D = ND$ | GROWTH                   | .60        | .64           | .618     | .747      | .227   |
| H3d: D < ND   | EVOL                     | - 49       | .47           | 1.098    | .758      | .224   |
| H4a: $D < ND$ | LIQUID                   | 1.68       | 3.86          | 2.016*   | 2.898     | .002** |
| H4b: D > ND   | RISK                     | .44        | .40           | .567     | 1.409     | .079   |
| H4c: $D > ND$ | DIV                      | .53        | 1.28          | 1.552    | .462      | .322   |
| H5a: $D > ND$ | SHARE                    | .12        | .21           | 1.908    | 2.417     | .008** |
| H6a: $D > ND$ | NEWS                     | 2.64       | 1.51          | 5.176**  | 4.215     | .000** |
| H6b: D > ND   | DISP                     | 32.65      | 30.52         | .715     | .694      | .244   |
| H8: D < ND    | CONC                     | 54.35      | 51.79         | .821     | .945      | .172   |
|               | Control                  |            |               |          |           |        |
|               | Variable                 |            |               |          |           |        |
| D = ND        | SIZE                     | 13.02      | 11.54         | 6.529**  | 5.391     | .000   |
|               | Dichotomous<br>Variables |            |               |          |           |        |
| H2a: $D > ND$ | ASCT                     | .44        | .08           | 5.804**  | 4.734     | .000** |
| H2b: $D > ND$ | BIG6                     | .82        | .64           | 2.504**  | 2.601     | .004** |
| H2c: $D > ND$ | AASB                     | .65        | .43           | 2.884    | 2.820     | .003** |
| H2d: $D > ND$ | G100                     | .34        | .05           | 4.449**  | 4.210     | .000** |
| H3e: $D > ND$ | IND                      | .34        | .20           | 2.006    | 1.908     | .028   |
| H4d: $D < ND$ | ALTINST                  | .19        | .14           | .789     | .790      | .214   |
| H5b: $D < ND$ | OPT                      | .51        | .32           | 2.364*   | 2.288     | .011   |
| H6c: $D > ND$ | EXTFIN                   | .16        | .24           | 1.142    | 1.188     | .117   |
| H7: D > ND    | TREAS                    | .97        | .86           | .778     | 1.253     | .105   |

.

## Table 7.7 continued: Univariate Comparison of Firm Characteristics forDisclosing and Non-Disclosing Firms

| Hypothesis/                         | Variable                 | Disclosing | Non-       | Student- | Mann      | Prob     |
|-------------------------------------|--------------------------|------------|------------|----------|-----------|----------|
| Control                             | -                        | Firms      | disclosing | t i      | Whitney U | U        |
| Expectation                         | <u> </u>                 |            | Firms      |          | ·         | <u> </u> |
| PANEL E:                            | Pooled Data              | Mean       | Mean       |          |           | :        |
| (1994 and 199                       | 5)                       | · · · ·    |            |          | ļ         | ļ        |
|                                     | Continuous<br>Variables  |            |            |          |           |          |
| H3a: $D > ND$                       | LEV                      | .43        | .39        | 1.012    | 3.156     | .001**   |
| H3b: $D < ND$                       | INTCOV                   | 1.35       | 2.42       | 2.614**  | 2.732     | .003**   |
| H3c: $D = ND$                       | GROWTH                   | .70        | .67        | .670     | .297      | .383     |
| H3d: D < ND                         | EVOL                     | 1.33       | .23        | .848     | 1.742     | .041     |
| H4a: $D < ND$                       | LIQUID                   | 1.91       | 3.51       | 2.526**  | 2.101     | .018*    |
| H4b: $D > ND$                       | RISK                     | .53        | .43        | 1.562    | 2.076     | .019*    |
| H4c: $D > ND$                       | DIV                      | .46        | .54        | 1.017    | .992      | .160     |
| H5a: $D > ND$                       | SHARE                    | .06        | .12        | 3.655**  | 4.769     | .000**   |
| H6a: $D > ND$                       | NEWS                     | 1.56       | .54        | 6.390**  | 6.468     | .000**   |
| H6b: $D > ND$                       | DISP                     | 30.60      | 30.90      | .157     | .354      | .361     |
| H8: $D < ND$                        | CONC                     | .55        | .50        | 2.510**  | 3.741     | .000**   |
|                                     | Control                  |            |            |          |           |          |
|                                     | Variable                 |            |            |          |           |          |
| $\mathbf{D} = \mathbf{N}\mathbf{D}$ | SIZE                     | 12.99      | 11.62      | 7.827**  | 7.295     | .000**   |
|                                     | Dichotomous<br>Variables |            |            |          |           |          |
| H2a: $D > ND$                       | ASCT                     | .41        | .15        | 5.470**  | 5.732     | .000**   |
| H2b: $D > ND$                       | BIG6                     | .85        | .68        | 4.145    | 3.770     | .000**   |
| H2c: $D > ND$                       | AASB                     | .70        | .49        | 4.245**  | 4.058     | .000**   |
| H2d: $D > ND$                       | G100                     | .35        | .09        | 5.814**  | 6.305     | .000**   |
| H3e: $D > ND$                       | IND                      | .49        | .21        | 5.603    | 5.691     | .000**   |
| H4d: $D < ND$                       | ALTINST                  | .28        | .20        | 1.960    | 1.953     | .025     |
| H5b: D < ND                         | OPT                      | .36        | .37        | .174     | .174      | .431     |
| H6c: $D > ND$                       | EXTFIN                   | .16        | .15        | .022     | .022      | .491     |
| H7: D > ND                          | TREAS                    | .89        | .79        | 1.261    | 1.289     | .098     |

## Table 7.7 continued: Univariate Comparison of Firm Characteristics forDisclosing and Non-Disclosing Firms

| Key:             |  |
|------------------|--|
| D = Disclosing F | Yirm   |
| ND = Non-discle  | osing firm   |
| Variable descrip | ptions:  |
| Continuous       | LEV = Total liabilities/ Total Assets  |
|                  | INTCOV = log of (Profit before interest, abnormals & tax/ Interest)                                    |
|                  | GROWTH = Book value equity/ market value equity  |
|                  | EVOL = Difference between maximum & minimum income over a 3 year period/<br>mean income for the period |
|                  | LIQUID = Current assets/ current liabilities   |
|                  | RISK = Firm's equity beta adjusted for leverage  |
|                  | DIV = Dividend Paid or provided/ Net income  |
|                  | SHARE = Directors' share holdings/ Number of issued ordinary shares                                    |
|                  | NEWS = Log of number of firm related news items appearing on Bloomberg news                            |
|                  | service  |
|                  | DISP = 1 less % shares held by Top20 shareholders  |
|                  | CONC = Sum of revenue of top four ranked firms in industry/ total industry revenue                     |
| Control          | SIZE= Log of total assets  |
| Dichotomous      | ASCT = Firm has an employee who is a member of the ASCT  |
|                  | BIG6 = Firm's audit firm is a Big 6 audit firm   |
|                  | AASB = Firm's audit firm is represented on accounting standard setting boards                          |
|                  | G100 = Firm belongs to the G100  |
|                  | IND = Firm is engaged in mining/oil  |
|                  | DISP = 100 less % of shares held by the Top 20 shareholders  |
|                  | ALTINST = Convertible debt or preference shares on issue   |
|                  | OPT = Directors' option holdings   |
|                  | EXTFIN= Firm made a new share issue in the proceeding year   |
|                  | TREAS = Centralised treasury operation. Given that this variable is collected by                       |
|                  | survey data, the number of observations is restricted to 41 each reporting period.                     |
| _                | The dichotomous variables are coded $1 = yes$ and $0 = no$ .   |

#### 7.32 Alternative Independent Variable Specifications

Table 7.8 presents the Spearman rank correlations for the alternative proxies used to capture leverage, growth options, earnings volatility and firm size.<sup>135</sup> The reported statistics indicate that the alternative measures are strongly correlated for leverage, earnings volatility and firm size. This suggests that the univariate, and multivariate tests should be relatively robust with respect to these alternative variable specifications. The correlation is significant, but less strong, for the alternative .

The univariate tests reported in all panels of Table 7.7 include only one measure of leverage (TL/TA), growth options (BE/MVE), earnings volatility (Max-Min Income<sub>t=3</sub> / Mean Income) and firm size (log of total assets). Consistent univariate results, as reported in all panels of Table 7.7, are obtained for the alternative size measures ((MVE+BVD), log of revenue, log of number of shareholders) and the

<sup>&</sup>lt;sup>135</sup> The correlations are based on pooled data for reporting periods 1994 to 1997.

alternative earnings volatility proxy (earnings coefficient of variation). Using the alternative proxy for leverage (TL/(MVE + BVD)) produces consistent results except for 1995 and 1997, when the alternative proxy is statistically significant in parametric testing only. The alternative measure for growth options (PPE/(MVE+BVD)) produces unsupportive results to those presented in Table 7.7. The variable becomes statistically significant (nonparametric testing only) in all reporting periods and for the pooled sample years. The inability of the alternative proxies to capture the same underlying theoretical construct, a firm's growth options, is a potential explanation for such results.

| Table 7.8: | Spearman Rank Correlations between Alternative Proxy |
|------------|--|
|            | Measures for Sample of Firm Years                    |

| VARIABLE                 |                   |                   |                    |
|--------------------------|-------------------|-------------------|--------------------|
| Debt Ratio               |                   |                   |                    |
|                          | LEV               |                   |                    |
| LEV <sub>2</sub>         | .825 (.000)       |                   |                    |
| Growth Opportunities     |                   |                   |                    |
|                          | GROWTH            |                   |                    |
| GROWTH <sub>2</sub>      | .118 (.001)       |                   |                    |
| Earnings Volatility      |                   |                   |                    |
|                          | EVOL <sub>1</sub> |                   |                    |
| EVOL <sub>2</sub>        | .998 (.000)       |                   |                    |
| Size                     |                   |                   |                    |
|                          | SIZE <sub>1</sub> | SIZE <sub>2</sub> | SIZE <sub>3</sub>  |
| SIZE <sub>2</sub>        | .930 (.000)       |                   |                    |
| SIZE <sub>3</sub>        | .813 (.000)       | .782 (.000)       |                    |
| SIZE <sub>4</sub>        | .655 (.000)       | .651 (.000)       | .555 (.000)        |
| Correlations reported ar | e the Spearman    | rank correlation  | s. The correlation |

Correlations reported are the Spearman rank correlations. The correlation statistic is reported with the two-tailed probability in parentheses immediately beside it. Consistent results are obtained when parametric correlations are computed.

Variable descriptions:

LEV<sub>1</sub> = Total liabilities/ Total Assets

LEV<sub>2</sub> = Total Liabilities/ (Book value debt + market value equity)

 $GROWTH_1 = Book value equity/market value equity$ 

 $GROWTH_2$  = Property, plant & equipment/ (Book value debt + market value equity) EVOL<sub>1</sub> = Difference between maximum & minimum income over a 3 year period/ mean

income for the period

 $EVOL_2 =$  Three year earnings coefficient of variation

 $SIZE_1 = Log of total assets$ 

 $SIZE_2 = Log of sum of market value of equity plus book value of debt$ 

 $SIZE_3 = Log of total revenue$ 

 $SIZE_4 = Log of number of shareholders$ 

#### 7.33 Robustness Testing of Univariate Results

This section considers the robustness of the results to: (1) alternative measures of the dependent variable; and (2) restriction of sample of firms to those firms retrospectively classified as users of derivative financial instruments (sample 1).

Table 7.9 (column A) reports the results for statistical tests of the relationships between firm characteristics and the VRDI for 1994 and 1995 pooled data.<sup>136</sup> Statistical analysis is more powerful when the dependent variable is an interval measure relative to a nominal measurement. The student-*t* and Z statistics are reported for the difference between the VRDI for all dichotomous variables. For the continuous variables, the reported Wald statistic is the result of running a logit regression with disclosure/non-disclosure as the dependent variable.<sup>137</sup>

The results confirm those reported in Table 7.7. The variables ASCT (H2a), BIG6 (H2b), AASB (H2c), G100 (H2d), IND (H3e), LIQUID (H4a), SHARE (H5a), NEWS (H6a) and SIZE (control), are statistically significant across all reporting periods (all at p < .01, except for LIQUID where p < .05), with all being in the predicted direction except for SHARE.<sup>138</sup> Although Table 7.9 column A also reports statistical significance for INTCOV (H3b), ALTINST (H4d) and EXTFIN (H6c), the relationships are not supported for all reporting periods. Furthermore, the means are only in the hypothesised direction for INTCOV.

Table 7.9 (column B) reports the results for statistical testing of the relationship between the change in the voluntary reporting period in consecutive periods and firm characteristics. With the exception of a firm's liquidity, LIQUID (H4a), these results are also confirmatory. ASCT (H2a), BIG6 (H2b), AASB (H2c), G100 (H2d), IND (H3e), NEWS (H6a) and SIZE are all statistically significant (p < .01) in the

<sup>&</sup>lt;sup>136</sup> The univariate tests are also re-run for the individual reporting periods 1994-1997.

<sup>&</sup>lt;sup>137</sup> Caution should be exercised when considering the probabilities associated with statistical tests of the association between continuous independent variables and either the VRDI and  $\Delta$ VRDI<sub>t,t-1</sub> due to the variables omitted from the regression analysis. Correction to the probabilities can be made using the Bonferroni correction technique. This involves dividing the observed significance level by the number of variables omitted from the regression analysis. In this study there are 20 independent variables, hence the observed significance level should be less than .0005 (.01/20).

<sup>&</sup>lt;sup>138</sup> The continuous variables INTCOV and CONC are statistically significant in this pooled data set. These variables are also statistically significance in the testing of differences between disclosing and non-disclosing firms, but only for the pooled data set and 1994. The dichotomous variable ALTINST is significant (p < 0.05) using the Mann Whitney test, but not in the predicted direction. Similarly, the variable EXTFIN is significant (p < 0.05) using the Mann Whitney test, but not in the predicted direction.

predicted direction. The variable SHARE (H5a) is significant at p < .05 but with a counterintuitive association.

To reduce the bias associated with classifying non-user firms as non-disclosing, a retrospective classification of firms' derivative user status is made after reviewing firms' 1998 mandatory derivative financial instrument disclosures (hereafter referred to as 'sample 1'). Parametric (t-tests) and nonparametric (Mann Whitney U tests), testing for the difference in firms' characteristics for disclosing and non-disclosing firms, are run. The table 7.7 results are largely robust to this restricted sample. The variables ASCT (H2a), BIG6 (H2b), AASB (H2c), G100 (H2d), IND (H3e), NEWS (H6a), SHARE (H5a) and SIZE (control) all remain statistically significant and, excluding SHARE, all are in the hypothesised direction. The LIQUID (H4a) variable remains statistically significant in the predicted direction for 1996 and 1997, however its statistically significant status disappears in 1995. Consistent with the nonparametric tests reported in Table 7.7, LEV (H3a), although not statistically significant for the pooled data set, remains statistically significant in 1995, 1996 and 1997. Disclosing firms have higher leverage relative to non-disclosing firms (as predicted) in 1995 and 1996, however the directional nature of this relationship changes for 1997.

In summary, the univariate *t*-test and Mann-Whitney U test statistics support H2a-H2d inclusive, suggesting that voluntary derivative disclosures are positively associated with firms and managers' legitimacy and financial reporting reputation concerns (proposition 1). Results of testing proposition 2 variables, related to firms' need to engage in hedging activities, are mixed. There is strong support for H3e and H4a, postulating a positive (negative) relationship between disclosures and mining/oil industry affiliation and firms' liquidity levels respectively. Weak support exists for the postulated relationship between disclosures and financial distress costs. Firms' leverage (H3a) and interest cover (H3b) are statistically significant in some models. Information asymmetry arguments (proposition 3) are supported given that NEWS (H6a) is statistically significant across all models. No support is evident for propositions 4 and 5.

Insignificant results or test statistics in the opposite direction to hypothesised can arise due to a number of factors. Particularly, the factors with the greatest explanatory potential include:

- The theoretically correct form of the relationship between the disclosure and firm characteristic is unknown;
- (2) Independent variables (and any transformations thereof) are inadequate proxies for the underlying constructs;
- (3) Data collection errors; and/or
- (4) Firms behave in an inconsistent manner.

| Table 7.9: | Univariate Comparison of Firm Characteristics for Voluntary  |
|------------|--|
|            | Reporting Disclosure Index and Change in Voluntary Reporting |
|            | Disclosure Index   |

| Hypothesis/<br>Control<br>Expectation   | Variable                |             | <u>Column A</u><br>VRDI |                   |  | <u>Column B</u><br>Change in VRDI |      |                |  |
|---|-------------------------|-------------|-------------------------|-------------------|--|-----------------------------------|------|----------------|--|
| Pooled Data:  | 1994 and 1995           | Coefficient |                         | Wald<br>Statistic |  | Coefficier                        | t.   | Wald Statistic |  |
|   | Continuous<br>Variables |             |                         |                   |  |                                   |      |                |  |
| H3a: D>ND   | LEV                     | 3.527       | 3.527                   |                   | .227                                       | 3.450                             |      | 1.48           | 33   |
| H3b: D <nd< td=""><td>INTCOV</td><td>780</td><td></td><td>-2</td><td>2.820**</td><td>512</td><td></td><td>-2.2</td><td>58<sup>*</sup></td></nd<>          | INTCOV                  | 780         |                         | -2                | 2.820**                                    | 512                               |      | -2.2           | 58 <sup>*</sup>                            |
| H3c: D=ND   | GROWTH                  | .475        |                         | .1                | 92   | 2.131                             |      | 1.06           | 53   |
| H3d: D <nd< td=""><td>EVOL</td><td>.026</td><td></td><td>.2</td><td>.71</td><td>.059</td><td></td><td>.767</td><td>1</td></nd<>                           | EVOL                    | .026        |                         | .2                | .71  | .059                              |      | .767           | 1  |
| H4a: D <nd< td=""><td>LIQUID</td><td>241</td><td></td><td>-1</td><td>.765*</td><td>141</td><td></td><td>-1.2</td><td>74</td></nd<>                        | LIQUID                  | 241         |                         | -1                | .765*                                      | 141                               |      | -1.2           | 74   |
| H4b: D>ND   | RISK                    | 1.311       |                         | .8                | 92   | .431                              |      | .361           |  |
| H4c: D>ND   | DIV                     | -1.205      |                         | 8                 | 828  | 100                               |      | 08             | 5  |
| H5a: D>ND   | SHARE                   | -24.4       |                         | -3                | 3.468**                                    | -12.9                             |      | -2.1           | 95 <sup>•</sup>                            |
| H6a: D>ND   | NEWS                    | 6.378       |                         | 9.                | .517**                                     | 4.147                             |      | 7.32           | 20**                                       |
| H6b: D>ND   | DISP                    | 056         |                         | 842               |  | .032                              |      | .586           |  |
| H8: D <nd< td=""><td>CONC</td><td colspan="2">20.6</td><td colspan="2">3.153**</td><td colspan="2">6.497</td><td>1.21</td><td>7</td></nd<>                | CONC                    | 20.6        |                         | 3.153**           |  | 6.497                             |      | 1.21           | 7  |
|   | Control<br>Variable     |             |                         |                   |  |                                   |      |                |  |
| D = ND  | SIZE                    | 4.555       |                         | 8.255             |  | 3.184                             |      | 6.92           | .8**                                       |
|   | Dichotomous             | Yes         | No                      |                   | Student-+                                  | Yes                               | No   |                | Student r                                  |
|   | Variables               | Mean        | Mear                    | 1                 | Z test                                     | Mean                              | Mean | L              | Z test                                     |
| H2a: D>ND   | ASCT                    | .24         | .09                     |                   | 5.358**<br>6.147**                         | .17                               | .06  |                | 4.671 <b>**</b><br>5.462 <b>**</b>         |
| H2b: D>ND   | BIG6                    | .15         | .06                     |                   | 4.441**<br>3.830**                         | .09                               | .04  |                | 3.320 <sup>**</sup><br>2.428 <sup>**</sup> |
| H2c: D>ND   | AASB                    | .15         | .09                     |                   | 2.937 <sup>**</sup><br>3.689 <sup>**</sup> | .10 .06                           |      |                | 2.705 <sup>**</sup><br>2.748 <sup>**</sup> |
| H2d: D>ND   | G100                    | .27         | .09                     |                   | 5.485 <sup>**</sup><br>6.666 <sup>**</sup> | .20                               | .04  |                | 4.928**<br>5.947**                         |
| H3e: D>ND   | IND                     | .22         | .08                     |                   | 5.567**<br>6.113**                         | .10                               | .07  |                | 1.722 <sup>**</sup><br>2.515 <sup>**</sup> |
| H4d: D <nd< td=""><td>ALTINST</td><td>.16</td><td>.12</td><td></td><td>1.592<br/>1.875*</td><td>.09</td><td>.08</td><td></td><td>.746<br/>.888</td></nd<> | ALTINST                 | .16         | .12                     |                   | 1.592<br>1.875*                            | .09                               | .08  |                | .746<br>.888                               |
| H5b: D <nd< td=""><td>OPT</td><td>.14</td><td>.14</td><td></td><td>.112<br/>.054</td><td>.09</td><td>.09</td><td></td><td>.447<br/>.668</td></nd<>        | OPT                     | .14         | .14                     |                   | .112<br>.054                               | .09                               | .09  |                | .447<br>.668                               |
| H6c: D>ND   | EXTFIN                  | .09         | .13                     |                   | 1.803 <sup>•</sup><br>.651                 | .05                               | .09  |                | 2.131 <sup>*</sup><br>.926                 |
| H7: D>ND  | TREAS                   | .21         | .13                     |                   | 1.089<br>1.128                             | .13                               | .13  |                | .117<br>.134                               |

Key:

D = Disclosing firm

ND = Non-disclosing firm

VRDI = Voluntary reporting disclosure index

The table reports the results of univariate tests for two measures of the dependent variable: (1) the VRDI (Column A) and (2) VRDI<sub>t</sub> - VRDI<sub>t-1</sub> (column B). The analysis is based on pooling 1994 and 1995 data. The mean is reported for each cell. The student-*t* and Z statistics are reported for the difference between the VRDI for all dichotomous variables. For the continuous variables the reported statistic, Wald statistics, is the result of running a logit regression with disclosure/non disclosure the dependent variable.

Variable descriptions:

| allable acoul | -promotion   |
|---------------|--|
| Continuous    | LEV = Total liabilities/ Total Assets  |
|               | INTCOV = Log of (Profit before interest, abnormals & tax/ Interest)  |
|               | GROWTH = Book value equity/ market value equity  |
|               | EVOL = Difference between maximum & minimum income over a 3 year period/   |
|               | mean income for the period   |
|               | LIQUID = Current assets/ current liabilities   |
|               | RISK = Firm's equity beta adjusted for leverage  |
|               | DIV = Dividend Paid or provided/ Net income  |
|               | SHARE = Directors' share holdings/ Number of issued ordinary shares  |
|               | NEWS = Log of number of firm related news items appearing on Bloomberg news  |
|               | service  |
|               | DISP = 100 less % shares held by Top20 shareholders  |
|               | CONC = Sum of revenue of top four ranked firms in industry/ total industry revenue   |
| Control       | SIZF = I  or of total assets   |
| Dichatomous   | ASCT = Firm has an employee who is a member of the ASCT  |
| Dichotomous   | BIG6 = Firm's audit firm is a Big 6 audit firm   |
|               | $\Delta \Delta SB = Firm's$ audit firm is represented on accounting standard setting hoards  |
|               | AAOD = Firm belongs to the G100  |
|               | ND = Firm is engaged in mining/oil   |
|               | $DISP = 100 \log \%$ of shares held by the Top 20 shareholders   |
|               | ALTINST - Convertible debt or preference shares on issue   |
|               | OPT = Directors' antion holdings   |
|               | EXTERN - Eirm made a new share issue in the proceeding year  |
|               | TREAS = Controlligad treasury operation. Given that this variable is collected by  |
|               | TREAS - Centralised treasury operations is restricted to 41 each reporting period  |
|               | Survey data, the number of observations is restricted to 41 each reporting period.<br>The dishetemous variables are goded $1 = vas and 0 = no$ |
|               | The dichotomous variables are coded $1-yes$ and $0-no.$  |
|               |  |

\*\* Significant at the 1% level of significance (1 tail test)

\* Significant at the 5% level of significance (1 tail test)

#### 7.4 Multivariate Tests

Multivariate testing is important as it overcomes the problems associated with interpreting univariate results. In particular it examines the combined ability of all the variables to explain voluntary derivative financial instrument disclosures. This section describes the multivariate model (subsection 7.41) then reports and discusses the results of such tests (subsection 7.42). Given that the dependent variable in the models (VRDI) is an interval measurement, ordinary least squares regression (OLS) is used.

Table 7.10 shows the extent to which the independent variables are correlated.<sup>139</sup> Whilst many of the variables report significant correlations, no correlation coefficient, except that for AASB/BIG6, exceeds 0.6. Multicollinearity should therefore not be a problem.<sup>140</sup> Given that these variables are alternative measures for the same construct, a firm's auditor affiliation, only one variable, AASB, is incorporated into the multivariate models reported.<sup>141</sup>

The most significantly related group of variables includes SIZE, NEWS, G100 and ASCT. All of these variables are in the initial regression model, however the effect of omitting SIZE is reported. Apart from ASCT/G100 and AASB/BIG6 (proposition 1 variables), the correlation coefficients of variables nested in particular propositions is low. As previously discussed, the alternative proxies for a firm's leverage, size, earnings volatility, and to a lesser extent, growth options, are statistically significantly correlated (refer to Table 7.8). Results using the different proxy measures are also discussed.

<sup>&</sup>lt;sup>139</sup> The table reports the non-parametric (Spearman's rank correlation coefficient) measure of the linear relationship between two variables. The parametric (Pearson correlation coefficient) is also noted.

<sup>&</sup>lt;sup>140</sup> The 'rule of thumb' test suggests that multicollinearity is a potential problem if the absolute value of the sample correlation coefficient exceeds 0.7 for any two of the independent variables (Anderson *et al.* 1991). Collinearity diagnostics for the OLS regressions support the assertion of multicollinearity not being a problem in this model. No condition index (variance inflation factor) exceeds 63 (4). No rule of thumb on numerical values is foolproof, but it is generally believed that if any VIF exceeds 10, multicollinearity may be a concern (Myers 1990).

<sup>&</sup>lt;sup>141</sup> The results of the multivariate testing are invariant to the inclusion of Big6, rather than AASB, in the disclosure models.

#### 7.41 The Multivariate Model

The disclosure model tested is:

|   | Propositi                            | <u>on 1: H2a-H2d</u>   | Pro  | oposition 2: H3  | <u>8a-H5b</u>  |  |
|---|--------------------------------------|--|--|--|--|--|
| $VRDI_t = \infty$                       | +β1ASCT<br>(H2a)<br>(+)              | $ \begin{array}{l} \Gamma & +\beta_2 \text{ AASB} \\ (\text{H2c}) \\ (+) \end{array} $ | +β <sub>3</sub> G100<br>(H2d)<br>(+)                             | +β4 LEV<br>(H3a)<br>(+)                                | +β <sub>5</sub><br>INTCOV<br>(H3b)<br>(-)                  | +β <sub>6</sub><br>GROWTH<br>(H3c)<br>(?)                            |
| + β7EVOL<br>(H3d)<br>(-)                | +β <sub>8</sub> IND<br>(H3e)<br>(+)  | +β9LIQUID<br>(H4a)<br>(-)  | +β10RISK<br>(H4b)<br>(+)   | +β <sub>11</sub> DIV<br>(H4c)<br>(+)                   | +β <sub>12</sub> ALTP<br>(H4d)<br>(-)                      | NST  |
| + β <sub>13</sub> SHARE<br>(H5a)<br>(+) | +β <sub>14</sub> OPT<br>(H5b)<br>(-) | <u>Prop</u><br>+β <sub>15</sub> NEWS<br>(H6a)<br>(+)                                   | bosition <u>3: H6</u> 2<br>+β <sub>16</sub> DISP<br>(H6b)<br>(+) | <u>-H6c</u><br>+β <sub>17</sub> EXTFIN<br>(H6c)<br>(+) | <u>Proposition</u><br>+β <sub>18</sub> CONC<br>(H8)<br>(-) | $\frac{5:H8}{C} + \frac{Control}{\beta_{19}} SIZE + \varepsilon$ (?) |

#### Variable descriptions:

 $VRDI_t = Voluntary Reporting Disclosure Index in time period t$ 

 $\alpha = \text{Constant}$ 

ASCT = Firm has an employee who is a member of the ASCT (1=yes, otherwise =0)

AASB = Firm's audit firm is represented on accounting standard setting boards (1=yes, otherwise =0)

G100 = Firm belongs to the G100 (1=yes, otherwise =0)

LEV = Total liabilities/ Total Assets

INTCOV = Log of (Profit before interest, abnormals & tax/ Interest)

GROWTH = Book value equity/ market value equity

EVOL = Difference between maximum & minimum income over a 3 year period/ mean income for the period

IND = Firm is engaged in mining/oil (1=yes, otherwise =0)

RISK = Firm's equity beta adjusted for leverage

DIV = Dividend Paid or provided/ Net income

LIQUID = Current assets/ current liabilities

ALTINST = Convertible debt or preference shares on issue (1=yes, otherwise =0)

SHARE = Directors' share holdings/ Number of issued ordinary shares

OPT = Directors' option holdings (1=yes, otherwise =0)

NEWS = Log of number of firm related news items appearing on Bloomberg news service

DISP = 100% less % shares held by Top20 shareholders

EXTFIN= Firm made a new share issue in the proceeding year (1=yes, otherwise =0)

CONC = Sum of revenue of top four ranked firms in industry/ total industry revenue

SIZE = Log of total assets

 $\varepsilon_I = \text{error term}$ 

'+' = positive prediction; '-' = negative prediction; '?' = ambiguous prediction

[Equation 7.1]

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| Variable | ASCT   | BIG6   | AASB   | G100          | LEV    | INTCOV | GROWTH | EVOL   | IND    | RISK   | DIV    | LIQUID | ALTINST | SHARE  | OPT    | NEWS     | DISP     | EXTFIN | TREAS  | CON    |
|----------|--------|--------|--------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|----------|----------|--------|--------|--------|
| BICC     | 151    |        |        |               |        |        |        |        |        |        |        |        |         |        |        | <u> </u> |          |        |        | C      |
| ысо      | (000)  |        |        |               |        |        |        |        |        |        |        |        |         |        |        |          |          |        |        |        |
| AASB     | .138   | .667   |        |               |        |        |        |        |        |        |        |        |         |        |        |          |          |        |        |        |
|          | (.000) | (.000) |        |               |        |        |        |        |        |        |        |        |         |        |        |          |          |        |        |        |
| G100     | .557   | .220   | .220   |               |        |        |        |        |        |        |        |        |         |        |        |          |          |        |        |        |
|          | (.000) | (.000) | (.000) |               |        |        |        |        |        |        |        |        |         |        |        |          |          |        |        |        |
| LEV      | .347   | .183   | .116   | 266           |        |        |        |        |        |        |        |        |         |        |        |          |          |        |        |        |
| -        | (.000) | (.000) | (.002) | (.000)        |        |        |        |        |        |        |        |        |         |        | ļ      |          |          |        |        |        |
| INTCOV   | 148    | 017    | 071    | 106           | 399    |        |        |        |        |        |        |        |         |        |        |          |          |        |        |        |
| CROWTH   | (.000) | 014    | (.000) | (.005)        | (.000) | 046    |        |        |        |        |        |        |         |        |        |          |          |        |        |        |
| GROWIN   | (978)  | .024   | (415)  | (150)         | (000)  | (244)  |        |        |        |        |        |        |         |        |        |          |          |        |        |        |
| EVOL     | .102   | .164   | .172   | .052          | .075   | .197   | .132   |        |        |        |        |        |         |        |        |          |          |        |        |        |
|          | (.008) | (.000) | (.000) | (.175)        | (.052) | (.000) | (.001) |        |        |        |        |        |         |        |        |          |          |        |        |        |
| IND      | 147    | 047    | 011    | 115           | 231    | - 103  | 294    | 070    |        |        |        |        |         |        |        |          |          |        |        |        |
|          | (.000) | (.208) | (.774) | (.002)        | (.000) | (.006) | (.000) | (.068) |        |        |        |        |         |        |        |          |          |        |        |        |
| RISK     | 007    | 066    | 026    | .021          | 380    | .006   | 038    | .084   | .327   |        |        |        |         |        |        |          |          |        |        |        |
|          | (.854) | (.081) | (.497) | (.585)        | (.000) | (.878) | (.324) | (.032) | (.000) |        |        |        |         |        |        |          |          |        |        |        |
| DIV      | .148   | .113   | .045   | .210          | 038    | .391   | .155   | .083   | 369    | 109    |        |        |         |        |        |          |          |        |        |        |
|          | (.000) | (.003) | (.229) | (.000)        | (.312) | (.000) | (.000) | (.031) | (.000) | (.004) | 120    |        |         |        |        |          | <u> </u> |        |        |        |
|          | (.018) | (.009) | (202)  | (000)         | (000)  | .(017) | (000)  | (802)  | (184)  | (000)  | (004)  |        |         |        |        |          |          |        |        |        |
| ALTINST  | .229   | .212   | .131   | .201          | .178   | 127    | .063   | .030   | -151   | 033    | .065   | 001    |         |        |        |          | 1        |        |        |        |
|          | (.000) | (.000) | (.000) | (.000)        | (.000) | (.001) | (.104) | (.444) | (.000) | (.390) | (.087) | (.980) |         |        |        |          |          |        |        |        |
| SHARE    | 249    | 191    | 138    | 293           | 009    | 035    | .084   | .061   | 184    | 091    | 156    | .110   | 012     |        |        |          |          |        |        |        |
|          | (.000) | (.000) | (.000) | (.000)        | (.817) | (.375) | (.034) | (.119) | (.000) | (.022) | (.000) | (.005) | (.768)  |        |        |          |          |        |        |        |
| OPT      | .075   | 005    | 065    | .116          | .186   | 251    | 179    | 045    | .054   | .036   | 162    | 050    | 008     | .084   |        |          |          |        |        |        |
|          | (.054) | (.891) | (.094) | (.003         | (.000) | (.000) | (.000) | (.245) | (.164) | (.362) | (.000) | (.198) | (.828)  | (.033) | 1.0.7  |          |          |        |        |        |
| NEWS     | .470   | .262   | .173   | .509          | .239   | 120    | 178    | .096   | .130   | .104   | .044   | 065    | .103    | 258    | .187   |          |          |        |        |        |
| DISP     | (.000) | .000   | 0.000  | 1.60          | - 130  | 075    | (.000) | 001    | (.000) | 111    | (.242) | (.081) | (.006)  | (.000) | 082    | 032      |          |        |        | 1      |
|          | (.000) | (.217) | (.821) | (.000)        | (001)  | (051)  | (009)  | (973)  | (000)  | (004)  | (100)  | (180)  | (364)   | (074)  | (037)  | (409)    |          |        |        |        |
| EXTFIN   | 067    | 066    | 027    | 088           | 076    | 105    | 119    | 057    | .186   | .042   | 189    | .051   | 077     | 018    | .107   | .020     | .047     |        |        |        |
|          | (.087) | (.088) | (.482) | (.024)        | (.053) | (.007) | (.003) | (.159) | (.000) | (.294) | (.000) | (.192) | (.050)  | (.657) | (.009) | (.605)   | (.240)   |        |        |        |
| TREAS    | .209   | .033   | .067   | .144          | .164   | 041    | - 168  | 026    | .165   | .061   | 044    | 195    | .018    | .176   | .066   | .165     | 103      | .024   |        |        |
|          | (.007) | (.679) | (.397) | (.065)        | (.036) | (.599) | (.032) | (.741) | (.035) | (.447) | (.578) | (.012) | (.817)  | (.027) | (.407) | (.035)   | (.193)   | (.757) |        | ļ      |
| CONC     | 164    | 017    | .030   | 069           | 194    | 101    | 122    | .017   | .538   | .272   | 232    | .015   | 010     | 079    | .075   | .085     | 178      | .069   | .048   |        |
| CLZE     | (.000) | (.004) | (.420) | <u>(.0/1)</u> | (.000) | (.009) | (.002) | (.668) | (.000) | (.000) | (.000) | (.694) | (.804)  | (.047) | (.061) | (.025)   | (.000)   | (.082) | (.549) | 145    |
| SILL     | .371   |        | .279   | 1.371         | .345   | 052    | .180   | (000)  | 238    | 002    | .302   | 102    | .287    | 342    | (721)  | .330     | (010)    | 140    | (124)  | 145    |
|          | (.000) | (.000) | (.000) | (.000)        | (.000) | (.172) | (.000) | (.000) | (.000) | (-105) | (.000) | (000)  | (.000)  | (.000) | (.751) | (.000)   | (.010)   | (.000) | (.124) | (.000) |
|          |        |        |        |               |        | L      | L      |        | L      |        | L      | A      | L       | L      |        | <b>·</b> |          |        | 1      |        |

### Table 7.10: Spearman Rank Correlation Matrix for Independent Variable Measures

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Key:

Correlations reported are the Spearman rank correlations (2 tail level of significance). Shaded cells indicate inconsistent results between the Spearman rank correlation and the Pearson correlation coefficient.

#### Variable descriptions:

| INTCOV = Log of (Profit before interest, abnormals & tax/ Interest)<br>GROWTH = Book value equity/ market value equity<br>EVOL = Difference between maximum & minimum income over a 3 year<br>period/ mean income for the period<br>LIQUID = Current assets/ current liabilities<br>RISK = Firm's equity beta adjusted for leverage |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|
| GROWTH = Book value equity/ market value equity<br>EVOL = Difference between maximum & minimum income over a 3 year<br>period/ mean income for the period<br>LIQUID = Current assets/ current liabilities<br>RISK = Firm's equity beta adjusted for leverage  |  |  |  |  |  |  |  |  |
| EVOL = Difference between maximum & minimum income over a 3 year<br>period/ mean income for the period<br>LIQUID = Current assets/ current liabilities<br>RISK = Firm's equity beta adjusted for leverage   |  |  |  |  |  |  |  |  |
| period/ mean income for the period<br>LIQUID = Current assets/ current liabilities<br>RISK = Firm's equity beta adjusted for leverage   |  |  |  |  |  |  |  |  |
| LIQUID = Current assets/ current liabilities<br>RISK = Firm's equity beta adjusted for leverage   |  |  |  |  |  |  |  |  |
| RISK = Firm's equity beta adjusted for leverage   |  |  |  |  |  |  |  |  |
|   |  |  |  |  |  |  |  |  |
| DIV = Dividend Paid or provided/ Net income   |  |  |  |  |  |  |  |  |
| SHARE = Directors' share holdings/ Number of issued ordinary shares   | SHARE = Directors' share holdings/ Number of issued ordinary shares        |  |  |  |  |  |  |  |
| NEWS = Log of number of firm related news items appearing on Bloomberg  | NEWS = Log of number of firm related news items appearing on Bloomberg     |  |  |  |  |  |  |  |
| news service  | news service   |  |  |  |  |  |  |  |
| DISP = 1 less % shares held by Top20 shareholders   | DISP = 1 less % shares held by Top20 shareholders                          |  |  |  |  |  |  |  |
| CONC = Sum of revenue of top four ranked firms in industry/ total indust  | CONC = Sum of revenue of top four ranked firms in industry/ total industry |  |  |  |  |  |  |  |
| revenue   |  |  |  |  |  |  |  |  |
| <b>Control</b> SIZE = Log of total assets   | SIZE = Log of total assets   |  |  |  |  |  |  |  |
| <b>Dichotomous</b> ASCT = Firm has an employee who is a member of the ASCT  | ASCT = Firm has an employee who is a member of the ASCT                    |  |  |  |  |  |  |  |
| BIG6 = Firm's audit firm is a Big 6 audit firm  |  |  |  |  |  |  |  |  |
| AASB = Firm's audit firm is represented on accounting standard setting boards   |  |  |  |  |  |  |  |  |
| G100 = Firm belongs to the G100   |  |  |  |  |  |  |  |  |
| IND = Firm is engaged in mining/oil   |  |  |  |  |  |  |  |  |
| DISP = 100 less % of shares held by the Top 20 shareholders   |  |  |  |  |  |  |  |  |
| ALTINST = Convertible debt or preference shares on issue  |  |  |  |  |  |  |  |  |
| OPT = Directors' option holdings  |  |  |  |  |  |  |  |  |
| EXTFIN= Firm made a new share issue in the proceeding year  |  |  |  |  |  |  |  |  |
| TREAS = Centralised treasury operation. Given that this variable is collected by  | у  |  |  |  |  |  |  |  |
| survey data, the number of observations is restricted to 41 each reporting period   | ί.   |  |  |  |  |  |  |  |
| The dichotomous variables are coded $1 = yes$ and $0 = no$ .  |  |  |  |  |  |  |  |  |

Tests of proposition 4 (information production costs proxied by the existence of a centralised treasury operation) are excluded from the analysis. Of the 50 (25%) responding firms responding to the survey instrument to collect this variable, 41 are identified as operating centralised treasuries. The significant number of missing observations necessitates the omission of this variable from the regression model. Of the 41 firms, 8 (5) {4} [2] indicate the non-existence of a centralised treasury operation for periods 1994-1997 respectively.<sup>142</sup> The univariate statistics, presented in section 7.3, indicate no relationship between the existence of a centralised treasury operation and firms' derivative information disclosure decisions. Univariate analysis of firms' VRDI and presence/absence of a centralised treasury, for each of the 1992-1997 reporting periods examined in this thesis, also indicate no relationship between these variables except in the 1993 reporting period.

#### 7.42 Multivariate Results

This section reports the results for tests of the disclosure model. The relationships between derivative disclosures, as measured by the VRDI, and firm characteristics are reported in subsection 7.421. Regressions are also run using an alternative specification of the dependent variable (change in VRDI), and rank and normal score regressions. The results are discussed in subsections 7.422 and 7.423 respectively.

#### 7.421 Multivariate Results with VRDI as the Dependent Variable

Table 7.11 reports the multivariate tests of firm characteristics and voluntary derivative financial instrument disclosures. Table 7.11 presents the analysis for each individual reporting period throughout 1994-1997 in Panels A, B, C and D respectively. The regressions are run for various nestings of the factors examined,

<sup>&</sup>lt;sup>142</sup> The variable, TREAS, is trying to capture information production costs. Respondents are asked to indicate the degree of costs incurred with upgrading system and software capabilities to satisfy AASB1033 disclosure requirements. Twenty-eight firms replied that there would be no or low costs involved. Eleven firms replied the cost would be moderate, and one firm stated the cost would be high.

culminating in the unrestricted model as detailed in Equation 7.1.<sup>143</sup> The regression disclosure models are:

- Model A that includes variables related to legitimacy and reputation concerns plus the control variable, SIZE;
- (2) Model B extends model A by incorporating variables related to a firm's need to engage in hedging activities due to market imperfections and alternative risk management practices;
- Model C extends model B with additional variables capturing managerial risk aversion in the analysis;
- Model D extends model C by including variables proxying information asymmetry;
- (5) Model E includes all the variables predicted to be associated with derivative information disclosures<sup>144</sup> and;
- (6) Given the relatively strong correlations between G100, NEWS, and SIZE, the unrestricted model is run with the omission of the control variable SIZE (Model F).

Panel A of Table 7.11 details the results for the 1994 reporting period. During this voluntary period, no formal requirements for disclosures existed. The only hypothesis supported across all models is H3e with IND being statistically significant (p < .01). Firms' dividend payout, DIV (H4c), is statistically significant (p < .05) in all models except model F. Firm size is statistically significant for models A, B and C, but not for models D and E incorporating SIZE, NEWS (H6a) and G100 (H2d) inclusively. It is probable that the inclusion

<sup>&</sup>lt;sup>143</sup> The Lagrange multiplier (LM) test is useful when assessing the merits of moving from restricted to unrestricted models. This could assist in discriminating between the various motivations influencing voluntary derivative instrument disclosures. However, for this data set the LM multiplier cannot be computed because the degrees of freedom are not constant for the nested models. The variability is due to missing values.

<sup>&</sup>lt;sup>144</sup> As previously discussed, Model E excludes the variable, TREAS, testing for the association between a firm's information production costs and voluntary disclosure. In retrospect, multi-listing could have been used to capture information production costs. The information production costs for firms listed on exchanges with derivative instrument disclosure requirements during 1992-1997 (United States and New Zealand) are predicted to be lower relative to firms only listed on the ASX. The 1994 and 1995 multivariate results for Models E and F, reported in Table 7.11 Panels A and B, are rerun with the inclusion of listing status (1= multi-listed, 0 otherwise). The results are largely invariant to this variable's inclusion. The variable is not statistically significant in any of the models, and the statistical significance of the variables reported as significant in Table 7.11 Panels A and B remains. The only reported results changing are SIZE and NEWS becoming statistically significant in 1994.

of SIZE, G100 and NEWS collectively in the regression model reduces the *t*-value of the SIZE variable to insignificance. Re-running model E, excluding NEWS, firm size remains statistically significant. The coefficients for IND and SIZE are positive with IND in the predicted direction. The results support H3e, suggesting that engaging in mining/oil related activities is positively associated with voluntary derivative disclosures. The result for DIV is perplexing. It is hypothesised that a lower dividend payout is an alternative risk strategy reducing the need to use derivative financial instruments. The coefficient is not in the direction predicted.

The results are robust when alternative proxy measures of the independent variables LEV, EVOL, GROWTH and SIZE are used. Similarly, if the analysis for 1994 is restricted to sample 1 firms, the variables IND, SIZE and DIV remain statistically significant. The variable LIQUID (H4a) is also statistically significant at the 5% level in the predicted direction. This suggests that high liquidity is negatively associated with derivative disclosures.

The number of firms disclosing increases from 41 to 96 in 1995. This is the first reporting period after the release of the ASCT Industry Statement and ED65. The regression results for models A-F are tabled in Panel B of Table 7.11. For the unrestricted regression (model E), the variables ASCT (p < .01), INTCOV (p < .05), IND (p < .01), and SIZE (p < .01) are statistically significant with the coefficients in the direction hypothesised. Such outcomes support H2a, H3b and H3e respectively. The adjusted R<sup>2</sup> for extended models increases from .33 (model A) to .486 (model C). The adjusted R<sup>2</sup> of .475 for the unrestricted model (model E) suggests that some overfitting is evident.

Omitting firm size from the regression, Model F, leaves the variables ASCT (H2a), INTCOV (H3b) and IND (H3e) statistically significant. Additional variables that become statistically significant are AASB (H2c), G100 (H2d) and LIQUID (H4a). The coefficients are in the hypothesised direction and significant at the p < .05, p < .01 and p < .05 levels respectively. The positive association between firm size and disclosures could reflect greater hedging activities by larger firms due to scale economies. The reporting of this activity could be attributable to reducing information asymmetry, lowering information production costs, and/or discharging accountability. The fact that G100 becomes statistically significant

when SIZE is omitted suggests that these variables are alternative proxies for the same theoretical construct.

The results are largely invariant to alternative proxies for LEV, GROWTH and EVOL. Replacing EVOL<sub>1</sub> with EVOL<sub>2</sub> and GROWTH<sub>1</sub> with GROWTH<sub>2</sub> leaves the variables ASCT (H2a), IND (H3e), INTCOV (H3b) and SIZE statistically significant in model E. When LEV<sub>1</sub> is replaced with LEV<sub>2</sub>, the leverage, rather than interest cover, variable is statistically significant (p < .05) in the hypothesised direction. A firm's interest cover and leverage proxy for a firm's financial distress characteristics.

Using sample 1 firms also produces invariant results relative to those reported in Table 7.11 panel B. A firm's ASCT and industry affiliations (ASCT and IND) and size appear to influence derivative disclosures. Support is also evident for a statistically significant positive relationship, as predicted, between leverage (LEV) and disclosure in models C and E.

The 1996 reporting period is the second year of the coercive reporting regime and the year of AASB1033 release. Table 7.11 panel C presents the regression results for models A-E. In all regressions, ASCT (H2a), G100 (H2d), LEV (H3a), GROWTH (H3c), IND (H3e) and SIZE are associated with derivative financial instrument disclosures. Except for GROWTH, these variables are all statistically significant in 1995. Hypothesis 7 posits a relationship between disclosure and a firm's growth options and a statistically significant positive relationship is evident for 1996. Models D and E also support a statistically significant relationship between RISK (H4b) and disclosure (p < .05) with a positive coefficient as predicted.

Alternative specifications of the variables LEV, GROWTH and EVOL provide similar results. Using LEV<sub>2</sub> (GROWTH<sub>2</sub>) in place of LEV<sub>1</sub> (GROWTH<sub>1</sub>), the statistically significant variables remain ASCT, G100, IND, LEV and SIZE in model E. The variable GROWTH appears sensitive to the alternative proxies with insignificant *t*-statistics reported. Model E, when rerun with EVOL<sub>2</sub> rather than EVOL<sub>1</sub>, returns statistically significant variables for ASCT, G100, IND, LEV, RISK, GROWTH and SIZE. All have positive coefficients. The disclosure model predicts positive associations for all of these variables except the non-directional prediction for GROWTH. Applying the regressions to the sample 1 dataset produces robust results. The variables ASCT (H2a), G100 (H2d), LEV (H3a), GROWTH (H3c), IND (H3e) and SIZE are still statistically significant in the hypothesised directions. The statistical significance for all these variables except firm size is at the 1% level. For all models using this restricted sample, INTCOV (H3b) is also statistically significant, but in the opposite direction to that predicted. This result is interesting given that the direction of the variable's coefficient changes in 1996 relative to 1995. A firm's leverage and interest cover proxy for financial distress costs and the need to engage in hedging activities. The unpredicted result for H3b could reflect it being a poor construct for financial distress costs and/or loan contracts not including this ratio as a debt covenant<sup>145</sup> or disclosure not affecting the covenant.

The reporting period ending in 1997 is the year prior to mandatory status for AASB1033. As previously reported, the number of firms disclosing increased only marginally but the extent of firms' disclosures increased. The disclosure model regressions for 1997 are reported in Table 7.11 panel D. The statistically significant variables that appear to be associated with disclosures in the directions predicted are related to: (1) legitimacy and reputation, ASCT (H2a); (2) financial distress costs, LEV (H3a); (3) industry affiliation, IND (H3e); and (4) firm size, SIZE. The unrestricted model (model E) reports an adjusted R<sup>2</sup> of .528. The reported statistically significant coefficients for ASCT, IND and SIZE are robust to alternative proxy measures for LEV, EVOL and GROWTH. A firm's leverage is not statistically significant when LEV<sub>2</sub> (EVOL<sub>2</sub>) rather than LEV<sub>1</sub> (EVOL<sub>1</sub>) is included in the regression.

Omitting SIZE as an independent variable in Model F leaves the variables ASCT (H2a), LEV (H3a), and IND (H3e) statistically significant. Additionally, G100 (H2d), RISK (H4b), DIV (H4c), and NEWS (H6a) are all statistically significant. The adjusted  $R^2$  is .487 with all coefficients, except that for DIV, in the direction predicted.

<sup>&</sup>lt;sup>145</sup> Relative to leverage covenants the interest cover covenant is not as frequently included in Australian debt contracts. Whittred and Zimmer (1986) find that interest cover ratio restrictions only apply at the time of borrowing and are specified in 6 of the 18 public debenture trust deeds examined. Cotter (1998) and Ramsay and Sidhu (1998) find interest cover restrictions apply in 10/16 and 16/23 of the private loan contracts examined respectively.

Restricting the 1997 analysis to sample 1 firms, the variables ASCT, LEV, IND and SIZE remain significant with positive coefficients. In these regressions there is also support for an association between GROWTH (H3c) and disclosure. Unlike the 1996 results, where the GROWTH coefficient is positive, the results for 1997 suggest a negative relationship. Such results confirm the ambiguous nature of the relation between growth options and derivative disclosures, as discussed in Chapter 5. Another plausible explanation is the inaccurate functional form between the underlying construct and its proxy measure. The coefficient on the firm's 1998 equity raisings is also significant for these regressions (models D and E). Whereas a positive relation is expected for firms' disclosures and external equity raisings in the subsequent reporting period, the coefficient is negative.

Due to the possibility of introducing autocorrelation in the residuals, data are pooled for 1994 and 1995 only.<sup>146</sup> The regression results for models A-E appear in panel E of Table 7.11. The results are confirmatory with respect of the ASCT (H2a), IND (H3e) and SIZE variables. These variables are statistically significant across all models and in the predicted direction. The models reported for individual reporting years (panels A-D of Table 7.11) provide no support for a relationship between a firm's equity raisings in the year subsequent to the reporting period, EXTFIN (H6c), and disclosure levels. Perplexingly, there is a statistically significant relation, in the opposite direction to that predicted, in the pooled data set. In regression model F (omitting SIZE as an explanatory variable), statistically significant positive coefficients are reported for the following variables: (1) the legitimacy and reputation proxy, G100 (H2d); (2) the financial distress proxy, GROWTH (H3c); (3) alternative risk management proxy, LIQUID (H4a); and (4) the information asymmetry proxy, NEWS (H6a).

<sup>&</sup>lt;sup>146</sup> Bernard (1987) discusses inference difficulties that arise when data sets are cross-sectional dependent.

Alternative specifications of the variables LEV, GROWTH and EVOL provide similar results.<sup>147</sup> However, applying the regressions to the pooled sample 1 dataset produces some different results. The variables, ASCT (H2a), IND (H3e) and EXTFIN (H6c), remain significant for models E and F. The statistical significance of SIZE disappears in model E, but is replaced by LEV (H3a), PRESS (H6a) and DISP (H6b). For model F, G100 is no longer significant but LEV and DISP become significant at p < .05.

In summary, the multivariate testing strongly supports IND (H3e) and SIZE as factors influential in firms' commitment to derivative financial instrument disclosures. There is also strong support for a firm's ASCT membership (H2a) influencing derivative disclosure policies from 1995 onwards. Although H3e is developed from the perspective of mining/oil firms having a greater need to engage in hedging activities to manage contractual relationships (Godfrey 1990), this result sits comfortably with financial reporting reputations and legitimacy concerns influencing disclosure policies. Given that users of financial statements expect such firms to be utilising derivative financial instruments, transparency of these activities would be valued. Hence, non-disclosures by mining/oil firms would be more heavily discounted by market participants relative to non-disclosures by firms operating in industries with less volatile markets. Disclosures by mining/oil firms are consistent with their aim to legitimise their activities and adhere to contractual and communal accountability.

Reasons cited for a positive association between firm size and disclosures include transaction based scale economies, lower information production costs, and higher public scrutiny of financial reporting practices relative to smaller firms (refer to Appendix 3). When SIZE is excluded from the analyses, G100 membership (H2d) and in some instances NEWS (H6a), are significant. This suggests that these variables are capturing the same underlying construct as SIZE. The relationship between firm size and derivative disclosures is also consistent with proposition 1.

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<sup>&</sup>lt;sup>147</sup> Including LEV<sub>2</sub> rather than LEV<sub>1</sub> in model E, the statistically significant variables remain ASCT, IND, and EXTFIN. A firm's leverage is also statistically significant but a relationship between SIZE and disclosure is not longer present. The only difference in model E reported and model E with GROWTH<sub>2</sub> rather than GROWTH<sub>1</sub>, is that INTCOV is also statistically significant (p < .05) in the hypothesised direction. No differences to model E are noted when EVOL<sub>2</sub>, rather than EVOL<sub>1</sub> is included.

The visibility (both politically and communally) of large firms creates a necessity for them to respond and conform to institutional and community disclosure demands relative to smaller firms. The absence of demanded disclosures will be more noticeable for larger rather than smaller firms, and the reputation damage suffered as a consequence of non-disclosure will be higher for larger firms.

The multivariate results provide weaker support for an association between firms' leverage, as proxied by LEV (H3a) and INTCOV (H3b), and disclosure policies. No support, or inconsistent findings, is evident for a relationship between disclosure and variables related to a firm's alternative risk management practices (H4a-H4d), management share ownership (H5a) and option schemes (H5b), shareholder dispersion (H6b), external financing needs (H6c) and market concentration (H8).

| Variable     | Model A        | Model B        | Model C        | Model D        | Model E        | Model F        |
|--------------|----------------|----------------|----------------|----------------|----------------|----------------|
| (Predicted   | $\beta$ (S.E.) |
| Sign)        | t- value       | t- value       | t- value       | t-value        | t-value        | t-value        |
| PANEL A: 19  | 94             |                |                |                |                |                |
| Constant     | -12.2 (.081)   | -25.4 (.098)   | -20.0 (.110)   | -13.7 (.132)   | -13.8 (.142)   | 3.5 (.069)     |
|              | -1.508         | -2.597**       | -1.817*        | -1.036         | 973            | .504           |
| ASCT (+)     | 1.84 (.027)    | 2.08 (.027)    | 3.11 (.030)    | 3.44 (.032)    | 3.42 (.032)    | 4.35 (.032)    |
|              | .688           | .785           | 1.043          | 1.087          | 1.060          | 1.373          |
| AASB (+)     | .01 (.018)     | -2.28 (.018)   | -1.85 (.020)   | -1.66 (.020)   | -1.79 (.021)   | -1.76 (.021)   |
|              | .008           | -1.260         | 944            | 826            | 860            | 840            |
| G100 (+)     | .18 (.031)     | -1.89 (.030)   | -1.38 (.032)   | -1.57 (.033)   | -1.66 (.034)   | .16 (.032)     |
|              | .057           | 631            | 437            | 474            | 487            | .050           |
| LEV (+)      | -              | -1.18 (.060)   | -2.26 (.071)   | -2.18 (.073)   | -3.53 (.077)   | 81 (.075)      |
|              | ]              | 197            | 318            | 299            | 459            | 108            |
| INTCOV (-)   |                | 371 (.003)     | 36 (.003)      | 38 (.003)      | 39 (.004)      | 36 (.004)      |
|              | l              | -1.223         | -1.096         | -1.108         | -1.088         | -1.017         |
| GROWTH       |                | .522 (.030)    | 1.39 (.033)    | 1.41 (.035)    | 1.36 (.036)    | 3.27 (.033)    |
| (?)          |                | .177           | .419           | .405           | .380           | .985           |
| EVOL (-)     |                | 05 (.001)      | 05 (.001)      | 06 (.001)      | 06 (.001)      | 06 (.001)      |
|              |                | 662            | 663            | 664            | 650            | 703            |
| IND (+)      |                | 17.2 (.021)    | 16.5 (.024)    | 16.8 (.027)    | 17.8 (.032)    | .17 (.031)     |
|              |                | 8.012**        | <u>6.</u> 949  | 6.191**        | 5.621**        | 5.425**        |
| LIQUID (-)   |                | 23 (.001)      | 475 (.003)     | 47 (.004)      | 46 (.004)      | 49 (.004)      |
|              |                | -1.816         | -1.385         | <u>-1.3</u> 24 | -1.262         | -1.359         |
| RISK (+)     | ļ              | .21 (.023)     | .38 (.026)     | .35 (.028)     | .36 (.029)     | .716 (.029)    |
|              |                | .089           | <u>.1</u> 49   | .126           | .124           | .249           |
| DIV (+)      |                | -1.82 (.011)   | -1.97 (.011)   | -2.09 (.012)   | -2.06 (.012)   | -1.93 (.012)   |
|              |                | -1.709*        | -1.766*        | -1.810         | -1.754*        | -1.643         |
| ALTINST (-)  |                | .89 (.021)     | .48 (.023)     | .420 (.024)    | .73 (.025)     | .59 (.025)     |
|              |                | .416           | .204           | .176           | .297           | .237           |
| SHARE (+)    |                |                | -1.31 (.067)   | -1.85 (.070)   | -1.65 (.072)   | -2.77 (.072)   |
|              |                |                | <u>196</u>     | 263            | 228            | 383            |
| OPT (-)      |                |                | 32 (.020)      | 40 (.021)      | 33 (.022)      | 63 (.022)      |
|              |                | ·              | 157            | 191            | 149            | 282            |
| NEWS (+)     |                |                |                | .68 (.010)     | .57 (.011)     | 1.32 (.010)    |
|              |                |                |                | .653           | 527            | 1.381          |
| DISP (+)     |                |                |                | .001 (.001)    | 001 (.001)     | .004 (.001)    |
|              |                |                |                | .024           | 003            | .063           |
| EXTFIN (+)   |                |                |                | -2.71 (.028)   | -3.13 (.029)   | -2.72 (.029)   |
|              |                |                |                | 972            | -1.066         | 925            |
| CONC (-)     |                |                |                |                | -5.06 (.079)   | -3.33 (.078)   |
|              |                |                |                |                | 644            | 428            |
| SIZE (?)     | 1.42 (.007)    | 2.45 (.008)    | 2.02 (.009)    | 1.49 (.012)    | 1.74 (.012)    |                |
|              | 1.981          | 2.966          | 2.136          | 1.289          | 1.399          |                |
| F Statistic  | 3.047          | 8.168          | 5.678          | 4.592          | 4.162          | 4.248          |
| Significance | .018           | .000           | .000           | .000           | .000           | .000           |
| Adj R*       | .042           | .390           | .340           | .327           | .318           | .312           |

## Table 7.11:Multivariate Regression with Voluntary Reporting Disclosure<br/>Index (VRDI) as the Dependent Variable

| Variable           | Model A        | Model B        | Model C              | Model D      | Model E        | Model F        |
|--------------------|----------------|----------------|----------------------|--------------|----------------|----------------|
| (Predicted         | $\beta$ (S.E.) | $\beta$ (S.E.) | $\beta$ (S.E.)       | β(S.E.)      | $\beta$ (S.E.) | $\beta$ (S.E.) |
| Sign)              | t- value       | t- value       | t- value             | t-value      | t-value        | t-value        |
| PANEL B: 19        | 95             |                |                      | [            |                |                |
| Constant           | 437(132)       | 70.0 (150)     | -69.8 ( 163)         | -59 6 ( 192) | -704(209)      | _1.77          |
| Consum             | -3 208**       | -4 678**       | _4 288 <sup>**</sup> | -3.008**     | -3 370**       | ( 000)         |
|                    | -5.270         | -4.070         | -4.200               | -5.070       | -5.570         | (.079)         |
| ASCT (+)           | 8 38 ( 043)    | 9.84 ( 041 )   | 111(041)             | 11.2 (043)   | 124(045)       | 157(016)       |
|                    | 1 033          | 2 417**        | 2 721**              | 2 503 **     | 2 780**        | 2 4 2 4**      |
| AASP               | 2.64 ( 020)    | 2.417          | 2.721                | 2.393        | 2.700          | 5.424          |
| AASD (+)           | 2.04 (.030)    | 2.95 (.028)    | 3.78 (.029)          | 4.85 (.030)  | 4.30(.031)     | 3.54 (.055)    |
| G100 (1)           | 0.04 ( 050)    | 1.038          | 6.02 ( 049)          | 1.020        | 1.431          | 1.091          |
| 0100(+)            | 9.94 (.030)    | 0.01 (.048)    | 0.22 (.048)          | 8.23 (.052)  | 0.70(.034)     | 13.4 (.053)    |
| LEV(I)             | 1.972          | 52 (0(2)       | 1.200                | 1.300        | 1.240          | 2.303          |
| LEV(+)             |                | .32 (.003)     | .135 (.005)          | -3.84 (.007) | -1.56 (.073)   | .18 (.076)     |
| DITCOV             |                | .083           | .021                 | 5/1          | 214            | .023           |
| INTCOV (-)         |                | 30 (.004)      | 40 (.004)            | 82 (.005)    | 83 (.005)      | 85 (.005)      |
| CDOUTU             |                | -7.20          | 924                  | -1./80       | -1.703         | -1.682         |
| GROWIH             |                | .13 (.035)     | .23 (.036)           | -2.59 (.040) | -2.58 (.041)   | 2.46 (.040)    |
| $\frac{10}{100}$   |                | .0.37          | .064                 | 652          | 031            | .611           |
| EVOL (-)           |                | .04 (.001)     | .04 (.001)           | .06 (.001)   | .06(.001)      | .08 (.001)     |
|                    | · · ·          | .376           | .362                 | .532         | .581           | ./33           |
| IND (+)            |                | 23.0 (.033)    | 24.1 (.035)          | 23.3 (.038)  | 21.9 (.042)    | 18.7 (.043)    |
|                    |                | 6.970          | 6.940                | 6.200        | 5.238          | 4.367          |
|                    |                | 26 (.003)      | 28 (.003)            | 25 (.003)    | 29 (.004)      | 61 (.004)      |
| DIGIT              | }              | /48            | 809                  | 734          | 802            | -1.670         |
| KISK (+)           |                | 18 (.033)      | 16 (.037)            | 62 (.037)    | 49 (.040)      | 1.39 (.042)    |
|                    |                | 053            | 043                  | 168          | .122           | .332           |
| DIV(+)             |                | 1.61 (.030)    | 1.52 (.030)          | 2.30 (.032)  | 3.27 (.034)    | 3.53 (.036)    |
|                    |                | .5.31          | .505                 | .718         | .961           | .993           |
| ALTINST (-)        |                | -3.18 (.034)   | -3.17 (.034)         | -4.55 (.035) | -5.18 (.037)   | -3.15 (.04)    |
|                    |                | 939            | 945                  | -1.291       | -1.409         | 827            |
| SHARE (+)          |                |                | 1.23 (.093)          | 67 (.095)    | .71 (.100)     | 21 (.105)      |
|                    |                |                | .132                 | 070          | .071           | 194            |
| OPT (-)            |                |                | -1.66 (.030)         | -1.62 (.031) | -2.59 (.034)   | -1.93          |
|                    |                |                | 554                  | 518          | -,774          | (.035)         |
|                    |                |                |                      |              |                | 552            |
| NEWS (+)           |                |                |                      | 78 (.015)    | 98 (.015)      | 1.822          |
|                    |                |                |                      | 336          | 002            | (.013)         |
|                    |                |                |                      |              |                | 1.369          |
| DISP (+)           |                |                |                      | 03 (.001)    | 02 (.001)      | 004            |
|                    |                |                |                      | 351          | 323            | (.001)         |
|                    |                |                |                      |              |                | 005            |
| EXTFIN (+)         |                |                | •                    | -5.99 (.047) | -6.49 (.051)   | -8.05          |
|                    |                |                |                      | -1.273       | -1.277         | (.053)         |
|                    |                |                |                      |              |                | -1.517         |
| CONC (-)           |                |                |                      |              | 11.8 (.095)    | 12.0 (.100)    |
|                    |                |                |                      |              | 1.242          | 1.206          |
| SIZE (?)           | 4.79 (.012)    | 6.49 (.013)    | 6.44 (.013)          | 6.09 (.017)  | 6.40 (.017)    |                |
|                    | 4.120          | 5.151          | 4.812                | 3.647        | 3.688          |                |
| F Statistic        | 23.985         | 13.598         | 11.854               | 9.259        | 8.148          | 7.161          |
| Significance       | .000           | .000           | .000**               | .000         | .000           | .000''         |
| Adj R <sup>2</sup> | .330           | .485           | .494                 | .486         | .475           | .425           |

### Table 7.11 continued: Multivariate Regression with Voluntary Reporting Disclosure Index (VRDI) as the Dependent Variable

| Variable  | Model A   | Model B  | Model C   | Model D   | Model E  | Model F   |
|---|---|--|---|---|--|---|
| (Predicted  | $\beta$ (S.E.)                                    | $\beta$ (S.E.)   | β(S.E.)   | β(S.E.)   | β(S.E.)  | β(S.E.)   |
| Sign)   | t- value  | t- value   | t- value  | t-value   | t-value  | t-value   |
| PANEL C: 19   | 96  |  | 1   |   |  |   |
| Constant  | -38.0 (.159)                                      | -70.8 (.152)   | -73.3 (.150)  | -88.7 (.214)  | -86.2 (.232)   | -31.7 (.112)  |
|   | -2.392**  | -4.641   | -4.888**  | -4.151**  | -3.716**   | -2.839  |
| ASCT (+)  | 9.42 (.045)                                       | 9.42 (.040)  | 9.67 (.039)   | 9.76 (.042)   | 10.5 (.044)  | 12.4 (.045)   |
|   | 2.081   | 2.363  | 2.488**   | 2.324   | 2.386  | 2.777   |
| AASB (+)  | 5.79 (.033)                                       | 3.09 (.030)  | 3.37 (.029)   | 3.75 (.033)   | 3.27 (.034)  | .415 (.035)   |
|   | 1.758*  | 1.046  | 1.169   | 1.150   | .950   | 1.185   |
| G100 (+)  | 11.2 (.054)                                       | 12.3 (.048)  | 13.5 (.047)   | 13.4 (.051)   | 13.3 (.053)  | 18.3 (.051)   |
|   | 2.090   | 2.572  | 2.884   | 2.637   | 2.498  | 3.565   |
| LEV (+)   |   | 36.4 (.093)  | 43.8 (.093)   | 49.5 (.115)   | 46.8 (.122)  | 44.9 (.125)   |
| <u> </u>  |   | 3.908  | 4.690   | 4.295   | 3.846  | 3.603   |
| INTCOV (-)  |   | .511 (.004)  | .86 (.004)  | .89 (.005)  | .81 (.005)   | .63 (.005)  |
|   |   | 1.325  | 2.184   | 1.807   | 1.556  | 1.191   |
| GROWTH  |   | 12.6 (.038)  |   |   | 14.1 (.045)  | 18.2 (.044)   |
| (?)   |   | 3.322  | 3.503   | 3.373   | 3.110  | 4.132   |
| EVOL (-)  |   | .05 (.001)   | .05 (.001)  | .03 (.001)  | .03 (.001)   | 04 (.001)   |
|   |   | .469   | .4/2  | .209  | .280   | .380  |
|   |   | 23.8 (.035)  | 20.1 (.035)   | 24.1 (.043)<br>5.654**  | 24.4 (.047)<br>5 120**   | 21.2 (.047)<br>4 505 <sup>**</sup>  |
|   |   | 07(004)  | 20 ( 004)   | 39 ( 005)   | 34(005)  | 4.505   |
|   |   | 176  | 502   | 852   | 721  | 071   |
| RISK (+)  |   | 4 99 ( 034)  | 5.03(033)   | 7 89 (040)  | 7 67 ( 042)  | 6 64 ( 043)   |
|   |   | 1.484  | 1.538   | 1.981   | 1.829*   | 1.552   |
| DIV (+)   |   | 79 (.014)  | -1.10 (.013)  | 67 (.018)   | 51 (.019)  | 64 (.019)   |
|   |   | 571  | 822   | 366   | 271  | 335   |
| ALTINST (-)   |   | 43 (.036)  | -1.48 (.035)  | 95 (.038)   | 38 (.039)  | .78 (.040)  |
|   |   | 121  | 423   | 252   | 099  | .195  |
| SHARE (+)   |   |  | -3.42 (.095)  | -5.90 (.109)  | -4.72 (.114)   | -3.48 (.117)  |
|   |   |  | 358   | 542   | 414  | 298   |
| OPT (-)   |   |  | 79 (.029)   | .72 (.034)  | 23 (.036)  | 06 (.037)   |
|   |   |  | 274   | .215  | 064  | 017   |
| NEWS (+)  |   |  |   | -1.06 (.017)  | 70 (.018)  | 2.18 (.014)   |
|   |   | <u> </u>   |   | 630   | 400  | 1.533   |
| DISP (+)  |   |  | •   | 03 (.001)   | 08 (.001)  | .02 (.001)  |
|   |   | <u>-</u>   |   | 286   | 080  | .194  |
| EXTFIN(+)   |   |  |   | -1.00 (.041)  | -2.09 (.045)   | -2.88 (.046)  |
|   |   |  | · · · · · ·   | 243   | 400  | 5.020   |
| CONC (-)  |   |  |   |   | 1.36 (.108)  | 478   |
| SIZE (2)  | 436(014)  | 4 43 ( 013)  | 4 37 (013)  | 536(018)  | 5 11 ( 010)  | .+/0  |
| SIZE (?)  | 3 171**   | 3 3 1 4*   | 3 346**   | 2 991   | 2.661**  |   |
| F Statistic   | 21.950  | 14 813   | 14 378  | 10.632  | 9 153  | 8 821   |
| Significance  | 000"  | 000**  | 000**   | 000**   | 000**  | 000**   |
| Adi R <sup>2</sup>  | .323  | .518   | .547  | .543  | .529   | .505  |
| NEWS (+)<br>DISP (+)<br>EXTFIN (+)<br>CONC (-)<br>SIZE (?)<br>F Statistic<br>Significance<br>Adj R <sup>2</sup> | 4.36 (.014)<br>3.171**<br>21.950<br>.000*<br>.323 | 4.43 (.013)<br>3.314 <sup>••</sup><br>14.813<br>.000 <sup>••</sup><br>.518 | 274<br>4.37 (.013)<br>3.346**<br>14.378<br>.000**<br>.547 | .215<br>-1.06 (.017)<br>630<br>03 (.001)<br>286<br>-1.00 (.041)<br>243<br>5.36 (.018)<br>2.991**<br>10.632<br>.000*<br>.543 | 064<br>70 (.018)<br>400<br>08 (.001)<br>080<br>-2.09 (.045)<br>466<br>1.58 (.108)<br>.146<br>5.11 (.019)<br>2.661<br>9.153<br>.000<br>.529 | 017<br>2.18 (.014)<br>1.533<br>.02 (.001)<br>.194<br>-2.88 (.046)<br>628<br>5.25 (.110)<br>.478<br>8.821<br>.000*<br>.505 |

# Table 7.11 continued: Multivariate Regression with Voluntary ReportingDisclosure Index (VRDI) as the Dependent Variable

| Variable                    | Model A                      | Model B                            | Model C                  | Model D                           | Model E                           | Model F                           |
|-----------------------------|------------------------------|------------------------------------|--------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| (Predicted                  | β(S.E.)                      | β(S.E.)                            | β(S.E.)                  | β(S.E.)                           | β(S.E.)                           | β(S.E.)                           |
| Sign)                       | t-value                      | t- value                           | t- value                 | t-value                           | t-value                           | t-value                           |
| PANEL D: 19                 | 97                           |                                    |                          |                                   |                                   |                                   |
| Constant                    | -52.1 (.180)<br>-2.893**     | -58.8 (.220)<br>-2.677**           | -64.1 (.232)<br>-2.757** | -89.5 (.254)<br>-3.527**          | -90.5 (.280)<br>-3.232**          | -16.9 (.139)<br>-1.212            |
| ASCT (+)                    | 12.8 (.051)<br>2.495         | 14.0 (.053)<br>2.665**             | 13.8 (.053)<br>2.592**   | 11.0 (.053)<br>2.065*             | 12.6 (.056)<br>2.242 <sup>*</sup> | 16.1 (.057)<br>2.823**            |
| AASB (+)                    | 7.63 (.038)<br>1.992         | 3.85 (.039)<br>.978                | 3.15 (.041)<br>.761      | 2.57 (.041)<br>.622               | .186 (.043)<br>.435               | 3.58 (.044)<br>.812               |
| G100 (+)                    | 7.53 (.058)<br>1.296         | 7.54 (.058)<br>1.296               | 7.17 (.059)<br>1.217     | 8.63 (.057)<br>1.511              | 8.40 (.059)<br>1.419              | 14.3 (.058)<br>2.453**            |
| LEV (+)                     |                              | 59 (.041)<br>145                   | 41 (.041)<br>099         | 32.1 (.140)<br>2.289 <sup>*</sup> | 27.9 (.152)<br>1.828 <sup>*</sup> | 33.5 (.158)<br>2.122 <sup>*</sup> |
| INTCOV (-)                  |                              | 38 (.005)<br>829                   | 39 (.005)<br>816         | .33 (.006)<br>.596                | .25 (.006)<br>.422                | .61 (.087)<br>1.003               |
| GROWTH<br>(?)               |                              | -10.8 (.060)<br>-1.810             | -10.5 (.062)<br>-1.687*  | -5.65 (.065)<br>871               | -8.56 (.071)<br>-1.199            | -3.09 (.072)<br>430               |
| EVOL (-)                    |                              | 45 (.003)<br>-1.311                | 44 (.003)<br>-1.288      | 29 (.003)<br>887                  | 33 (.003)<br>952                  | 29 (.004)<br>793                  |
| IND (+)                     |                              | 18.7 (.048)<br>3.858**             | 19.5 (.050)<br>3.870**   | 19.3 (.056)<br>3.439**            | 17.1 (.061)<br>2.818**            | 13.4 (.062)<br>2.159 <sup>*</sup> |
| LIQUID (-)                  |                              | 46 (.004)<br>-1.269                | 44 (.004)<br>-1.207      | .19 (.004)<br>.467                | .13 (.004)<br>.315                | 12 (.004)<br>289                  |
| RISK (+)                    |                              | 2.93 (.058)<br>.510                | 2.48 (.059)<br>.417      | 11.4 (.068)<br>1.678 <sup>*</sup> | 10.9 (.073)<br>1.483              | 13.6 (.076)<br>1.791              |
| DIV (+)                     |                              | -1.34 (.008)<br>-1.627             | -1.26 (.008)<br>-1.501   | -1.11 (.008)<br>-1.344            | -1.13 (.009)<br>-1.330            | -1.92 (.008)<br>-2.267*           |
| ALTINST (-)                 |                              | 1.63 (.052)<br>.313                | 1.23 (.053)<br>.231      | -2.21 (.053)<br>418               | -3.23 (.055)<br>589               | 1.06 (.055)<br>.192               |
| SHARE (+)                   |                              |                                    | -1.66 (.079)<br>210      | -2.92 (.078)<br>375               | -2.21 (.081)<br>273               | -5.77 (.083)<br>693               |
| OPT (-)                     |                              |                                    | .98 (.042)<br>.231       | 28 (.045)<br>063                  | .25 (.047)<br>.052                | .90 (.049)<br>.185                |
| NEWS (+)                    |                              |                                    |                          | .18 (.020)<br>.090                | .29 (.021)<br>.142                | 3.48 (.018)<br>1.883 <sup>•</sup> |
| DISP (+)                    |                              |                                    |                          | .09 (.001)<br>.777                | .12 (.001)<br>.931                | .08 (.001)<br>.659                |
| EXTFIN (+)                  | •···                         |                                    |                          | -6.63 (.052)<br>-1.266            | -7.04 (.054)<br>-1.314            | -5.84 (.056)<br>-1.049            |
| CONC (-)                    |                              |                                    |                          |                                   | 10.3 (.122)                       | 10.3 (.127)<br>.811               |
| SIZE (?)                    | 5.71 (.015)<br>3.707**       | 6.70 (.018)<br>3.710 <sup>**</sup> | 7.14 (.019)<br>3.693**   | 7.17 (.022)<br>3.275**            | 7.07 (.024)<br>2.992**            |                                   |
| F statistic<br>Significance | 21.950<br>.000 <sup>**</sup> | 10.876<br>.000**                   | 9.100<br>.000**          | 8.384<br>.000**                   | 7.478<br>.000 <sup>**</sup>       | 6.808<br>.000                     |
| AUJ K                       | .323                         | .473                               | .403                     | .220                              | .320                              | .40/                              |

## Table 7.11 continued: Multivariate Regression with Voluntary Reporting Disclosure Index (VRDI) as the Dependent Variable

| Variable                                | Model A        | Model B      | Model C        | Model D                    | Model E        | Model F            |
|---|----------------|--------------|----------------|----------------------------|----------------|--------------------|
| (Predicted                              | β(S.E.)        | β(S.E.)      | $\beta$ (S.E.) | $\beta$ (S.E.)             | $\beta$ (S.E.) | β(S.E.)            |
| Sign)                                   | t- value       | t- value     | t- value       | t-value                    | t-value        | t-value -          |
| PANEL E:                                | POOLED         | -            |                |                            |                |                    |
| DATA for 19                             | 94 and 1995    |              |                | ļ.,                        |                |                    |
| Constant                                | -25.5 (.088)   | -44.1 (.108) | -39.1 (.120)   | -21.8 (.138)               | -26.3 (.149)   | -2.03 (.069)       |
|   | -2.913         | -4.091       | -3.255         | -1.575                     | -1.768         | 294                |
| ASCT (+)                                | 4.84 (.029)    | 6.44 (.030)  |                | 7.39 (.032)                | 7.81 (.033)    | 9.24 (.032)        |
| ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) | 1.652          | 2.160        | 2.330          | 2.292                      | 2.360          | 2.862              |
| AASB (+)                                | 1.45 (.020)    | ./1 (.021)   | 1.02 (.022)    |                            | 2.11 (.023)    | 2.52 (.023)        |
| <u>(100 (1)</u>                         | ./12           | 5.05 ( 024)  | 4/1            | 1.013                      | .930           | 1.111              |
| G100 (+)                                | 6.06 (.034)    | 5.05 (.034)  | 4.83 (.035)    | 5.50 (.057)                | 4.53 (.058)    | 6.87 (.036)        |
| IEV/)                                   | 1./80          | 1.472        | 1.30/          | 1.501                      | 1.198          | 1.920              |
| LEV (+)                                 |                | 2.90 (.051)  | 2.00 (.034)    | 00 (.054)                  | .34 (.037)     | 1.41 (.057)        |
| NITCOV (_)                              | - <del> </del> | 25 ( 003)    | 22 ( 003)      | $\frac{121}{57(003)}$      | 56(004)        | 55 ( 004)          |
|   |                | 23 (.003)    | 52 (.005)      | 1 670                      | 30(.004)       | 35 (.004)          |
| GROWTH                                  |                | 5.04(028)    | 5 48 ( 029)    | $\frac{-1.075}{4.45(031)}$ | 4.24(032)      | 6.06 ( 030)        |
| (?)                                     | 1              | 1.818*       | 1 890*         | 1 454                      | 1 344          | 2.018*             |
| EVOL (-)                                | 1              | - 03 ( 001)  | - 03 ( 001)    |                            | - 02 ( 001)    | - 009 ( 001)       |
|   |                | 390          | 373            | - 152                      | - 186          | - 112              |
| IND(+)                                  | · ·            | 20.6 (.024)  | 20.5 (.026)    | 20.3 (.028)                | 19.8 (.032)    | 185(031)           |
| <b>m</b> -2 (1)                         |                | 8.619**      | 7.963**        | 7.283**                    | 6.244**        | 5.959**            |
| LIQUID (-)                              | 1              | 27 (.002)    | 45 (.003)      | 38 (.003)                  | 38(.003)       | 49 (.003)          |
|   |                | -1.503       | -1.523         | -1.305                     | -1.266         | -1.679*            |
| RISK (+)                                |                | 31 (.025)    | 16 (.027)      | -1.39 (.028)               | 96 (.029)      | 56 (.029)          |
|   |                | - 124        | 059            | 504                        | 331            | 193                |
| DIV (+)                                 |                | -1.76 (.015) | -1.93 (.016)   | -1.78 (.015)               | -1.78 (.016)   | -1.55 (.016)       |
|   | :<br>          | -1.143       | -1.240         | -1.149                     | -1.119         | 973                |
| ALTINST (-)                             |                | -2.71 (.024) | -2.49 (.025)   | -3.02 (.025)               | -3.16 (.026)   | -2.81 (.027)       |
|   | ļ              | -1.104       | 991            | -1.187                     | -1.194         | -1.062             |
| SHARE (+)                               |                | 1            | -1.06 (.068)   | 21 (.069)                  | 17 (.072)      | -1.03 (.072)       |
|   |                | ļ            | 156            | 030                        | 024            | 144                |
| OPT (-)                                 | ł              | 1            | 79 (.022)      | 52 (.022)                  | 91 (.024)      | 90 (.024)          |
|   |                |              | 360            | 234                        | 384            | 380                |
| NEWS (+)                                |                |              |                | 1.29 (.011)                | 1.24 (.011)    | 2.26 (.010)        |
|   |                | +            |                | 1.194                      | 1.122          | 2.335              |
| DISP (+)                                |                |              |                | .03 (.001)                 | .03 (.001)     | .04 (.001)         |
| TYTEN (1)                               | l              |              |                | .400                       | .525           | .659               |
| EXTFIN (+)                              |                |              |                | -8.95 (.031)               | -9.40 (.033)   | -9.23 (.033)       |
|   | · · ·          |              |                | -2.837                     | -2.848         | -2./81             |
| CONC (-)                                | ]              | ļ            | ]              | ļ                          | 4.41 (.073)    | 5.19 (.073)<br>702 |
| 917E (9)                                | 2 00 ( 000)    |              | 2.46(010)      | 2.12 (012)                 | .002           | .700               |
| SIZE (?)                                | 2.89 (.008)    |              | 3.46 (.010)    | 2.12 (.012)                | 2.29(.012)     |                    |
| E Statistic                             | 3.739          | 12.045       | 3.403          | 1.770                      | 7.664          | 7 911              |
| r Statistic                             | 000**          | 13.045       | 000**          | 8.080<br>000**             | 7.004          | /.831              |
| Adi R <sup>2</sup>                      | .000           | 328          | 311            | .000                       | 311            | 205                |
| лијл                                    | 1.100          |              |                |                            | L              | 1.505              |

### Table 7.11 continued: Multivariate Regression with Voluntary Reporting Disclosure Index (VRDI) as the Dependent Variable

#### Variable descriptions:

VRDI<sub>t</sub> = Voluntary Reporting Disclosure Index in time period t

ASCT = Firm has an employee who is a member of the ASCT (1=yes, otherwise =0)

AASB = Firm's audit firm is represented on accounting standard setting boards (1=yes, otherwise =0)

G100 = Firm belongs to the G100 (1=yes, otherwise =0)

LEV = Total liabilities/ Total Assets

INTCOV = Log of (Profit before interest, abnormals & tax/ Interest)

GROWTH = Book value equity/ market value equity

EVOL = Difference between maximum & minimum income over a 3 year period/ mean income for the period

IND = Firm is engaged in mining/oil (1=yes, otherwise =0)

RISK = Firm's equity beta adjusted for leverage

DIV = Dividend Paid or provided/ Net income

LIQUID = Current assets/ current liabilities

ALTINST = Convertible debt or preference shares on issue (1=yes, otherwise =0)

SHARE = Directors' share holdings/ Number of issued ordinary shares

OPT = Directors' option holdings (1=yes, otherwise =0)

NEWS = Log of number of firm related news items appearing on Bloomberg news service DISP = 100% less % shares held by Top20 shareholders

EXTFIN= Firm made a new share issue in the proceeding year (1=yes, otherwise =0) CONC = Sum of revenue of top four ranked firms in industry/ total industry revenue SIZE = Log of total assets

\*\* Significant at the 1% level of significance (1 tail test)

Significant at the 5% level of significance (1 tail test)

'+' = positive prediction; '-' = negative prediction; '?' = ambiguous prediction

### 7.422 Multivariate Results using Change in VRDI as the Dependent Variable

The multivariate analysis presented thus far examines cross-sectional variation in derivative disclosures. Given the noticeable increase in derivative disclosures between 1994 and 1995, model E is re-estimated with the change in the VRDI (VRDI<sub>1995</sub> - VRDI<sub>1994</sub>) as the dependent variable. The model's adjusted  $R^2$  is .291 with the variables ASCT (H2a), AASB (H2c), IND (H3e), and SIZE statistically significant. ASCT membership's significance level is .01, with all other variables significant at the .05 levels. Further examination of the time series variation in derivative disclosures is explored by regressing VRDI1995 - VRDI1994 against model E variables plus firms' 1994 scores and changes in all continuous explanatory variables between 1994 and 1995.<sup>148</sup> A statistically significant positive association between the change in the VRDI between 1994 and 1995 is reported for LEV, IND and SHARE. A statistically significant negative association is reported for SCORE94,  $\Delta$ SIZE,  $\Delta$ DIV and  $\Delta$ NEWS. This suggests that increases in firms' disclosures are associated with increases in firms' leverage, increases in directors' share ownership, and firms engaged in mining/oil activities. The change in firms' disclosures is negatively associated with firms' 1994 disclosures, changes in firms' size, dividend payouts and the number of press articles.

<sup>&</sup>lt;sup>148</sup> A similar approach is used to examine time series variation in voluntary interim reporting by Leftwich *et al.* (1981).

# 7.423 Multivariate Results using Rank and Normal Scores as the Dependent Variable

Cooke (1998) suggests a multiple approach to the measurement of variables used in disclosure studies to assess the robustness of results. Alternative approaches to OLS regression include rank and normal scores regressions.<sup>149</sup> Models E and F are re-run for individual reporting years 1994-1997 using these approaches. The unreported results are generally consistent with the OLS regression results reported in Table 7.7. Table 7.12 summarises the stability in the significance of the coefficients amongst these alternative regression approaches, reporting the statistically significant variables for each of models for the various regressions. The re-estimated regressions demonstrate the robustness of the results for ASCT, IND, and SIZE, and G100 when SIZE is omitted from the regression. Furthermore the results indicate the absence of many significant coefficients prior to 1995, and the significance of AASB in five of the six regressions run for 1995. This suggests that firms whose audit firms have an employee on the AASB disclosed more derivative financial instrument information relative to firms audited by an audit firm without employee representation on the AASB. This is consistent with H2c predicting that disclosures are positively related to legitimacy and reputation concerns.

<sup>&</sup>lt;sup>149</sup> The alternative regression methods are designed to overcome problems associated with unknown theoretically correct relationship forms and disclosure measures being proxies for underlying constructs. The advantage of rank regression is distribution free non-parametric test statistics. Rank regression has been used in disclosure studies (i.e. Lang and Lundholm 1996). Normal score regression is advocated as an additional approach to rank regression as it overcomes problems associated with interpreting the significance of the coefficients (Cooke 1998). The transformations to rank and normal scores are undertaken for the dependent variable and continuous independent variables. The van der Waerden approach is used for normal score transformations.
| Reporting<br>Period | OLS Regressions    |                     | Rank Regressions   |                    | Normal Score<br>Regressions |                     |
|---------------------|--------------------|---------------------|--------------------|--------------------|-----------------------------|---------------------|
|                     | Model E            | Model F             | Model E            | Model F            | Model E ·                   | Model F             |
| 1994                | IND <sup>**</sup>  | IND**               | IND <sup>**</sup>  | IND**              | IND**                       | IND"                |
|                     | DIV <sup>*</sup>   |                     |                    | -                  | SIZE <sup>*</sup>           |                     |
|                     |                    |                     |                    |                    | LIQUID'                     | LIQUID <sup>*</sup> |
| Adj R <sup>2</sup>  | .318               | .312                | .276               | .271               | .321                        | .309                |
| 1995                | ASCT**             | ASCT**              | ASCT               | ASCT**             | ASCT <sup>*</sup>           | ASCT**              |
|                     | INTCOV*            | INTCOV <sup>*</sup> |                    |                    |                             |                     |
|                     | IND <sup>**</sup>  | IND <sup>**</sup>   | IND"               | IND                | IND <sup>**</sup>           | IND**               |
|                     | SIZE**             |                     | SIZE <sup>**</sup> |                    | SIZE                        |                     |
|                     |                    | G100**              |                    | G100 <sup>*</sup>  |                             | G100 <sup>*</sup>   |
|                     |                    | LIQUID              |                    |                    |                             |                     |
|                     |                    | AASB*               | AASB*              | AASB*              | AASB*                       | AASB                |
|                     |                    |                     | ALTINST            |                    | ALTINST*                    |                     |
|                     |                    |                     | LEV*               | LEV**              | LEV                         | LEV**               |
| Adj R <sup>2</sup>  | .475               | .425                | .492               | .424               | .508 ·                      | .445                |
| 1996                | ASCT**             | ASCT**              | ASCT               | ASCT*              | ASCT                        | ASCT"               |
|                     | G100 <sup>**</sup> | G100**              |                    | G100 <sup>**</sup> | G100 <sup>*</sup>           | G100**              |
|                     | LEV**              | LEV                 | LEV**              | LEV**              | LEV                         | LEV**               |
|                     | GROWTH*            | GROWTH              |                    | GROWTH**           | GROWTH                      | GROWTH              |
|                     | IND**              | IND**               | IND"               | IND**              | IND**                       | IND**               |
|                     | RISK <sup>*</sup>  |                     | RISK <sup>*</sup>  | RISK*              | RISK*                       | RISK                |
|                     | SIZE**             |                     | SIZE**             |                    | SIZE**                      |                     |
| Adj R <sup>2</sup>  | .529               | .505                | .476               | .437               | .506                        | .483                |
| 1997                | ASCT               | ASCT**              | ASCT               | ASCT**             | ASCT*                       | ASCT                |
|                     | LEV                | LEV                 |                    | LEV                |                             | LEV <sup>*</sup>    |
|                     | IND                | IND <sup>*</sup>    | IND"               | IND <sup>*</sup>   | IND**                       | IND <sup>*</sup>    |
|                     | SIZE               |                     | SIZE               |                    | SIZE**                      |                     |
|                     |                    | G100 <sup>**</sup>  |                    | G100 <sup>*</sup>  |                             | G100 <sup>*</sup>   |
|                     |                    | RISK                |                    | RISK               |                             | RISK*               |
|                     |                    | DIV <sup>*</sup>    |                    |                    |                             |                     |
|                     |                    | NEWS*               |                    |                    |                             |                     |
| $Adj R^2$           | .528               | .487                | .457               | .408               | .489                        | .429                |

|  | <b>Table 7.12:</b> | Comparison | of OLS. | . Rank and | Normal Score | Regressions |
|--|--------------------|------------|---------|------------|--------------|-------------|
|--|--------------------|------------|---------|------------|--------------|-------------|

Variable descriptions:

ASCT = Firm has an employee who is a member of the ASCT (1=yes, otherwise =0)

AASB = Firm's audit firm is represented on accounting standard setting boards (1=yes, otherwise =0)

G100 = Firm belongs to the G100 (1=yes, otherwise =0)

LEV = Total liabilities/ Total Assets

INTCOV = Log of (Profit before interest, abnormals & tax/ Interest)

GROWTH = Book value equity/ market value equity

IND = Firm is engaged in mining/oil (1=yes, otherwise =0)

RISK = Firm's equity beta adjusted for leverage

DIV = Dividend Paid or provided/ Net income

LIQUID = Current assets/ current liabilities

ALTINST = Convertible debt or preference shares on issue (1=yes, otherwise =0)

NEWS = Log of number of firm related news items appearing on Bloomberg news service SIZE

SIZE = Log of total assets

\*\* Significant at the 1% level of significance (1 tail test)

\* Significant at the 5% level of significance (1 tail test)

### 7.5 Summary and Conclusions

This chapter discusses the extent and characteristics of firms' 1992-1997 derivative disclosures. It reports and analyses tests of the associations between disclosures and firm characteristics, and summarises various sensitivity tests to determine the robustness of the results.

The transparency of derivative financial instrument activity by Australian firms increases during the 1992-1997 reporting periods. In 1995, coinciding with the issue of professional body regulations and an accounting exposure draft, the number of firms making voluntary disclosures increases significantly. This implies that the events of 1995 prompted a reassessment of firms' derivative disclosure strategies, with many concluding that the benefits of pursuing a disclosure policy exceed the costs associated with continuing a non-disclosure policy. By 1995 most disclosing firms' disclosures are in the notes to the accounts and, despite impressions created by media reports of corporate losses related to derivative financial instrument usage, most firms specify they are not using the instruments for speculative purposes. Managers are reluctant to disclose financial controls, net market values, and collateral details.

The study then investigates factors motivating managers' disclosure strategies. Univariate and multivariate testing strongly supports mining/oil activities (H3e) and firm size as factors influential in managers' commitment to derivative financial instrument disclosures. Firms in the extractive industry have a greater need to engage in hedging activities and a greater propensity to disclose such activities. Strong support is also provided for a firm's ASCT membership (H2a) influencing derivative disclosure policies from 1995 onwards. Membership of the G100 (H2d) explains derivative disclosures when firm size is an omitted variable. Financial statement preparers' legitimacy concerns combined with institutional pressures confronting them to be responsive to information demands appear to be effective conduits for attaining enhanced disclosures. Reputation costs confronting financial statement preparers are proxied by a firm's affiliations with professional bodies such as the ASCT and G100 but can also be associated with firm size and industry affiliation.

Weaker support is provided for an association between disclosure levels and a firm's financial distress costs, when proxied by leverage and interest cover ratios

(H3a and H3b). No support, or inconsistent findings, are evident for a relation between disclosure and variables related to: auditor affiliation (H2b and H2c); financial distress costs proxied by growth opportunities (H3c) and earnings volatility (H3d); a firm's alternative risk management practices (H4a-H4d); management share ownership (H5a) and option schemes (H5b); press coverage (H6a), shareholder dispersion (H6b), external financing needs (H6c) and market concentration (H8).

Various sensitivity tests yield generally robust findings. The sensitivity tests include the use of alternative independent variable proxies, restricting the analysis to retrospectively classified derivative user firms, examination of the change in the VRDI, and the use of rank and normal score regressions.

# **CHAPTER EIGHT: SUMMARY and CONCLUSIONS**

### 8.1 **Introduction**

This chapter commences by reviewing the purpose of the thesis and the contents of the preceding chapters (section 8.2). Section 8.3 summarises the study's findings, while section 8.4 discusses the research design and its limitations. The implications of the study for future research and standard setting, particularly in relation to derivative financial instruments, are detailed in section 8.5. Section 8.6 concludes the thesis by summarising its contribution to the accounting literature.

## 8.2 **Review of the Study**

#### 8.21 Purpose of the Research

This thesis explains and predicts financial statement preparers' financial statement disclosure responses to derivative financial instrument reporting proposed by the Australian accounting standard setting bodies and the ASCT. In particular, it investigates responses to the ASCT Industry Statement and the *Presentation and Disclosure of Financial Instruments* pronouncement issued by the AASB, namely ED65.

The study examines derivative financial instrument disclosures in Australian firms' annual reports for individual reporting periods during 1992-1997 inclusive. During this time the disclosures were voluntary, however the environment changed from a 'pure voluntary disclosure regime' (1992-1994) to a 'coercive' regime (1995-1997). Financial statement preparers' reactions, or lack thereof, to the transparency demands are measured using a self-constructed disclosure index based on ASCT and ED65 recommended disclosures. This facilitates investigation of the extent to which firms' voluntary disclosures conform to the recommendations in the proposed accounting releases, and assists an understanding of managers' motives and of levels of support for the accounting pronouncements.

The research investigates empirically the predictive ability of legitimacy theory, institutional theory, costly contracting theory, and theoretical models of corporate

hedging activity and information signalling to explain cross sectional variation in derivative disclosure practices. The results can inform regulators, financial statement preparers and other stakeholders about costs financial statement preparers aim to reduce through the voluntary disclosure of derivative financial instruments.

Specifically, the questions addressed in this thesis are:

- (1) Why, and to what degree, do Australian entities voluntarily comply with the derivative financial instrument disclosure requirements contained in ED65 and the ASCT Industry Statement? and
- (2) Are there systematic differences in the characteristics of entities with high *versus* low disclosure compliance in relation to derivative financial instruments?

The study is motivated by the local and international economic significance of accounting for derivative instrument disclosures, the complexity and controversy of derivative instrument regulation, and the delineation of development phases associated with this regulation which makes it plausible to simultaneously apply legitimacy, institutional, and costly contracting paradigms.

#### 8.22 Chapter Contents

Chapter 2 presents an historical perspective of accounting for derivative financial instruments. It explores the purpose, associated risks, and alternative accounting methods related to derivative activities. The chapter also provides a chronology of regulatory bodies' efforts to develop standards governing the accounting for these instruments. This is important in understanding the international significance of the issue and developments in reporting regimes, both nationally and internationally, governing these instruments.

Chapter 3 provides the theoretical underpinnings for this study and reviews the voluntary disclosure literature. The review demonstrates the extensive use of economic consequence and information signalling theories of the determinants of financial information disclosures. It also refers to voluntary environmental and social disclosures within a legitimacy theory framework. The chapter discusses derivative instrument disclosure studies and identifies this study's contribution to the literature as:

- Extension of the range and nature of explanatory variables in financial information disclosure studies to include legitimacy and institutional theories;
- (2) Exploration of cross sectional and time series variation in derivative instrument disclosures for a large number of Australian firms; and
- (3) Examination of the influence professional non-accounting bodies exert on financial statement disclosures.

Theoretical models of corporate hedging activity and their empirical testing are described in Chapter 4. The theories incorporate the expected costs of financial distress, alternative risk management practices and contracting incentives associated with greater hedging activities. Identification of industry or firm characteristics associated with greater hedging activities assists in predicting which firms are most likely to be affected by mandated regulations governing derivative instrument disclosures.

Collectively, Chapters 2, 3 and 4 provide the framework for the propositions and hypotheses developed in Chapter 5. Chapter 5 hypotheses predict an increase in derivative disclosures during the 1992-1997 period and predict that the disclosures are related to:

- (1) legitimacy and reputation concerns of individuals and firms. Transparency demands for derivative financial instrument information, created by media reports of firms' losses associated with such instruments and the ASCT Industry Statement, provide incentives for financial statement preparers to make disclosures. Failure to disclose voluntary derivative financial instrument information carries no legal sanctions, however social ramifications are likely to be associated with a loss of credibility and reputation suffered by non-disclosing firms.
- (2) firms' need to engage in hedging activities. The existence of market imperfections, agency related costs and the lack of alternative risk management practices are espoused theories explaining a firm's need to engage in risk management techniques such as hedging. Identifying industry or firm characteristics associated with hedging needs enables the identification of firms more likely to be using derivative financial instruments. These firms should have a greater propensity to disclose

derivative information relative to firms with less need to engage in hedging activities.

- (3) information asymmetry. Higher monitoring and bonding agency costs are associated with an information gap. Voluntarily disclosing derivative financial instrument information can mitigate these costs.
- (4) information production costs. Enacting new disclosure requirements imposes information production costs on firms currently not producing the information for internal or external reporting purposes. The information production costs are predicted to be lower for firms more likely to be producing the information for internal reporting purposes relative to other firms.
- (5) the proprietary nature of the information. It is predicted that firms operating in a competitive environment are less likely to voluntarily disclose derivative financial instrument as disclosure could provide their competitors with a valuable insight into their risk management practices and relationships with financial market participants.

The research methodology used to test these predictions is described in Chapter 6 and Chapter 7 tables and discusses the findings.

## 8.3 Findings of the Study

Up until 1995 only 41 of the sample of 199Australian firms committed themselves to an *ex ante* disclosure policy. The commitment is explained largely by industry affiliation. Firms engaged in mining/oil activities have a greater propensity to make disclosures relative to other firms. This observation applies to 1995, 1996 and 1997 reporting periods also. The finding is consistent with hypotheses based on arguments that such firms operate in volatile price markets, hence they have a greater need to engage in derivative activities than most other firms, and have more derivative activity to disclose.

The increased probability of mandated disclosure requirements, combined with pressure on financial statement preparers to be professionally responsible in relation to derivative financial instrument disclosures, appears to have precipitated a change in the number and quality of disclosures, particularly after 1994. Media reports associated with derivative financial disasters make stakeholders conscious

of, and concerned with, firms' use of derivative financial instruments. After the release of ED65 and the ASCT Industry Statement (an *ex ante* effort to make financial statement preparers disclose), 96 firms voluntarily disclosed the information in 1995 compared to 41 firms making voluntary disclosures in 1994.

One of the theoretical underpinnings of this study is that attempts to preserve or enhance reputation provide an explanation for voluntary derivative financial reporting (proposition 1). Firms expected to have superior financial reporting will be confronted with greater reputation costs for non-disclosure than firms with less reputational status. Consequently, these firms have a greater incentive to disclose. Reputation costs confronting financial statement preparers are proxied by a firm's affiliations with professional bodies such as the ASCT and G100, in addition to the firm's auditor's reputation. Statistically significant results are obtained for the ASCT variable, with the G100 variable also statistically significant in the absence of the firm size variable. This suggests that the decision to voluntarily disclose derivative financial information is associated with the preservation or enhancement of reputation status afforded by these professional affiliations.

Firm size is consistently associated with derivative disclosures. *Ex ante*, Chapter 5 presents alternative predictions of the relationship between firm size and disclosures. The interpretation of the positive coefficient for firm size remains ambiguous. Plausible explanations include greater hedging activities by larger firms relative to smaller firms due to transaction based scale economies, lower information production costs, and/or greater information asymmetry because of greater complexity of operations.

The result for firm size and industry affiliation is also consistent with legitimacy theory. Larger firms are subject to greater public scrutiny, hence the reputational consequences of non-disclosure would be greater for large firms than small firms. Stakeholders' awareness that mining/oil firms engage more extensively in derivative instrument trading than other firms (with the exception of financial institutions) increases the expectation that such firms have information to disclose. Their financial reporting reputation will be damaged if they do not respond to stakeholders' information demands.

Another proposition of this study is that disclosure policies are influenced by firms' need to engage in hedging activities (proposition 2). Tests of associations

between derivative disclosures and costly contracting, managerial incentives, and market imperfection variables linked to hedging activity, are examined. Apart from a relationship between leverage and disclosure, and industry affiliation and disclosure, this proposition is not supported. This outcome could be due to the fact that the study is not measuring the extent of derivative usage, an issue discussed as a limitation of the study in section 8.4.

The study does not find a consistent association between voluntary derivative financial instrument disclosures and information asymmetry (proposition 3) as proxied by press coverage, shareholder dispersion and external financing needs. Similarly, the findings do not support an association between voluntary derivative financial instrument disclosures and proprietary costs as measured by market concentration (proposition 5).

#### 8.4 **Research Design Limitations**

The main limitations of this study relate to: (1) the inability to differentiate firms that use (do not use) derivative instruments in particular reporting periods; (2) the inability to measure derivative usage; and (3) imprecision in measuring underlying constructs and proxy explanatory variables. Each of these limitations is discussed in subsections 8.41 through 8.43 below, in turn.

#### 8.41 Inability to Differentiate User and Non-User Firms

Viewed as a matrix, there are four mutually exclusive classification cells for a sample firm. These are: (a) user/disclosing firm; (b) user/non-disclosing firm; (c) non-user/disclosing firm; and (d) non-user/ non-disclosing firm. Ideally, firms included in this disclosure study should be confined to firms in cells (a) and (b). However, in a voluntary disclosure environment it is not possible to assign an unequivocal user/non-user status to firms with no disclosures. Previous disclosure studies have assumed that non-disclosure equates to non-user. This thesis does not make such an assumption. Sensitivity tests for the potential bias introduced by classifying non-disclosing firms as user firms, rather than non-user firms, restrict the analysis to a sample of firms retrospectively classified as users based on annual report disclosures subsequent to AASB1033's operative date. The results are generally insensitive to this sub-sample substitution for statistical tests.

#### 8.42 Inability to Measure Derivative Financial Instrument Usage

The study predicts a relationship between derivative disclosures and firms' need to engage in hedging activities, without controlling for the extent of derivative usage. In the study, it is possible for a firm with one derivative contract to achieve the same VRDI as a firm with multiple derivative contracts in place. If one assumes that the likelihood of disclosure increases with the extent of derivative usage, then the tests of some hypotheses are potentially biased towards finding an increase in disclosure during periods in which the extent of hedging increased. Time series tests cannot definitely separate the impact of increased hedging and the resulting disclosure from increases in disclosure independent of increased hedging. However, the significant rise in disclosure around 1995 is highly unlikely to be explained by a sudden increase in derivative usage in that year.

Determining the level of derivative usage is impossible in the absence of rules governing the reporting of off balance sheet activities. As noted in Chapter 7, the propensity of firms to record net market values is low in the voluntary environment under consideration. The inability to control for derivative usage is a plausible explanation as to the absence of associations between theoretical models of corporate risk management (particularly those related to the investment opportunity set, diversification of contracting parties and alternative risk management strategies) and derivative financial instrument disclosures.

Another inhibiting factor in testing proposition 2 hypotheses is that firms can employ risk management techniques, other than derivative instruments. Natural hedges, capital structure adjustments, integration of operating and financial risk management, and the use of discretionary accruals can reduce firms' reliance on derivative financial instruments. As long as firms were not required to report these risk management techniques, and did not, it is likely that individual firms' need to engage in hedging activities using derivative financial instruments is under or over estimated. However, there is no reason to suspect a systematic bias across the sample.

#### 8.43 Imprecision in Measuring Underlying Constructs

It is possible that the measures used in this study's statistical tests proxy for something other than the underlying constructs. Reputation costs confronting financial statement preparers are proxied by a firm's affiliations with professional bodies such as the ASCT and G100, in addition to the firm's auditor's reputation. It is predicted the presence of such affiliations will promote derivative financial instrument disclosures. While it is possible that the reputation and legitimacy measures proxy for something else (e.g. management expertise), they are consistent with the prediction that reputation considerations are associated with disclosure policies.

As in many disclosure studies, firm size is associated with derivative financial instrument disclosures. Alternative explanations for this result exist and it is impossible for this study to decipher which explanation for the relation dominates. The result could reflect greater use of derivative financial instruments by larger firms, relative to smaller firms, due to transaction based scale economies. Alternatively, it could be due to lower information production costs and/or greater public scrutiny of larger firms financial reporting practices relative to smaller firms.

Weak support exists for a relation between disclosures and growth options in 1996 and 1997, however the direction of the relationship alters. This reflects the competing arguments in the literature. Firms with high growth opportunities are perceived as high-risk firms relative to firms with assets-in-place. Therefore, they are more likely to engage in hedging to reduce agency costs. However, high growth firms are less likely to have the collateral to support debt contracts. Furthermore their hedging activities are likely to be impeded given that their investments (growth options) are not necessarily correlated with easily hedgeable risk. This suggests the need for further research exploring the relationship between growth options and firms' hedging activities. In addition, there is no unified view regarding the best proxy for the unobservable investment opportunity set. Accounting and finance studies highlight the sensitivity of test results to growth proxy choices (e.g. Smith and Watts 1992).

In addition to issues concerning the best way to proxy constructs, imprecision in measurement exists for some variables. Data availability precludes refined variables being used to capture managerial motives for disclosures (share and options ownership) and proprietary costs. Proprietary costs are proxied by the four firm concentration ratio. Refinements of this variable, to make it more derivative

financial instrument specific, could produce stronger associations between disclosures and proprietary costs (Peters 2000). For example, the volume of trades in a specific derivative market and the presence of speculators and traders in the market would be possible refinements. Annual report disclosure of managers' share and option interests lacks uniformity during the period of investigation. Measuring the percentage of shares outstanding owned by directors and the operation of a director's option scheme does not reflect the fair value of shares and options owned by directors or on their behalf. Potentially, this destabilises tests of managerial motives for hedging activities and disclosure strategies but there is no reason to suspect a systematic bias.

Finally, the variables in this study were not readily available from databases. Various data sources were accessed in an effort to capture the data for hypothesis testing. It is not possible to discount data errors due to inaccuracies in data sources and/or data collection errors. However, reliability checks on a random sample of firms' disclosure scores by an independent accountant with financial reporting expertise are used to attest to the integrity and validity of the dependent variable measurement.

### 8.5 Implications of the Study

The study has implications for future research directions and Australian standard setting at both a generic and a derivative specific level. Future research directions are summarised in subsection 8.51 and standard setting implications are discussed in subsection 8.52.

#### 8.51 Implications for Future Research

Disclosure practices of firms in an unregulated environment suggest that understanding the conditions promoting reputation formation is an important ingredient in the prediction of firms' reporting strategies. The study suggests that due consideration should be given to implicit, in addition to explicit, contractual arrangements when examining voluntary disclosures of financial information. Further research could use triangulation to assess these arguments in other contexts where disclosure regimes alter, going through a transitional stage before being mandated; or using different methods for the same issue. For example, interviews of financial statement preparers can provide insights into the views of those making the disclosure decisions in relation to derivatives (triangulation of research method) or other policies (triangulation of research method and context) and would provide further evidence in relation to the general propositions of this thesis.

Now that derivative financial instrument disclosures are mandatory, worthy research questions include the following. First, how are risk management practices of Australian firms determined? Second, how do disclosure requirements influence managers' decisions? It would be interesting to know if they caused a reassessment of why derivatives are used, development of better internal control mechanisms, more sophisticated systems, more effective risk management practices, and generally a better understanding of the firms' derivative instrument practices. Although the voluntary disclosures and subsequent regulation seek to satisfy external information demands, the dual financial reporting objective of better stewardship is likely to be a valuable by-product.

Discretionary information production decisions can be revealed in firms' voluntary disclosures and/or lobbying activities. This study focuses on the former. Further research could explore the consistency in firms' ED59 and ED65 lobbying comments, as well as the congruency between firms' lobbying positions and voluntary derivative financial instrument disclosures.

The study explores management's derivative financial instrument disclosure preferences, but a significant untapped research area exists in relation to users' disclosure preferences. The usefulness of Australian firms' derivative disclosures is relatively unexplored. Alternative research methodologies, including capital market based studies and behavioural studies, are warranted to assess the relevance of the various disclosure items in users' decision making. Issues to be addressed include: (1) which risks are important? (2) what information about each risk is most useful in assessing risk; (3) does the location of risk disclosures matter? (4) How should risk be quantified? and (5) do recognised and disclosed amounts differ in value relevance?

#### 8.52 Implications for Standard Setting

This research demonstrates that attempts to preserve or enhance reputation are a plausible explanation for changes in voluntary derivative financial instrument reporting. Applied to financial reporting generally, this suggests that financial statement preparers' legitimacy concerns combined with institutional pressures confronting them to be responsive to information demands are effective conduits for attaining enhanced disclosures. The results demonstrate the ability of non-accounting professional bodies to exert influence on financial report content. This highlights the need for accounting regulators to respond to information demands and accounting concerns to maintain their professional legitimacy and control of accounting standard setting. It also suggests that the establishment and maintenance of a communicative environment between accounting and non-accounting professional bodies is beneficial to enhanced financial reporting.

The study examines how firms behave in the absence of mandatory disclosure requirements. Understanding the forces motivating firms' unregulated disclosure choices facilitates regulators' assessment of economic consequences of mandatory reporting requirements. Revealed deficiencies in the disclosures include the lack of net market value information and collateral disclosures and comfort with qualitative rather than quantitative disclosures. Evidence that managers are unwilling to voluntarily disclose this information suggests the disclosures impose high costs on firms. However, if this information deficiency is value relevant mandatory reporting requirements may be necessary to achieve the goal of providing information that is relevant for general purpose financial report users' resource allocation decisions.

The findings of this thesis inform the emerging debate on issues associated with accounting for derivative financial instruments. They alert regulators to the problem of unstandardised disclosure practices. In the voluntary reporting regime of 1992-1997, the derivative financial instrument disclosures by Australian firms were largely qualitative and lacked uniformity. Variability in the presentation and extent of US firms' SFAS119 *Disclosure about Derivative Financial Instruments and Fair Value of Financial Instruments* disclosures led the SEC to issue FRR No. 48 to amend and expand derivative instrument disclosure requirements. Even with the introduction of mandatory reporting requirements, the Australian

experience could parallel that of the US. The variability in derivative disclosures pursuant to AASB1033 found by Chalmers and Godfrey (2000) suggests that supplementary rules and guidance on various disclosure items, including quantitative risk disclosures, are required if the qualitative characteristics of relevance and reliability are to be maximised.

## 8.6 Conclusions

The purpose of this study is to investigate and explain a response of financial statement preparers to derivative financial instrument reporting requirements proposed by Australian accounting standard setting bodies and those required by the ASCT. The main contributions of this thesis to the accounting literature are threefold. First, the study complements extant research on derivative financial instrument disclosures by comparing firm's voluntary disclosures in a single period with disclosures in the initial mandatory period and disclosures prior to and after the release of regulatory supplementary disclosure requirements. The longitudinal study of voluntary disclosures in a changing regulatory environment identifies periods in which financial statement preparers reappraise the cost/benefit trade-off of disclosures. The significant increase in firms' 1995 derivative disclosures demonstrates the potential significance firms attach to non-accounting professional body requirements and the self-regulatory nature of accounting. It also demonstrates how standards of financial reporting evolve in response to changing societal norms and institutional pressures.

Second, the study provides evidence on corporate risk management. It identifies derivative financial instrument usage by a significant number of Australian firms. All industry sectors (excluding the finance sector) are represented in the sample and there is no industry identified where derivative financial instruments are not used. This highlights the richness of future research into Australian firms' hedging activities. Assessing the validity of alternative theoretical explanations for risk management *via* derivative financial instrument disclosures supports only leverage related theories. However, the inability to measure the extent of firms' derivative instrument activities in a voluntary disclosure regime constrains this assessment.

Third, the study capitalises on the opportunity to operationalise and apply legitimacy and institutional theories to a financial reporting issue. Many financial accounting voluntary disclosure studies use a contracting research paradigm only. This research examines implicit, in addition to, explicit contracts. It examines firm attributes that are new to financial accounting disclosure choice studies. Reputation costs confronting financial statement preparers are proxied by firms' affiliations with professional bodies. The findings indicate that such affiliations influencing voluntary disclosure choices.

Overall, this study demonstrates the complementary nature of applying alternative paradigms to financial accounting information production decisions. The significance of legitimacy and reputation variables, relative to contracting and information signalling variables, suggests that financial statement preparers are attentive to firm and personal reputation in formulating derivative financial instrument disclosure strategies. Understanding the conditions promoting and maintaining reputation status requires due consideration in the prediction of firm's reporting strategies, and in the development of future financial disclosure accounting standards.

# **APPENDICES**

# Appendix 1

Glossary of derivative financial instruments terms

# Appendix 2

Graphs depicting financial markets' volatility over the 1992-1997 period

# Appendix 3

Firm size and voluntary disclosure

# Appendix 4 Industry classifications of sample firms

Appendix 5 Financial risk management survey

### **Appendix 1: Glossary of Derivative Financial Instrument Terms**

The following glossary of derivative financial instruments and related terms represents the instruments that are most frequently traded in financial markets, namely futures, forwards, options and swaps.<sup>150</sup>

Arbitrage: the process of generating a risk free profit by buying an asset in one market and simultaneously selling it for a higher price in another market.

Black-Scholes option pricing model: a model developed in 1973 by Fischer Black and Myron Scholes to assist in the determination of the value of option contracts. The price and risk of the underlying asset, the risk free rate of return, time to maturity and option's exercise price, determine the value of an option.

Bid/Offer Spread: the difference in the financial instrument's buy and sell price.

**Bond Warrant:** a debt instrument issued with a warrant attached to it. Usually the warrant can be detached immediately and can be sold separately.

Clearing House: an organisation that maintains a continuous record of trades in the organised exchange.

**Commodity Contract:** any contract that provides for settlement only by receipt or delivery of a physical asset.

**Compound Financial Instrument:** an instrument that combines the features of debt and equity with the features being capable of separate identification. Examples of such instruments include convertible notes and bond warrants.

**Convertible Note:** a debt security that, at the option of the holder or issuer, can be converted into a specific number of ordinary shares during a pre-defined time span.

**Convertible Preference Share:** a preference share providing the holder with the option to convert the share into an ordinary share(s).

**Converting Preference Share:** a preference share that automatically converts to ordinary shares at some specified time in the future.

<sup>&</sup>lt;sup>150</sup> Various texts and information sites have been used to compile this glossary (e.g. Carew 1995, Hallahan and Di Iorio 1995, and Ross *et al* 1990).

**Counterparty risk:** the risk that a party to a contract may not be able to discharge the obligation that exists under the terms of the contract.

Equity Instrument: any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities.

**Embedded option:** an option that forms an inseparable element of another instrument. Some typical terms in hybrid contracts that may indicate the presence of an embedded derivative and that usually have economic consequences include the following: right to cancel/extend; exchange/exchangeable into; indexed to; referenced to; and right to repurchase.

Exchange Traded Markets: market in which trades occur through a central exchange. The contracts traded are standardised. Generally participants expect to be able to deal and receive tight bid/offer spreads, transact large volumes without significantly moving the market, and effectively monitor market price.

**Exchange traded option:** an option traded on a recognised exchange, with contract specifications set by the exchange and traders margined.

**Financial Asset:** any asset that is: cash; a contractual right to receive cash or another financial asset from another entity; a contractual right to exchange financial instruments with another entity under conditions that are potentially unfavorable; or an equity instrument of another entity.

**Financial Instrument:** a contract that gives rise to both a financial asset of one entity and a financial liability or equity instrument of another entity.

**Financial Liability:** a contractual obligation to deliver cash or another financial asset to another entity or to exchange financial instruments with another entity under conditions that are potentially unfavorable.

Foreign Currency: currency other than the currency of the domicile country.

Forward Contract: contracts in which two parties agree to sell/buy an asset on an agreed future date at an agreed price. Unlike futures contracts, forward contracts are not traded through an organised exchange. Forward Rate Agreement: an agreement between two parties, seeking to protect themselves against future interest rate or exchange rate movements, for the payment/receipt of a pre-specified sum of money representing an agreed interest or exchange rate differential relative to current rates.

**Futures Contract:** an agreement between two parties, organised through a centralised exchange, to buy or sell a standard quantity of an asset at a specified future date at a specified price. Futures contracts traded on the Sydney Futures Exchange include - 90 day bank accepted bills, 3 year Australian Treasury Bonds, 10 year Australian Treasury Bonds, All Ordinaries Share Price Index (SPI), Fifty Leaders Share Price Index, Greasy Wool Futures, and Share Price Futures.

Hedging: a risk management technique involving the creation of a cash flow to offset an existing cash flow.

Hybrid Financial Instrument: an instrument that combines the features of debt and equity with the features being non-divisible. An example is a redeemable preference share.

Interest Rate Derivative Instrument: Securities whose payoffs are dependent in some way on the level of interest rates.

*Interest rate caps:* interest rate option designed to provide insurance against the rate of interest on a floating rate loan rising above a certain level.

*Interest rate floors and collars:* a floor places a lower limit on the interest on the interest rate that will be charged. A collar specifies both the upper and lower limits for the rate that will be charged.

Margin Call: a request for funds to cover an unfavorable movement in price in the futures and options markets. The clearinghouse makes the calls on its members, who in turn call the client.

**Option Contract:** a contract which gives the purchaser the right, but not the obligation, to assume a long position (call option) or short position (put option) in the relevant underlying financial instrument or future at a pre-determined exercise price, at a time in the future. Options contracts traded on the Sydney Futures Exchange include 90 day Bank Accepted Bill futures, 3 year Treasury Bond futures, 10 year Treasury Bond futures, and the All Ordinaries Share Price Index futures. Options traded on the Australian Stock Exchange relate to specific entities' ordinary shares and various equity indices.

Bill Option: an option over a bill futures contract.

Bond Option: an option whose underlying security/ instrument is a bond.

*Commodity Option:* an option whose underlying security/ instrument is a commodity or a commodity futures contract.

*Currency Option:* an option providing the purchaser with the right to buy/sell a currency at a designated price over a stipulated period.

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*Equity Option:* an option whose underlying security/ instrument is an equity security or equity futures contract.

**Over the Counter (OTC) Trade:** trade that is conducted outside formalised centralised exchanges. The contracts traded are not standardised and can be tailor made to meet the needs of corporations.

**Preference share:** a share that gives the holder preferential rights, normally in relation to dividend distributions and capital repayment in the event of a liquidation, over ordinary share holders.

Redeemable Preference Share: a preference share issued with a mandatory redemption provision.

Share Price Index: weighted share prices of selected companies listed on an exchange.

**Speculate:** the process of buying/selling in a market with the intention of the trade purely related to making a profit.

Swaps: an agreement to the exchange of entitlement for another. The entitlements generally exchanged under a swap agreement are interest rate or currency entitlements. More complicated swaps (cocktail swaps) are available which involve a combination of different types of swaps and can involve more than two counterparties.

Basis Swap: an interest rate swap carried out between two floating rates set

against two different reference rates.

*Currency Swap:* an agreement to exchange equal principal amounts of two currencies at the spot exchange rate.

*Commodity Swap*: a swap where the counterparties exchange cash flows

based, at least on one side of the swap, on the price of a given commodity.

Fixed-Floating Rate Swap: a swap where the counterparties exchange cash

flows based on the interest differential between a floating and fixed interest rate in the same currency.

Swap Option: give the holder the right to enter into a certain swap at a certain time in the future.

**Warrant:** a financial instrument that gives the holder the right to buy ordinary shares in the entity at a fixed price for a given period of time (see bond warrant).

# Appendix 2: Graphs Depicting Financial Markets' Volatility over the 1992-1997 Period



Graph 1: Units of USD per AUD (1992-1997)

Graph 2: Gold price (USD per fine ounce): 1992-1997





#### Graph 3: All Ordinaries Accumulation Index (1992-1997)





## **Appendix 3: Firm Size and Voluntary Disclosure**

In predicting firms' voluntary disclosures of derivative financial instruments, this study treats firm size as a control variable rather than an explanatory variable. Subsubsection 5.36 provides the justification for such a treatment of size, noting that a definitive prediction of the relationship of firm size and the costs/benefits associated with mandated financial instrument disclosures is inhibited. The proceeding paragraphs highlight the ambiguity surrounding the association between firm size and voluntary disclosure strategies.

#### Firm Size and Hedging Activity

The need to implement risk management techniques such as hedging is positively correlated with the presence of higher expected costs of financial distress and greater agency costs. Given that the direct costs of financial distress are higher on a per dollar basis for small as opposed to large firms, and small firms incur higher monitoring costs due to information asymmetry, small firms have more incentive to engage in hedging activities. However, plausible explanations can be offered suggesting firms with larger asset bases (a measure of size) have an increased probability of hedging and are expected to transact more frequently in derivative trades. Firms with larger asset bases are more likely to benefit from transaction cost scale economies associated with the implementation and maintenance of hedging programs. Salatka (1989) argues that large firms are more likely to hedge exposures given their greater capacity to bear the cost and complexity of diversifying foreign investments and/or earmarking separate operational units to manage the exposures. Furthermore, he argues that should hedging involve fixed costs, larger firms are more likely to be capable of absorbing such costs and therefore to engage in such activities. Schrand (1997) provides empirical evidence to suggest that larger firms are more likely to engage in hedging activities. However, within firms that hedge, small firms are likely to have a greater relative level of hedging activity.<sup>151</sup> A firm's frequency

<sup>&</sup>lt;sup>151</sup> Schrand (1997) provides evidence to suggest that there is an increased probability of hedging for large savings and loan institutions. However, conditional on hedging there is greater hedging activity for small institutions compared to large institutions relative to the market value of their equity. This is reflected in the study's finding that for those institutions that use derivatives the ratio of the impact of hedging on gap to the market value of equity is 8.16 for small institutions and only 2.74 for large institutions.

and volume of trades is influential in determining the costs and benefits imposed by mandated derivative financial instrument disclosures.

#### Firm Size and The Information Gap

In subsections 5.331 and 5.332, it is argued that firms with less analytical following and greater shareholder dispersion have a greater incentive to disclose information as they are confronted with higher agency costs due to information asymmetry. The information gap is predicted to be larger for small firms than large firms. Although a greater dispersion in outside shareholding is likely to exist for larger firms than smaller firms, suggesting a wider information gap, the difficulties and costs of accessing and assessing information are predicted to have a greater impact on the extent of the information gap. The difficulties and costs associated with information searches are expected to be greater for small firms.

#### Firm Size and Information Production Costs

Subsection 5.34 relates information production costs to the presence of a separate treasury function. Larger firms are likely to be in a better position to employ managers with the specialised skills necessary to establish and run a separate treasury function. Thus, the size of the firm is likely to be the pivotal force driving the establishment of such a function. A separate operating treasury function reduces the information production costs incurred in satisfying derivative instrument disclosures. Consequently, larger firms are likely to incur relatively less information production costs than small firms. *Ceteris paribus*, this implies an increased likelihood of disclosures and support for the mandated disclosure requirements.

#### **Firm Size and Political Costs**

Should derivative financial instrument disclosures attract political costs, such as increased regulation of derivative markets, amendments to taxing derivative instruments and/or increased demand to bring the instruments on balance sheet, firms with a greater frequency and volume of derivative instrument trades are going to be more affected by the political costs. Assuming large firms engage in more hedging activity, consideration of political cost consequences could be influential in management's disclosure strategy.

#### Firm Size and Multilisting

Larger firms are more likely than smaller firms to be listed on share exchanges other than the Australian Stock Exchange. The development of derivative financial disclosure requirements by the IASC and accounting regulators in United States is discussed in Chapter 2 (section 2.6). As supporters of the harmonisation of accounting standards, multi-listed firms are not expected to oppose derivative financial instrument disclosures *per se*. It is expected the disclosure levels for multilisted firms are relatively higher than for firms not listed on multiple exchanges.<sup>152</sup>

#### Firm Size and Financial Reporting Reputation

Firm size can also capture the reputation costs confronting a firm. The reporting practices of large firms are more closely monitored than those for smaller firms and monitoring mechanisms mitigate moral hazard (Stiglitz 1991). Thus the visibility (both politically and communally) of large firms creates a necessity for large firms to respond and conform to institutional and community demands for derivative financial instrument disclosures more than firms less publicly scrutinised. The absence of such disclosures will be more noticeable for larger rather than smaller firms, and the reputation damage suffered as a consequence of non-disclosure will be higher for larger firms. This predicts greater transparency in derivative usage for larger firms relative to smaller firms.

<sup>&</sup>lt;sup>152</sup> Although multi-listing is not included as an explanatory variable, Chapter 7: Results and Analysis reports that this variable is not statistically significant when included in the disclosure model.

| Industry Classification         | Number of firms | % of sample firms |
|---------------------------------|-----------------|-------------------|
| Gold                            | 32              | 16                |
| Other Metals                    | 14              | · ′ 7             |
| Solids & Fuels                  | 4 ·             | 2                 |
| Oil & Gas                       | 8               | 4                 |
| Diversified Resources           | 3               | 2                 |
| Developers & Contractors        | 12              | 6                 |
| Building Materials              | 8               | 4                 |
| Alcohol & Tobacco               | 1               | 1                 |
| Food & Household Goods          | 7               | 3                 |
| Chemicals                       | 1               | 1                 |
| Engineering                     | 8               | 4                 |
| Paper & Packaging               | 2               | 1                 |
| Retail                          | 8               | 4                 |
| Transport                       | 5               | 2                 |
| Media                           | 8               | 4                 |
| Banking & Finance               | 0               | 0 .               |
| Insurance                       | 2               | 1                 |
| Entrepreneurial                 | 1               | 1                 |
| Investment & Financial Services | 30              | 15                |
| Property Trusts                 | 5               | 2                 |
| Miscellaneous Services          | 16              | 8                 |
| Miscellaneous Industrials       | 13              | 6                 |
| Diversified Industrials         | 6               | 3                 |
| Tourism                         | 5               | 2                 |
| TOTAL                           | 199             | 100               |

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# **Appendix 4: Industry Classifications of Sample Firms**

# **Appendix 5: Financial Risk Management Survey**

#### **COMPANY NAME:**

#### Please circle the appropriate responses to the best of your knowledge

- Has your firm ever used derivatives (forwards, futures, options, swaps) during the last ten years?
  a. Yes
  b. No
- 2. Does your firm currently use derivatives (forwards, futures, options, swaps)? a. Yes b. No

If you answered NO to both question 1 and question 2, please complete the survey by answering question 3 ONLY.

If you answered YES to either question 1 or question 2, please proceed to question 4.

- 3. Please indicate the three most important factors in the decision not to use derivatives. a. Insufficient exposure to financial or commodity price risk
  - b. Exposures are more effectively managed by other means
  - c. Difficulty pricing and valuing derivatives
  - d. Disclosure requirements of AASB1033
  - e. Accounting treatment for derivatives
  - f. Concerns about perceptions of derivative use by investors, regulators and the public
  - g. Costs of establishing and maintaining a derivatives program exceed the expected benefits
  - h. Other (please specify)

#### 4. Are the firm's risk management activities

a. Centralised? b. Decentralised?

If you answered (a), please proceed to Question 5; otherwise, please proceed to answer Question 7.

#### 5. Are the risk management activities centralised at

- a. the group level?
- b. the firm level?
- **c.** other (please specify)?.....
- 6. In what financial reporting period did the centralisation occur?
- a. Pre 1991/92
- b. 1992/93
- c. 1993/94
- d. 1994/95
- e. 1995/96
- f. 1996/97
- g. Post 1996/97

7. Which of the following statements best describes your organisation's approach to the use of derivatives to manage each of the following forms of risk? Please tick the appropriate response to each question in the table provided.

|   | Foreign<br>Currency | Interest<br>Rate | Commodity | Equity |
|---|---------------------|------------------|-----------|--------|
| a. Exposure not managed with derivatives            |                     |                  |           |        |
| b. Risk management activities primarily centralised |                     |                  |           |        |
| c. Risk management decisions primarily              |                     |                  |           |        |
| decentralised with centralised coordination         |                     |                  |           |        |
| d. Risk management activities primarily             |                     |                  | ·         |        |
| decentralised                                       |                     |                  |           |        |

#### 8. Indicate your degree of concern about the following issues with respect to derivatives. Please tick the appropriate responses in the table provided.

|  | No concern | Low | Moderate | High |
|--|------------|-----|----------|------|
| a. Regulation of Accounting treatment      |            |     |          |      |
| b. Credit risk                             |            |     |          |      |
| c. Market risk                             |            |     |          |      |
| d. Monitoring and evaluating hedge results |            |     |          |      |
| e. Reaction by analysts or investors       |            |     |          |      |
| f. Accounting disclosure requirements      |            |     |          |      |
| g. Secondary market liquidity              |            |     |          |      |

- 9. Indicate the degree of costs incurred with upgrading system and software capabilities to produce the financial statement disclosures required by AASB1033.
  - a. No cost b. Low c. Moderate d. High

10. Generally speaking, FASB Statement No. 133 requires all derivatives to be recorded on the balance sheet at fair market value and marked to market each reporting period. Changes in market value are either reported in income each period or directly in the equity section of the balance sheet, depending on the specific use of the derivatives. If the Australian Accounting Standards Board were to adopt the same rules on accounting, what will be the most likely impact on your firm? Please circle all that apply.

- a. No effect on derivatives use or risk management strategy
- b. A reduction in the use of derivatives
- c. An increase in the use of derivatives
- d. A change in the types of instruments used
- e. Alter the timing of hedging transactions
- f. A significant change in the firm's overall strategy or approach to risk management

11. Does your firm have a documented policy with respect to derivatives?

a. Yes b. No

#### 12. How frequently is derivative activity reported to the Board of Directors?

- a. Monthly (or more frequently)
- b. Quarterly
- c. Annually
- d. As needed
- e. Other (please explain).....

#### 13. How frequently do you value your derivative portfolio?

- a. Daily
- b. Weekly
- c. Monthly
- d. Quarterly
- e. Annually
- f. As needed/No set schedule
- g. Other (please explain).....

#### 14. How do you evaluate the risk management function?

- a. Reduced volatility relative to a benchmark
- b Increased profit (reduced costs) relative to a benchmark
- c. Absolute profit/loss
- d. Risk adjusted performance (profits or savings adjusted for volatility)
- e. Other (please specify) .....

Thank you for your cooperation in completing the survey. Please indicate if you wish your response to remain confidential:

a. Request confidentiality

b. Confidentiality not required

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