

**INITIAL RETURNS PERFORMANCE: FAMILY AND NON-FAMILY
FIRMS
AUSTRALIAN EVIDENCE ¹**

Nicholas A Mroczkowski²
Faculty of Business & Economics, Monash University
PO Box 197, Caulfield East, Victoria 3145
AUSTRALIA
Telephone: +613 3 9903 2822
Fax: 61-3-9903 2422
Email: Nick.Mroczkowski@BusEco.monash.edu.au

George Tanewski
Faculty of Business & Economics, Monash University
PO Box 197, Caulfield East, Victoria 3145
AUSTRALIA
Telephone: +613 3 9903 2388
Fax: 61-3-9903 2422
Email: George.Tanewski@BusEco.monash.edu.au

EFM Classification: Corporate Finance 230

Keywords: Family firms, IPOs, initial returns, performance, agency costs, signalling hypothesis

ABSTRACT

This study examines the initial price performance of family and non-family controlled IPO firms listed on the Australian Stock Exchange (ASX) between 1988 and 1999. Ownership and control are significant factors that influence managerial incentives, whereas the dynamics underlying family relationships reduce agency costs and improve efficiency, thus positively impacting on firm performance. The study finds evidence of lower (15.54%) initial underpricing on the first day of trading for family firms compared with non-family IPOs (36.12%) after adjusting for industry effects. The results also show a positive and significant association between firm value and fractional ownership for both family and non-family firms, which indicates that family and non-family IPO firms use fractional ownership to signal the value of the firm. These findings provide empirical support for signalling models articulated in the literature. Implications of these differences will allow market participants to make

¹The authors wish to acknowledge the valuable contribution made by Professor Robert Faff, Director of Research, Department of Accounting and Finance, Monash University, particularly in providing a critical review of the initial drafts of the paper.

²Correspondence author.

more informed investment choices. For example, investors seeking higher immediate returns might choose to invest in non-family firms rather than in family controlled firms.

INTRODUCTION

This study provides an empirical analysis of the initial price performance of Australian initial public offerings (IPOs) of family and non-family controlled companies between the periods 1 January 1988 and 31 December 1999. An increasing interest in the family business literature has focused on the role of family businesses in international economies, and in many instances, evidence suggests that these firms are emerging as substantial contributors to the gross domestic product of nations (e.g., Shanker & Astrachan, 1996; Anderson & Reeb, 2003). What is also evident in the literature is that family businesses enjoy an alignment between ownership and control, and the dynamics of this alignment reduces agency costs which impacts favourably on firm performance (Schillaci & Faraci, 1999; Fama, 1998; McConaughy, 1994; Jensen & Meckling, 1976).

Despite extensive evidence relating to initial price performance of IPOs both in Australia and internationally (e.g., Beatty, 1989; Lee, Taylor, & Walter, 1994), the issue of IPOs in the context of family business has largely been neglected in the literature. Notwithstanding, some relevance to family firms can arguably be drawn from certain aspects of the IPO literature. For example, numerous studies (Ritter, 1984(b); McBain & Krause, 1989; Clarkson, Dontoh, Richardson, & Sefcik, 1991; Koh, Lim, & Chin, 1992; Downes & Heinkel, 1982; How & Low, 1993; Jain & Kini, 1994) have examined the influence of fractional ownership interests retained by founding shareholders on the value of the IPO firm and on price performance in the initial returns period. Retained ownership is of particular importance to family firms

because it is generally known that family firms have a greater level of retained ownership by founding shareholders than non-family firms.

Agency and signalling theories receive prominence in the literature with respect to explanations of the relationship between the level of share ownership retained by founding shareholders of the firm and the post issue value of the firm. The agency theoretic perspective assumes that ‘true’ firm value is endogenous since owners-entrepreneurs are able to determine the level of shareholdings they wish to retain in the firm post IPO. It is further assumed that there is no information asymmetry between issuers and investors, except to the extent that investors are unable to observe the behaviour of managers (Ritter, 1984(b)). Managers in firms with diffuse ownership structures, as a consequence of lower equity retention held by owners-entrepreneurs, are more likely to engage in managerial shirking (Jensen & Meckling, 1976), which reduces cash flows and concomitantly firm value. Thus lower levels of equity retained by owners-entrepreneurs leads to lower firm value.

Conversely, signalling theory assumes that true firm value is exogenous and not causally dependent on the level of insider holdings. There is an assumed information asymmetry between issuers and investors which can be addressed by firms conveying signals of private knowledge to the market. Among the first reported links between firm value and the level of insider holdings as a signal of firm quality was identified in Leland and Pyle (1977), who found that an entrepreneur’s willingness to invest in his own project “can serve as a signal of project quality” (p.372). This is consistent with Jensen and Meckling’s (1976) observation that “the value of the firm increases with the share of the firm held by the entrepreneur” (p.372). Similar observations

were subsequently reported by numerous contributors to the literature, including Downes and Heinkel (1982), Allen and Faulhaber (1989), and McBain and Krause (1989), Clarkson, Dontoh, Richardson and Sefcik (1991), and How and Low (1993). As the literature identifies ownership a distinguishing feature of family businesses, this study reviews and considers the importance of agency and signalling theories in the context of these firms.

A number of factors have been cited in the literature as possible explanations for initial underpricing, some of which include the value of the firm and the level of ownership retained by existing owners. This study considers these factors and the extent of their influence on IPO initial price performance of family and non-family controlled companies.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The motivation for private companies seeking to go public via the listing mechanism is widely documented. Rock (1986) identifies two principal reasons why companies enter the new issues market. The first relates to refinancing the firm by using external funds in contrast to internal funds. Under this scenario, existing founders and other holders of stock who have a considerable amount of wealth invested in the firm are seeking to liquidate and diversify their personal investment portfolios. A public listing is generally a far more simplistic route to ‘off load’ part or all of their investment, in contrast to selling shares back to the firm, which will need to finance the buy-back from valuable internal sources. Indeed, if the firm has a stable and profitable trading

history and the market is opportune for quality investments, a public listing may well be a profitable exit strategy for existing holders of stock.

Secondly, public listing may be one of a limited number of sources of funds available to the firm seeking to finance new investments and in some cases it may be the only alternative. The flotation of a company is an attractive form of financing, offering substantial benefits to the firm in comparison with other financing mechanism. For instance, with the exception of dividends (which are only payable at the discretion of directors), there are generally no servicing costs associated with equity. In contrast, other forms of finance, particularly debt, require regular repayments of interest and principal.

There are also many other benefits that accrue to the firm and stakeholders from going public. These include access to large pools of costless funds via the capital market, increase in the profile of the firm, and a mandatory disclosure regime which provides a basic level of transparency and accountability thereby reducing agency costs to the firm. Thus, from a macro perspective, new listings represent a significant source of finance for capital market participants.

From a family business perspective, the motivation to go public is documented in a small but nonetheless important body of literature. The principal themes in the family business literature appear to focus on funding and succession issues. For example, existing owners may seek to go public because the firm is no longer able to finance continuing operations or pursue growth future options (Harvey & Evans, 1995; Maherault, 2000). The financial motives for family firms going public are not entirely

unexpected given that lack of capital and significant debt levels are often cited as primary causes for the failure of family businesses (Peterson, Kozmetsky, & Ridgeway, 1983; Wucinch, 1979; Jones, 1979; Aronoff & Ward, 1995). Listing can bring large sums of capital into the firm at a lower cost than servicing higher levels of debt, which can be used for a variety of reasons including strengthening of the existing capital base, the relaxation of debt burdens (e.g., by the expiration of debt) or the pursuit of entrepreneurial opportunities. Listing can also assist family firms in attracting potential successors through the appointment of professional managers on the basis of competence rather than family standing.

Other suggested reasons for family firms going public relate to the importance of the firm's profile. Marchisio and Ravasi (2001), for example, argue that family firms "build and sustain competitive advantage through an increase in reputational and social capital" (p.1). They find that going public is increasingly driven by a search for greater visibility and profile, which in turn has beneficial effects on the capacity of firms to assess external resources and opportunities for entrepreneurial activities.

There are, however, several potential disadvantages associated with public listings. Perhaps one of the most documented disadvantages is the enormous cost involved in the initial listing process. The process of listing a company is normally lengthy and complicated, often involving many different parties, including representatives of the issuing firm, underwriters, financiers, auditors and corporate advisory specialists, lawyers, marketing experts, printers and various experts who might provide opinions on particular aspects of the listing. There are also numerous regulatory and

compliance mechanisms to be observed including the requirement to prepare a detailed prospectus.

In the US, Citizen (1977) provides evidence that the average cost of an issue is around 6.2% of total issue proceeds, and this cost is reduced as the issue becomes larger. Aggarwal & Rivoli (1991) provide an analysis of the costs of going public for ‘best-offers’ and ‘firm-commitment’ issues during the period 1977 – 1987. They found a wide variation of costs ranging from 80% of gross issue proceeds in the case of small best-efforts offerings to 15% of gross issue proceeds of large firm-commitment offerings. Although the Australian evidence is sparse, Bruce, McKern, Pollard & Skully (1991) showed that the cost of a public issue in Australia varied between 2.33% and 7.46%

Other potential disadvantages arise from public exposure generally. A listed company in Australia is required to comply with several financial and other ongoing disclosure requirements. These include compliance with the listing rules of the Australian Stock Exchange and the various provisions of the Corporations Act³. In addition to reporting requirements applicable to all relevant companies under the Act, listed companies must also comply with the ‘disclosing entity’ provisions of the Corporations Act⁴. This means that listed companies must prepare comprehensive audited financial statements which comply with all relevant accounting standards and pronouncements on an annual and half-yearly basis. These are ongoing requirements and for many

³ The Corporations Act 2001 is the primary source of statutory legislation in Australia which regulates corporate and listed entities.

⁴ A disclosing entity in the context of the Australian financial reporting requirements is generally an entity that issues shares to the public via an offer (prospectus) document.

companies compliance is onerous and expensive, often requiring the establishment of large accounting systems and specialist departments.

Other potential costs that may arise from greater public exposure are costs associated with competitors exploiting company information from detailed information disclosed in financial statements, and the potential costs of defending a takeover bid for shares in the company.

Agency Theory and Initial Price Performance - Agency theory is of relevance to the current study since it provides the basis for explaining differences in the level of IPO underpricing performance between family and non-family businesses. The rationale is that agency costs will be lower in firms that have a higher proportion/concentration of ownership and where the owners exercise greater control in the operations of the business compared to firms in the reverse circumstances. The reduction in agency costs will concomitantly result in higher operating performance. Similarly, an IPO firm in which existing owners retain a significant level of ownership and control (post listing), may provide positive signals to the market regarding future operating performance and cash flows. In turn this may indicate less uncertainty and greater stability regarding the future of the firm and thus a higher market value post listing (How & Low, 1993; Allen & Faulhaber, 1977).

There have been several contributions to the literature which evaluate the impact of ownership concentration and/or control distribution on the performance of the firm. Mosen, Chiu, and Cooley (1968) found that owner-managed firms significantly outperformed professionally managed firms. Two decades later, Morck, Shleifer, and

Vishny (1988) similarly observe that owner-managed firms outperform professionally managed firms. More importantly, Oswald and Jahera (1991) found that management ownership of shares is positively and significantly associated with firm performance, whereas in a recent Australian study Balatbat (2001) reported a weak association between ownership and firm performance.

While many of the above research efforts observe a positive association between performance and ownership/management structure, several contributors to the literature have found either no significant association or a negative association between performance and ownership/management structure. These studies include Demsetz and Lehn (1985), Galve and Salas (1994), and Gallo and Villaseca (1998). In a study of the relationship between ownership structure and corporate performance, Demsetz and Villalonga (2001) found no significant relationship between ownership structure and firm performance, and argued that while diffuse structures exacerbate agency problems, these structures also provide compensating benefits that offset such problems.

The perspective adopted in this study is that ownership structure is endogenous, that is, individual shareholder preferences and profit maximising interests essentially determine ownership structure. Thus when firms decide to go public, they also decide to alter the ownership structure of the firm, “with high probability of making the structure more diffuse” (p. 210). Demsetz and Villalonga (2001) argue other studies (e.g., Hermalin & Weisbach, 1988; Loderer & Martin, 1997; Cho, 1988) that treat ownership structure as an endogenous phenomenon, have similarly found that ownership structure fails to explain differences in firm performance.

With respect to initial price performance, numerous studies (Loughran, Ritter, and Rydqvist, 1994; Loughran and Ritter, 2000) have shown that initial public offers are underpriced on average when tendered to the public. Underpricing suggests that the subscription price of the shares is typically well below market price on the day of listing and accordingly, investors who subscribe to new issues, can potentially earn abnormal returns (also referred to as ‘stag profits’). The work of Merret et al. (1967) and Reilly and Hatfield (1969) arguably represent the first wave of research, which documented the existence of large systematic profits accruing to investors who subscribe to new issues. An extensive number of subsequent studies (including Australian studies, How, 1990; Lee et al. 1994; Steen, 1997) have supported these findings.

Although there appears to be no general consensus on why the underpricing anomaly exists, the evidence generally indicates that the degree of underpricing of new issues is associated with a range of endogenous and exogenous factors including, firm factors, share issue-specific factors and environmental factors. Thus consistent with the agency theoretic and signalling perspectives, the following hypothesis is presented:

H₁: The level of initial underpricing is higher for family IPO firms than for non-family IPO firms

Fractional Ownership, Firm Value and Underpricing - Several studies have examined the signalling role of ‘quality’ attributes of the firm, such as the level of

retained equity by the original shareholders. Leland and Pyle (1977) argue that informational differences between buyers and sellers are pronounced in financial markets and ‘moral hazards’ prevent the transfer of information between market participants (p.371). For example, sellers may not fully disclose their true characteristics since they may be able to benefit from non-disclosure, and confirmation/validation of these characteristics by buyers may not be possible or too costly. If these hazards prevent the transfer of information, then good quality projects cannot be differentiated and markets may perform poorly, unless the actions of the entrepreneurs can be observed.

Leland and Pyle (1977) maintain that one such action is the willingness of persons with inside information to invest in the project/firm. Since this action is seen as a means of overcoming information asymmetry, and to the extent that the market perceives this action as a credible signal of firm quality, Leland and Pyle (1977) hypothesised that firm value is positively associated with the level of equity retained by the entrepreneurs in the project/firm. Several subsequent studies have supported the signalling hypothesis, including Downes and Heinkel (1992) who examined the signalling role of retained equity ownership and dividend policy on value of the firm, and provided support for the equity retention hypothesis but not the dividend signalling hypothesis. In a study of 115 Canadian IPO firms, Krinsky and Rotenberg (1989) argued that insider private information did not increase firm value and accordingly the signalling hypothesis was not supported. In contrast, Clarkson, Dontoh, Richardson and Sefcik (1991) replicated the work of Krinsky and Rotenberg (1989) using a sample of 180 Canadian companies and found a positive and significant association between firm value and the ownership retention signal.

Australian evidence on the association between fractional ownership and firm value is well documented by How and Low (1993) who examined 523 Australian seasoned issues of equity made over a 10-year time. The authors used two measures of firm value; the natural logarithm of the firm's post-offering market capitalisation and the natural logarithm of the firm's total assets as shown in the prospectus. They found that both measures of firm value were significantly and positively associated with fractional ownership retained by insiders. Similar findings were reported by other Australian studies including Lee, Taylor and Walter (1996) and Steen (1997).

A different perspective on the role of insider holdings in the valuation of IPO firms was provided in Ritter (1984b) and McBain and Krause (1989). Both studies argued that the positive relationship between insider holdings and firm value could be explained by agency theory (although Ritter [1984] also examined other possible explanations including Leland & Pyle's [1977] signalling theory). Agency theory posits that managerial shirking increases as ownership structures becomes more diffuse, which results in investors seeking higher capitalisation rates (McBain & Krause, p.421) and thus lowers the relative valuation of the firm's equity.

Agency theory similarly argues that the price of the offering is endogenous and there is no information asymmetry between issuers and investors, except to the extent that investors are unable to observe the behaviour of managers. In contrast, signalling theory assumes that there are significant informational differences between issuers and investors and signalling via actions by owners-entrepreneurs (for instance by investing in one's own project) is one means of overcoming these differences. In this

sense, the offering price is said to be exogenous. Using the agency theoretic perspective, both Ritter (1984b) and McBain and Krause (1989) found a significant and positive association between firm value and level of insider holdings.

As explained in How and Low (1993), the link between signalling firm value and underpricing was well articulated by Allen and Faulhaber (1989), who argued that the best information about a firm's prospects is held by the firm itself (p.304), and good quality firms are able to signal their superior prospects by a low IPO price and quantity. The rationale here is put succinctly by Allen and Faulhaber (1989) in the following quote cited from Ibbotson (1975), that "IPO's are priced ... to leave a good taste in investors' mouths' so that future underwritings from the same issuer can be sold at attractive prices" (p.264). Given that leaving money on the table is a costly exercise for the issuer, Allen and Faulhaber (1989) argue that this action is seen as a credible signal by investors since only quality firms are able to recoup the cost of this signal from subsequent issues. Indeed Welch (1989) supported this argument by showing that higher underpriced firms issue shares more than once to compensate for the initial issue. He concludes that only quality firms can afford to underprice.

How and Low (1993) provide Australian evidence and found a significant and positive relationship between firm value and underpricing, where firm value is measured as the natural logarithm of total shares issued after the IPO multiplied by market share price at day 20 (after listing). However, when using the natural logarithm of total assets (as disclosed in the prospectus) as a proxy for firm value, they found a positive but insignificant relationship between firm value and underpricing for firms with fractional ownership greater than 70%.

Perhaps as a final note on this area of research, the contribution by Sum (1991) is worthy of mention. Consistent with the model formulated by Leland and Pyle (1977), the author argues that only a single-signal model (i.e., the fractional ownership and firm value relation) can be supported and that the second-signal model (firm value and underpricing) cannot be supported. This is consistent with the models reported in Rock (1986) and Beatty and Ritter (1986) where a higher level of equity retained by owners-entrepreneurs “signals a higher firm value and a lower level of ex ante uncertainty with less underpricing” (Sum, 1991, p.176). The implication of these findings therefore is that fractional ownership and underpricing are negatively related. While this perspective is somewhat anomalous with the literature, it is not entirely unreasonable given that there is an extensive body of literature which supports a negative relationship between quality firm attributes (such as, issue size, and firm size which lower ex ante uncertainty) and underpricing.

There are two important themes that emerge: first, high value firms have relatively higher levels of insider holdings, and; second, high value firms are more likely to have higher levels of underpricing. Thus a logical extension of this argument is that firms with higher levels of fractional ownership must also have higher levels of underpricing (Grinblatt and Hwang, 1989; Affleck-Graves et al., 1993; How, 1990; Lee et al., 1996). Accordingly, the following three hypotheses summarise the fractional ownership and firm value arguments:

H₂: The positive association between firm value and fractional ownership will be dependent on family control.

H₃: The positive association between firm value and the level of IPO underpricing will be dependent on family control.

H₄: The positive association between the level of IPO underpricing and fractional ownership will be dependent on family control.

Industry Effects - Several studies have reported the influence of industry sectors on the level of underpricing. Ritter (1984a) observed a link between unusually high numbers of speculative and heavily underpriced issues, particularly with larger numbers of resource-based IPOs (hereafter RBIPOs). He found that RBIPOs were considerably more underpriced than other industries during the ‘hot market’ periods. This finding is especially relevant in the Australian IPO context, since resources and other associated industries have been (and continue to be) significant contributors to the Australian economy, accounting for approximately 4% of GDP each year (Australian Bureau of Statistics Year Books 1991-1998). During the period 1988 through to 1999, the annual turnover for the mining industry increased from \$19.35 billion in 1988/89 to \$37.52 billion in 1998/1999. Moreover, for the same period, industry value added increased from \$12.48 billion in 1988/89 to \$24.12 billion in 1998/1999, and capital expenditure from \$3.7 billion in 1988/89 to \$8.04 billion in 1998/1999.

While the literature specifically focusing on industry sector influences on the level of underpricing is sparse, a number of studies have reported higher levels of underpricing associated with RBIPOs. For instance, Little (1987) and How et al.

(1993) report differences in the average level of underpricing of RBIPOs compared to industrial IPO stocks, whereas Woo and Suchard (1993) also report higher levels of underpricing for RBIPOs, but 63% of their sample was represented by small firms. Thus the following hypothesis examines the industry effects of family and non-family controlled firms and follows the intuition presented in Hypothesis 1:

H₅: The level of underpricing is higher for family controlled IPOs operating in the resource-based sector compared with family controlled IPOs operating in the industrials sector.

METHOD

Sample Selection and Data Collection – An IPO is generally defined as the first issue of shares by a company seeking to obtain a listing on a stock exchange (Mustow, 1994, p. 7; How, 1990, p. 319). A family business is defined as *an entity controlled by a private individual, directly or indirectly, in conjunction with close family members*. Selection of family firms was based on five criteria: (1) The existence of a dominant⁵ shareholder who is a founding member involved in the management of the company and has a direct interest of greater than 20% of voting shares; (2) the dominant shareholder is the CEO or key member of the board (i.e. Managing Director or Chairperson); (3) the dominant shareholder continues to be the dominant shareholder and member of the board during the observation period, i.e. 1 year prior to the IPO listing and 3 years subsequent to the IPO listing; (4) at least one other

⁵ Dominance is defined by the Australian accounting standards as the capacity to dominate decision-making, directly or indirectly, in relation to the financial and operating policies of an entity (AASB 1024).

related party⁶ is a member of the board, and; (5) the dominant shareholder, in conjunction with other related parties, holds greater than 40% of the voting shares in the company directly or indirectly, after the IPO listing.

To determine the sample of IPO firms and to delineate family controlled from non-family controlled IPO firms a detailed review of Australian Stock Exchange (ASX) annual reports was undertaken for new listings for the periods 1988 to 1999. Qualifying criteria were applied to all companies/entities listed during the observation period to determine whether the listing was in fact an IPO. Consequently, IPOs involving the following activities were excluded: relistings; refloats; firms formed through Schemes of Arrangement; firms listing via the Information or Explanatory Memorandum medium; firms previously listed on a foreign stock exchange; capital reconstructions involving debt issues and convertible notes; transfers from the Second Board; issues not involving a registered prospectus; seasoned (Rights) issues, and; on-company listings (for example, Trusts & Building Societies). A total of 605 IPOs, from a possible 898 new ASX listings during the twelve-year period, satisfied the IPO qualifying criteria.

Various databases were examined for information relating to the definition of a family business (e.g. evidence of ownership, control and continued dominance), and information relating to the dependent and independent variables (e.g. prospectus information such as issue price). Primary data sources included the ASX Data Discs 1998, annual report files of the Australian Corporate Advisor Pty Ltd, company

⁶ Related party is defined by the Australian accounting standards as the ability to control or significantly influence an entity (including a person) or be controlled or significantly influenced by an entity (including a person). For example, related parties of any directors of a company could include close family members and other remoter lineal ancestors.

financial statement files of Bloomberg.L.P, annual financial statement files of the Australian Securities and Investments Commission [ASIC], Thompson Financial Services and Connect4. Results from applying the definition of a family business revealed that 5 companies could not be categorized into either family or non-family groupings principally because data on the continuity of control by founding shareholders was unable to be reliably traced beyond the first year of listing. Effectively therefore the population was reduced to 600 companies of which 127 (21.2%) were family firms and 473 (78.8%) were non-family firms. In addition, Datastream and SIRCA were used to access share price data and data relating to the all ordinaries accumulation index.

Variables – Consistent with the majority of studies in the literature, the model adopted for calculating initial returns in this study is based on the difference between the offer price in the prospectus document and the closing price on the first day of trading. Most studies have also adjusted raw initial returns for the potential impact of market movements and several different indices are used in this regard. In Australian studies for example, Finn and Higham (1988) used the Melbourne All Ordinaries Index, whereas Woo and Suchard (1993), Lee, et al. (1994), and Steen (1997) used the All Ordinaries Accumulation Index. In this study the Australian All Ordinaries Accumulation Index is used for adjusting raw returns for market movements. The closing date of the offer was used as the base date for measuring movements in the market index (Steen, 1997). Market adjusted initial returns was used as the dependent variable for underpricing in the study and for all regression analyses.

Excess initial returns are calculated using the methods employed by Finn and Higham (1988), Kim et al. (1993), Jain (1994), Lee, et al. (1994) and Steen (1997). Initial returns represent the gross return accruing to an investor who subscribes to an IPO issue and sells at the closing price at the end of the first day of listing. Share price data were accessed from Datastream and validated against the Australian Stock Exchange daily quotation sheets.

Although there are several proxies for firm value identified in the literature, the most popular include market capitalisation of all ordinary shares issued after the IPO, and total assets at the time of listing. Following the approach adopted in How and Low (1993), firm value is determined by multiplying market share price at day 20 post-listing times the total number of ordinary shares issued after the IPO share. Fractional ownership was measured by the total ownership retained (as a proportion) by existing owners, whereas the two control variables, family business and industry sector were binary coded, that is, family =1 or 0 = otherwise and mining = 1 or 0 = otherwise.

Descriptive Analysis - Table 1 shows that 21.2 % of the total qualifying IPOs were family businesses and the proportion of family businesses to non-family businesses was irregular over the ten-year observation period. Interestingly, there were a number of periods in which the percentage of family (FB) to non-family (NFB) IPO firms was higher compared with other periods. For example in 1989, 31.4% FB compared to 68.6% NFB; in 1998, 31.8% FB and 68.2% NFB, and in 1999 where the percentage of FB to NFB was at its highest, 33.7% FB and 66.3% NFB. Moreover, the lowest ratio of family to non-family firms occurred in 1990, 6.7% FB to 93.3% NFB. The

highest number of listings in the 12-year period occurred in 1994 (104 in total) compared with any other period.

Insert Table 1

Table 2 shows that IPO companies were widely disbursed amongst a broad range of industries. Several Australian studies have demonstrated similar findings including Balatbat, (2001) [Industrial Stocks], Steen (1997), and Lee et al. (1994). Perhaps of interest is the high concentration of IPOs in the Gold and Miscellaneous Industrials industry groupings, comprising 12.0% and 18.83% of all IPOs during the 12-year period respectively. While ‘Miscellaneous Industrial’⁷ represented the largest single industry category, ‘Resources’ was the largest combined industry category, which accounted for over 24% of total IPOs that listed during the sample period (for the purposes of this study ‘Resources’ includes the sub categories; Gold, Other Metals, Diversified Resources, and Energy)

Insert Table 2

Table 3 shows that the mean level of fractional ownership for all observations is 33%. When differentiating between family and non-family firms, fractional ownership is higher (53%) for family firms compared with non-family firms (26%), and as expected, results of independent *t*-tests indicate statistical differences between the two

⁷ Miscellaneous Industrial includes carburettors, pistons & related products, fluid power equipment & related products, scales and balances and miscellaneous industrial & commercial equipment.

groups ($t = 10.37$ $df = 221$, $p < .01$). After controlling for mining and non-mining, the mean value for the ‘non-mining’ group is 36%, compared with 23% for the mining group, reflecting lower levels of shareholdings by insiders in comparison to non-mining companies.

Insert Table 3

When differentiating between family and non-family groups by mining and non-mining, the level of fractional ownership changes considerably among these groups. For instance, the fractional ownership for non-mining family firms is 55% compared with only 29% for non-family firms, and results of t-tests show that these differences are statistically significant ($t = -9.16$ $df = 202$, $p < .01$). For the mining group, fractional ownership is also considerably different between family and non-family groups, for instance 42% for family controlled mining companies compared to 19% for non-family controlled mining firms. This demonstrates that the level of holding by insiders in family mining firms is more than twice the level for non-family mining firms. Moreover, results of t-tests show that these differences are statistically significant ($t = -4.37$ $df = 26$, $p < .01$).

RESULTS

Table 4 provides a summary of the results of market adjusted returns. Mean market adjusted underpricing is 32.16% for all observations under review, which is higher than the results of several other Australian studies (e.g., How, 1990; Finn & Higham, 1988; Steen, 1997). After segregating the observations into mining and non-mining companies to control for industry effects on the level of underpricing, the results demonstrate that mining companies are more underpriced than non-mining industrials, though not significantly. These findings are consistent with other notable Australian studies which document higher levels of initial underpricing for mining companies (e.g., Woo & Suchard, 1993; How, 1994). The mean value of market adjusted initial underpricing for family controlled IPOs is 34.89% compared with 31.65% for non-family controlled IPOs.

After controlling for industry effects, the analysis revealed significant differences between family and non-family IPO firms. Market adjusted underpricing was considerably lower for non-mining family controlled firms, compared with non-mining non-family controlled firms, which is inconsistent with the intuition presented in Hypothesis 5. For example, the mean values for the non-mining group are 15.55% for family firms, compared with 36.12% for non-family firms. In addition, independent t-tests for market adjusted initial underpricing ($t = 3.05$, $df = 375$, $p < .01$) show significant differences for family and non-family IPO firms within the non-mining group.

Insert Table 4

Firm Value, Initial Underpricing and Firm Characteristics - Table 5 (Panel A) shows multiple regression results using White's (1980) heteroscedasticity consistent covariance matrix (HCCM) estimator. Firm value is regressed on fractional ownership (ownership retention) and mining. The results demonstrate that each independent variable is significantly associated ($t = 5.59, p < .05$ and $t = -9.47, p < .05$, respectively) with firm value, and that the model accounts for 10.3% of the variance. Indeed, the omnibus test ($F = 14.01, df = 2, 247, p < .01$) indicates that the WLS model is robust in predicting firm value and the positive association between firm value and fractional ownership is consistent with the predicted direction. These findings also are consistent with the principal findings in the literature and thus lend credibility to H₂.

Insert Table 5

A factorial ANOVA was employed to determine if the addition of family control (FB_NFB) influenced the prediction of firm value in addition to that attributed to fractional ownership using the White adjusted model. The results in Table 5 (Panel B) show that the interacting effects of fractional ownership with family firms and mining on firm value are statistically significant (Adjusted $R^2 = .051, F [4,247] = 4.31, p < .05$). The interacting effects between specific independent variables and fractional

ownership are significant for family firms ($t = 2.262, p < .05$), though the effect size using Cohen's (1988) scale is small ($Eta^2 = .021$). Additionally, the positive sign of the unstandardised beta coefficient (B) is consistent with the predicted sign. Similarly, the interacting effects of non-family and non-mining firms are statistically significant ($t = 2.305, p < .05$) but with a small effect size ($Eta^2 = .021$) and a positive sign.

Table 5 also shows the extent of these interacting effects on the mean values of firm value. For instance, the mean value of firm value with fractional ownership and mining is \$79m for non-mining firms, whereas with FB_NFB added, the mean values for the non-mining firms are \$83m for family firms and \$115m for non-family firms respectively. These results show that firm value is appreciably higher when family control is added to the factorial model, suggesting that the existence of a positive association between firm value and fractional ownership is dependent on family control (see H_2). Indeed, this is consistent with the themes adopted in the literature since family firms have higher levels of equity retention than non-family firms.

Firm Value and Market Adjusted Underpricing – Using White's HCCM estimator, Table 6 (Panel A) shows multiple regression results for firm value regressed on market adjusted underpricing and mining. The results demonstrate that both market adjusted underpricing and mining are significantly associated with firm value ($t = 10.55, p < .05$ and $t = -9.47, p < .05$, respectively), and that the model accounts for 18.5% of the variance. The omnibus test ($F = 44.05, df = 2, 393, p > .05$) also shows a significant model in predicting firm value. The positive association between firm value and market adjusted underpricing is consistent with the predicted sign and the evidence in the literature.

Insert Table 6

Table 6 (Panel B) shows the results of the factorial ANOVA analysis which indicate that the interacting effects of market adjusted underpricing, family control and mining on firm value provide a statistically significant model (Adjusted $R^2 = .107$, $F [4,390] = 12.65$, $p < .001$). Further, the interacting effects between specific independent variables and market adjusted underpricing are statistically significant for the following combination of independent variables:

- Family and non-mining firms on market adjusted underpricing ($t = 2.328$, $p < .05$) with a small effect size ($Eta^2 = .021$),
- Non-family and non-mining firms on market adjusted underpricing ($t = 5.102$, $p < .001$) with a moderate effect size ($Eta^2 = .063$)
- Non-family and mining firms on market adjusted underpricing ($t = 4.291$, $p < .001$) with a small effect size ($Eta^2 = .046$),

Additionally, the positive sign of the unstandardised beta coefficient for all independent variables is consistent with the predicted direction.

These results provide evidence in support of signalling theory in the context of IPOs (Allen Faulhaber, 1989; Grinblatt & Hwang, 1989; How & Low, 1993; Steen 1997). This study also provides evidence that the existence of a positive association between firm value and the level of IPO underpricing is dependent on family control (see H_3).

For instance, the mean value of firm value with UP2 and mining is \$120m whereas with family control added, the mean value of firm value increases for both family firms (\$131m) and non-family firms (\$121m), suggesting a moderating effect resulting from the addition of family firms.

Market Adjusted Underpricing and Fractional ownership – Multiple reversion results using White’s HCCM estimator are presented in Table 7 (Panel A) and show that fractional ownership and mining are both positively and significantly associated with market adjusted underpricing ($t = 8.417, p < .05$ and $t = 4.998, p < .05$, respectively). Moreover, while the omnibus test shows that the overall strength of the model in predicting UP2 is statistically significant ($F = 3.90, df = 2, 300, p < .05$), the model only explains 2.5% of the variance in market adjusted underpricing. Notwithstanding, the results are consistent with several prior studies.

Insert Table 7

The results of factorial ANOVA analysis in Table 7 (Panel B) indicate that fractional ownership with family control and mining on market adjusted underpricing is statistically significant (Adjusted $R^2 = .077, F [4,300] = 7.172, p < .001$). In addition, the interacting effects between specific independent variables and market adjusted underpricing are statistically significant for the following two combinations of independent variables:

- Non-family with non-mining firms on market adjusted underpricing ($t = 1.991, p < .05$) with a small effect size ($Eta^2 = .013$),
- Family with non-mining firms on market adjusted underpricing ($t = 5.273, p < .001$) with a moderate effect size ($Eta^2 = .086$)

The sign for the unstandardised beta coefficient is positive for all independent variables and is consistent with theory. The only statistically significant result relates to the interaction between fractional ownership and family with non-mining firms on market adjusted underpricing ($t = 5.273, p < .001$) with a moderate effect size ($Eta^2 = .086$). Indeed, Table 7 (Panel B) also shows that in addition to these interacting effects, the mean value of UP2 with fractional ownership is \$0.91 for mining firms, whereas with family control added to the model, the mean value for UP2 for mining firms is \$1.49. These results show that UP2 is appreciably higher when family control is added to the factorial model, suggesting that the positive association between the level of IPO underpricing and fractional ownership is dependent on family control (see H₄). This is consistent with the themes adopted in this study that high value firms intentionally underprice and since family firms have higher levels of equity retention than non-family firms (and thus higher firm value) we would expect the relationship between firm fractional ownership and UP2 to be dependent on family control.

SUMMARY AND CONCLUSION

Initial Underpricing - Consistent with prior international and Australian studies, this research provides evidence of significant initial underpricing of Australian IPO firms between the periods 1988 to 1999. Abnormal returns for the first day of trading were found to be 32.16%. These were generated substantially on the first day of trading, and returns in any of the subsequent days for a period of 20 days post-listing were not statistically significant.

After allowing for specific sector influences (mining in particular), the study found significant statistical differences in returns for family and non-family firms, with 15.54% initial underpricing on the first day of trading for family firms compared with 36.12% for non-family firms. Given that family firms have higher levels of fractional ownership, the signalling themes adopted in this study suggest that family firms should have higher levels of underpricing than non-family firms. The above findings however, are anomalous with these themes and may indicate that family firms do not engage in signalling by intentionally underpricing initial returns.

There may be a number of possible explanations for these findings. Sum (1991) for instance, argues that a higher level of equity retained by owners-entrepreneurs signals a higher firm value and a lower level of ex ante uncertainty with less underpricing. This perspective is also supported by agency theory which posits that less diffuse ownership and control structures (which typically characterise family firms) provide signals of quality and thus less uncertainty and more stable investment opportunities. In both of these perspectives the important underlying issue is the market's perception

of risk, and thus the above results could plausibly be explained by the manifestation of the risk/return phenomenon, which is well documented in the finance literature.

On a practical level, another plausible explanation for the above findings could be that family firm entrepreneurs use IPOs as an exit mechanism, and thus seek to obtain maximum value in the ‘first-time’ issue of shares to the public since there will be little interest, if any, in subsequent seasoned issues. Accordingly, the issue price will be set closer to the true value of the firm thus leaving less money on the table for investors.

There are a number of potential implications for the above findings. Given the significant differences in underpricing between family and non-family firms (controlling for industry), the results suggest that capital market participants do in fact differentiate between family and non-family firms in pricing IPO stocks. Since family firms are considerably less underpriced than non-family firms, the findings may be of particular significance for family firms intending to ‘go public’, since the loss of wealth for issuers (i.e. attributable to underpricing) is considerably less for family firms than non-family firms. If family firms are considerably less underpriced than non-family firms, then investors seeking stag profits may do better to invest in non-family IPO firms in the immediate term.

Firm Value – After allowing for industry effects, the results show a positive and significant association between firm value and fractional ownership for both family and non-family firms. This association is moderated by firm type (family and non-family) and indicates that family and non-family IPO firms use fractional ownership to signal the value of the firm. These findings provide empirical support for Leland

and Pyle's (1977) signalling model and the findings of several other studies including How and Low (1993). In addition, the existence of a second-signal model is supported by the evidence in this study. Indeed, the results show a positive and significant association between firm value and market adjusted underpricing for both family and non-family firms after allowing for industry effects.

Fractional ownership - The extension of the above signalling models, i.e., where underpricing signals firm value as proxied by fractional ownership, is also supported in this study. The results show a positive and significant association between fractional ownership and market adjusted underpricing for both family and non-family firms.

Perhaps the above findings thus far can be best summarized as follow;

- Fractional ownership is a significant predictor of firm value, and
- Underpricing is a significant predictor of firm value as measured either by the market capitalisation of total ordinary shares issued after the IPO issue, or by the level of fractional ownership held by insider holdings.

Another finding in the study, which may have potential implications, is the significant differences in underpricing between family firms and non-family firms in the non-mining sector. This may have significant implications for market participants since family firms could arguably be considered as a more stable investment than non-family firms.

A further study could examine the long-term share price performance of family and non-family firms. This could be an important area of research since few studies (e.g., Anderson & Reeb, 2003) thus far have examined the long-term share price performance of family firms. Moreover, an examination of share price performance over a longer period, in contrast to initial returns based on a ‘snapshot’ of share price on the first day of trading, may not only reveal differences in returns between family and non-family firms, but may also provide plausible explanations for those differences, i.e., through factors known to influence share returns. It is further noted that a longer time period may provide considerably more data and allow for alternative research designs which were not possible in the current study due to lack of data (particularly for specific groups such as family firms in the mining sector). For example, a matched-pair design would allow comparisons between family and non-family firms that are matched by industry, size, structure etc. Perhaps also related to longer term studies, is a study of further share issues by both family and non-family firms for some after the initial IPO, to determine whether these issues are more highly priced, thus lending support to the signalling hypothesis as reported in Welch (1989).

Some mention should be made of two potential limitations of the study. First, missing data was problematic for some companies and presented challenges in the analysis. Many of these problems, particularly those relating to financial variables, were remedied via conventional statistical techniques. Second, after the initial issue of shares following the IPO, the task of tracing share ownership (for instance to determine the level fractional ownership in Year +1 and +2) was difficult due to lack of data and certain assumptions were required to complete these traces and the links

between relevant shareholders (for instance, ownership of shares by persons with similar names were accumulated as part of the family allotment).

REFERENCES

- Affleck-Graves, J., Hedge, S.P., Miller, R.E. and Reilly, F.K. (1993), “The Effect of the Trading System on the Underpricing of Initial Public Offerings”. *Financial Management*, 22(1): 99-108.
- Aggarwal, R and Rivoli, P. (1991), “Evaluating the Costs of Raising Capital Through an Initial Public Offering”. *Journal of Business Venturing*, 6: 351-61.
- Allen, F. and Faulhaber, G.R. (1989), “Signaling by Underpricing in the IPO Market”. *Journal of Financial Economics*, 23(2): 303-23.
- Anderson, R.C. & D.M. Reeb (2003). Founding-family ownership and firm performance: Evidence from the S&P 500. *The Journal of Finance*, LVIII(3), 1301-1328
- Aronoff, C.E. and Ward, J.L. (1995), “Family-owned Businesses: A Thing of the Past or a Model for the Future?”, *Family Business Review*, 8(2), 121-30.
- Balatbat, M.C.A. (2001), *Ownership and corporate governance structures of Australian IPOs and its effect on post-listing operating returns*, Paper presented to the AAANZ Conference, Melbourne.
- Beatty, R.P. (1989), “Auditor Reputation and the Pricing of Initial Public Offerings”. *The Accounting Review*, 64(4): 693-709.
- Beatty, R.P. and Ritter, J.R. (1986), “Investment Banking, Reputation, and the Underpricing of Initial Public Offerings”. *Journal of Financial Economics*, 15(2): 213-32.
- Bruce, R., McKern, B., Pollard, I. and Skully, M. (1991), *Hand book of Australian Corporate Finance* (4th edition), Sydney: Butterworths.

- Cho, M.H. (1988), “Ownership Structure, Investment, and the Corporate Value: An Empirical Analysis”. *Journal of Financial Economics*, 47: 103-21.
- Clarkson, P.M., Dontoh, A., Richardson, G. and Sefcik, S.E. (1991), “Retained Ownership and the Valuation of Initial Public Offerings: Canadian Evidence”. *Contemporary Accounting Research*, 8(1): 115-31.
- Demsetz, H. and Lehn, K. (1985), “The Structure of Corporate Ownership: Causes and Consequences”. *Journal of Economy*, 93(6): 1155-77.
- Demsetz, H. and Villalonga, B. (2001), “Ownership Structure and Corporate Performance”.
- Downes, D.H. and Heinkel, R. (1982), “Signaling and the Valuation of Unseasoned New Issues”. *Journal of Finance*, 37(1): 1-26.
- Fama, E.F. (1998), “Market Efficiency, Long-Term Returns, and Behavioral Finance”. *Journal of Financial Economics*, 49(3): 283-306.
- Finn, F.J. and Higham, R. (1988), “The performance of unseasoned new equity issues-cum-stock exchange listings in Australia”. *Journal of Banking and Finance*, 12: 1-19.
- Gallo, M.A. and Vilaseca, A. (1998), “A Financial Perspective on Structure, Conduct and Performance in the Family Firm: An Empirical Study”. *Family Business Review*, 11(1): 35-41.
- Galve, C. and Salas, V. (1994), *Ownership and Performance of the Firm: Empirical Evidence from Spanish Family and Nonfamily Controlled Firms*, Research Paper, Universidad Autonoma de Barcelona.
- Grinblatt, M. and Hwang, C.Y. (1989), “Signalling and the Pricing of New Issues”. *The Journal of Finance*, 44(2): 393 -420.

- Harvey, M. and Evans, R.E. (1995), “Life after Succession in the Family Business: Is it really the end of problem?”, *Family Business Review*, 8(1): 5-16.
- Hermalin, B. and Weisbach, M. (1988), “The Determinants of Board Composition”. *RAND Journal of Economics*, 19: 589-606.
- How, J.C.Y. (1990), *Reputation Effects and the Underpricing of Initial Public Offerings in Australia: 1979-1989*, AAANZ Annual Conference, July: 319-44.
- How, J.C.Y. (1993), “Differential Information and the Underpricing of Initial Offerings”, Unpublished PhD Dissertation, University of Western Australia.
- How, J.C.Y. (1994), “An Empirical Investigation of the Pricing of Mining IPOs in Australia”, Department of Accounting and Finance, The University of Western of Australia, October.
- How, J.C.Y. and Low, J.G. (1993), “Fractional Ownership and Underpricing: Signals of IPO Firm Value?”. *Pacific-Basin Finance Journal*, 1(1): 47-65.
- Ibbotson, R.G. (1975), “Price Performance of Common Stock New Issues”. *Journal of Financial Economics*, 2: 235-72.
- Jain, B.A. (1994), “The Underpricing of "Unit" Initial Public Offerings”. *The Quarterly Review of Economics and Finance*, 34(3): 309-25.
- Jain, B.A. and Kini, O. (1994), “The Post-Issue Operating Performance of IPO Firms”. *The Journal of Finance*, 1699-726.
- Jensen, M.C. and Meckling, W.H. (1976), “Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure”. *Journal of Financial Economics*, 3: 305-60.
- Jones, R.G. (1979), Analyzing Initial and Growth Financial for Small Business”, *Managing Accounting*, 30-8.

- Kim, J., Krinsky, I. and Lee, J. (1993), “Motives for Going Public and Underpricing: New Findings from Korea”. *Journal of Business Finance and Accounting*, 20(2): 195-211.
- Koh, F., Lim, J. and Chin, N. (1992), “The Signalling Process in Initial Public Offerings”. *Asia Pacific Journal of Management*, 9(2): 151-65.
- Krinsky, I. and Rotenberg, W. (1989), “Signalling And The Valuation Of Unseasoned New Issues Revisited”. *Journal of Finance and Quantitative Analysis*, 24(2): 257-66.
- Lee, P.J., Taylor, S.L. and Walter, T.S. (1994), *Australian IPO Pricing in the Short and LongRun Performance of IPOS*, Working Paper 9416, Department of Accounting, University of Sydney.
- Lee, P.J., Taylor, S.L. and Walter, T.S. (1996), “Australian IPO Pricing in the Short and Long-Run Performance of IPOs”. *Journal of Banking and Finance*, 1189-210.
- Leland, H.E. and Pyle, D.H. (1977), “Information Asymmetries, Financial Structure and Financial Intermediaries”. *Journal of Finance*, 32: 317-87.
- Little, D. (1987), “An Investigation into the New Issues Market: Price, Performance and Risk”, Honours Thesis, School of Banking and Finance, University of New South Wales.
- Loderer, C. and Martin, K. (1997), “Executive Stock Ownership and Performance: Tracking Faint Traces”, *Journal of Financial Economics*, 45: 223-55.
- Loughran, T. and Ritter, J.R. (2000), “Why Don’t Issuers Get Upset About Leaving Money on the Table in IPOs?”, *Working Paper*, University of Notre Dame and University of Florida.

- Loughran, T., Ritter, R.J. and Rydqvist, K. (1994), “Initial Public Offerings: International Insights”, *Pacific-Basin Finance Journal*, 2: 165-99.
- Maherault, L. (2000), “The Influence of Going Public on Investment Policy: An Empirical Study of French Family-Owned Business”, *Family Business Review*, 8(1): 71-9.
- Marchisio, G. and Ravasi, D. (2001), *Family Firms and the Decision to go Public: A Study of Italian IPOs*, SDA BOCCONI, Research Division Working Paper No. 01-45, Bocconi University, Strategic and Entrepreneurial Management Department, March.
- McBain, N.L.C. and Krause, D.S. (1989), “Going Public: The Impact of Insiders' Holdings on the Price of Initial Public Offerings”. *Journal of Business Venturing*, 4(6): 419-28.
- McConaughy, D. (1994), “Founding-family-controlled corporations: An agency-theoretic analysis of corporate ownership and its impact upon performance, operating efficiency and capital structure”, Doctoral dissertation, University of Cincinnati.
- Merrett, A.J., Howe, M. and Newbould, G.D. (1967), “Equity Issues and the London Capital Market”, London: Longmans.
- Monsen, R.J., Chiu, J.S. and Cooley, D.E. (1968), “The Effect of Ownership and Control on the Performance of the Large Firm”. *Quarterly Journal of Economics*, 82: 435-51
- Morck, R., Shleifer, A., and Vishny, R.W. (1988), “Management Ownership and Market valuation: An Empirical analysis”. *Journal of Financial Economics*, 20: 293-315

Mustow, D.J. (1994), “New Float: Why Investors Run Hot and Cold”. *JASSA*, June: 6-8

Oswald, S. and Jahera, J. (1991), “The Influence of Ownership on Performance: An Empirical Study”. *Strategic Management Journal*, 12: 321-26. *and management*, Tokyo: University of Tokyo Press, 171-206.

Peterson, R., Kozmetsky, G. and Ridgeway, N. (1983), “Perceived Causes of Small Business Failures: A Research Note”, *American Journal of Small Business*, 8: 15-9.

Reilly, F.K. and Hatfield, K. (1969), “Investor Experience in New Stock Issues”. *Financial Analysis Journal*, 25: 73-80.

Ritter, J.R. (1984a), “The ‘Hot Issues’ Market of 1980”. *Journal of Business*, 57(2): 215-240.

Ritter, J.R. (1984b), “Signaling and the Valuation of Unseasoned New issues: A Comment”. Ritter, J.R. (1986), “Why new issues are underpriced”. *Journal of Financial Economics*, 15: 187-212.

Rock, K. (1986), “Why New-Issues are Underpriced”. *Journal of Financial Economics*, 15(2): 187-212.

Schillaci, C. and Faraci, R. (1999), “Institutional transition in family-owned SMEs: Ownership structure, corporate governance mechanisms and decisions-making processes”, 44th Conference of the International Council of Small Business, Presented Working Paper, Naples, Italy, June.

Shanker, M.C. and Astrachan, J. (1996), “Myths and Realities: Family Businesses’ Contribution to the U.S. Economy – A Framework for Assessing Family Business Statistics”. *Family Business Review*, Summer, 9(2).

- Steen, A.B. (1997), *Initial Public Offerings in Australia 1984 –1994, Influences on the Pricing of New Issues*, Unpublished Doctoral Dissertation, LaTrobe University.
- Sum, L.S. (1991), “Underpricing of Initial Public Offerings in Singapore: A Discriminating Test of the Information Signalling Hypotheses”. *Asia Pacific Journal of Management*, 8(2): 175-84.
- Welch, I. (1989), “Seasoned Offerings, Imitation Costs, and the Underpricing of Initial Public Offerings”. *The Journal of Finance*, 44(2): 421-49.
- White, H. (1980), “A Heteroscedasticity-Consistent Covariance Matrix and a Direct Test for Heteroscedasticity”. *Econometrica*, 48(May): 817-838.
- Woo, L. and Suchard, J. (1993), *The Pricing of Australian Resource Based Initial Public Offerings*, Working Paper School of Banking and Finance, The University of New South
- Wucinch, W. (1979), “How to Finance a Small Business”, *Management Accounting*, 30-8.

Table 1: IPO firms between 1 January 1988 and 31 December 1999

Year of Listing	All* Observations	Family Business	%	Non-Family Business	%
1988	22	4	18.2%	18	81.8%
1989	35	11	31.4%	24	68.6%
1990	15	1	6.7%	14	93.3%
1991	11	2	18.2%	9	81.1%
1992	30	4	13.3%	26	86.7%
1993	91	10	11.0%	81	89.0%
1994	102	23	22.5%	79	77.5%
1995	33	5	15.2%	28	84.8%
1996	55	12	21.8%	43	78.2%
1997	64	8	12.5%	56	87.5%
1998	44	14	31.8%	30	68.2%
1999	98	33	33.7%	65	66.3%
Total	600	127	21.2%	473	78.8%
Average Per Year	50	10.58		39.42	

** Note that 5 firms were unable to be classified and are not included in this table.*

Table 2: Industry Distribution of IPO Companies

ASX Code	Industry Group	Frequency (All Firms)	%	Family Business	%	Non-Family Business	%
081-084	Alcohol and Tobacco	18	3.00	4	0.67	14	2.33
161-162	Banking & Finance	13	2.17	0	0.00	13	2.17
071-075	Building Material	11	1.83	5	0.83	6	1.00
101-105	Chemicals	2	0.33	0	0.00	2	0.33
061-065	Developers & Contractors	22	3.67	8	1.33	14	2.33
231-235	Diversified industrials	5	0.67	0	0.00	4	0.67
031-036	Diversified Resources	4	0.67	1	1.17	3	0.50
041-047	Energy	24	4.00	2	0.33	22	3.67
111-115	Engineering	20	3.33	3	0.50	17	2.83
091-096	Goods and Household	14	2.33	4	0.67	10	1.67
011-016	Gold	72	12.00	12	2.00	60	10.00
211-215	Health Care & Biotechnology	39	6.50	8	1.33	41	5.17
051-055	Infrastructure and Utilities	7	1.17	1	0.17	6	1.00
171-172	Insurance	10	1.67	0	0.00	10	1.67
191-196	Investment and Financial Services	46	7.50	4	0.67	31	6.83
151-155	Media	32	5.00	9	1.50	21	3.50
221-228	Miscellaneous Industrials	113	18.83	32	5.33	80	13.50
021-028	Other Metals	46	7.67	7	1.17	40	6.50
121-126	Paper and Packaging	4	0.67	0	0.00	4	0.67
131-135	Retail	31	5.17	9	1.50	22	3.67
181-184	Telecommunications	40	6.67	10	1.67	30	5.00
241-243	Tourism and Leisure	21	3.33	3	0.50	17	2.83
141-144	Transport	11	1.83	5	0.83	6	1.00
	Total	600	100.0	127	21.17	473	78.83

Table 3: Fractional Ownership

Grouping	<i>n</i>	Mean	Median	SD	Min	Max	<i>t</i> –stat*	<i>df</i>	<i>sig</i>
All Observations	437	.33	.35	.29	.000	.98			
Mining/Non-Mining									
Mining	95	.23	.19	.24	.00	.81			
Non-Mining	342	.36	.42	.29	.00	.98	4.194	176	.000
Family/Non-Family									
Family	106	.53	.55	.22	0.0	0.98			
Non-Family	331	.26	.19	.26	0.0	0.95	10.37	221	.000
Mining (FB/NFB)									
Family	16	.42	.43	.18	0.0	.97			
Non-Family	79	.19	.09	.23	0.0	.96	-4.37	26	.000
Non-Mining (FB/NFB)									
Family	90	.55	.59	.22	0.0	.99			
Non-Family	252	.29	.24	.28	0.0	.98	-9.16	202	.000

* Since Levene's test has a probability of $p < .05$, equality of variances is not assumed.

Table 4: Market Adjusted Initial Underpricing

Market Adjusted Underpricing	<i>n</i>	Mean	Median	SD	Min	Max	<i>t</i> –stat*	<i>df</i>	<i>sig</i>
PANEL A									
All Observations	547	.321	.008	1.16	-1.01	13.18			
PANEL B									
Mining/Non-Mining									
Mining	139	.351	-.01	1.77	-0.06	13.18			
Non-Mining	408	.312	.10	0.86	-1.00	7.00	0.446	148	.656
PANEL C									
Family/Non-Family									
Family	112	.349	.10	1.44	-1.01	13.18			
Non-Family	401	.317	.07	1.07	-0.92	12.20	0.401	143	.689
PANEL D (Controlling for Industry Effects)									
Mining (FB/NFB)									
Family	18	1.391	.13	3.41	-.300	13.00			
Non-Family	123	0.201	-.03	1.34	-.600	12.50	-1.46	17.8*	.161
Non-Mining (FB/NFB)									
Family	97	.155	.10	.40	-.950	1.66			
Non-Family	306	.361	.10	.95	-.920	7.00	3.05	375.5*	.002

* Since Levene's test has a probability of $p < .05$, equality of variances is not assumed.

Table 5: Multiple Regression Analysis (using White's HCCM estimator) and Factorial ANOVA – Firm Value

Panel A - Multiple Regression – Fractional Ownership and Mining on Firm Value					
	Coefficient	Firm Value [§]			
		SE	t -value	Sig.	
Fractional Ownership	0.118	0.021	5.59	.000	
Mining	-0.273	0.029	-9.47	.000	
	Adjusted R ²	F-Value	Sig.		
	0.103	14.01	p < .05 (df =2, 247)		
Panel B - Factorial ANOVA – Fractional Ownership, Mining and Family Control on Firm Value					
	Firm Value [§]				
	B	SE	Eta Squared	t -value	Sig.
Parameters & Interacting Effects					
Fracowne, Mining=0, FB_NFB=0	0.901	0.399	0.021	2.262	0.025*
Fracowne, Mining=0, FB_NFB=1	0.930	0.404	0.021	2.305	0.022*
Fracowne, Mining=1, FB_NFB=0	-0.805	0.834	0.004	-1.019	0.309
Fracowne, Mining=1, FB_NFB=1	-0.990	0.937	0.005	-1.056	0.292
Between Subjects Effects (Model)					
Mining, Fractional ownership & FB_NFB	SS	29.15			
	F-	4.310	df = 4		Sig. = .002
	Value				
	Eta ²	0.067			
	Adj. R ²	0.051			
Estimated Marginal Means					
Mining – Non -Mining	Firm Value Means (\$m)				
Mining	107				
Non-Mining	79				
Mining and FB_NFB					
Fracowne, Mining = 0, FB_NFB = 0	83				
Fracowne, Mining = 0, FB_NFB = 1	115				
Fracowne, Mining = 1, FB_NFB = 0	32				
Fracowne, Mining = 1 FB_NFB = 1	181				
Levene's test of equality of error variances: F = 0 .952, df ₁ = 3, df ₂ = 243, Sig. = 0.416					

[§]Total number of shares by market price on day 20 after issue

Table 6: Multiple Regression Analysis (using White's HCCM estimator) and Factorial ANOVA – Market Adjusted Underpricing (UP2)

Panel A - Multiple Regression– Market Adjusted Underpricing (UP2) and Mining on Firm Value					
	Coefficient	Firm Value [§]			
		SE	t -value	Sig.	
UP2†	0.304	0.029	10.57	.000	
Mining	-0.274	0.026	-10.66	.000	
	Adjusted R ²	F-Value	Sig.		
	0.185	44.047	p < .01 (df =2, 393)		
Panel B - Factorial ANOVA – Market Adjusted Underpricing (UP2), Mining and Family Control on Firm Value					
	Firm Value [§]				
	B	SE	Eta Squared	t - value	Sig.
Parameters & Interacting Effects					
UP2†, Mining=0, FB_NFB=0	0.961	0.413	0.021	2.328	0.020
UP2†, Mining=0, FB_NFB=1	0.914	0.179	0.021	5.102	0.000
UP2†, Mining=1, FB_NFB=0	0.684	0.493	0.004	1.313	0.190
UP2†, Mining=1, FB_NFB=1	1.581	0.368	0.005	4.291	0.000
Between Subjects Effects (Model)					
Mining,UP2† & FB_NFB	SS	90.56			
	F-Value	12.65	df = 4	Sig. = .000	
	Eta ²	0.116			
	Adj. R ²	0.107			
Estimated Means					
Mining – Non -Mining	Firm Value Means (\$m)				
Mining	120				
Non-Mining	126				
Mining and FB_NFB					
UP2†, Mining = 0, FB_NFB = 0	120				
UP2†, Mining = 0, FB_NFB = 1	118				
UP2†, Mining = 1, FB_NFB = 0	131				
UP2†, Mining = 1 FB_NFB = 1	121				
Levene's test of equality of error variances: F = 2.04, df ₁ = 3, df ₂ = 386, Sig. = 0.109					

† Natural Logarithm

§Total number of shares by market price on day 20 after issue

Table 7: Multiple Regression Analysis (using White’s HCCM estimator) and Factorial ANOVA – Fractional Ownership

Panel A - Multiple Regression – Fractional Ownership and Mining on Market Adjusted Underpricing					
	Market Adjusted Underpricing (UP2) [†]				
	Coefficient	SE	t -value	Sig.	
Fractional ownership	0.130	0.015	8.47	.000	
Mining	0.127	0.025	4.996	.000	
	Adjusted R ²	F-Value	Sig.		
	0.025	3.90	p < .05 (df =2, 300)		
Panel B - Factorial ANOVA – Fractional Ownership, Mining and Family Control on Market Adjusted Underpricing					
	Market Adjusted Underpricing (UP2) [†]				
	B	SE	Eta Squared	t - value	Sig.
Parameters & Interacting Effects					
Fractional Ownership, Mining=0, FB_NFB=0	0.311	0.278	0.004	1.120	0.264
Fractional Ownership, Mining=0, FB_NFB=1	0.574	0.288	0.013	1.991	0.047
Fractional Ownership, Mining=1, FB_NFB=0	3.192	0.605	0.086	5.373	0.000
Fractional Ownership, Mining=1, FB_NFB=1	0.838	0.485	0.010	1.728	0.085
Between Subjects Effects (Model)					
Fractional Ownership, Mining & FB_NFB	SS	28.68			
	F-Value	7.172	df = 4		Sig. = .000
	Eta ²	0.089			
	Adj. R ²	0.077			
Estimated Means					
Mining – Non -Mining	UP2 Means				
Mining	0.936				
Non-Mining	0.199				
Mining and FB_NFB					
Fractional ownership, Mining = 0, FB_NFB = 0	0.137				
Fractional ownership, Mining = 0, FB_NFB = 1	1.488				
Fractional ownership, Mining = 1, FB_NFB = 0	0.261				
Fractional ownership, Mining = 1 FB_NFB = 1	0.385				
Levene’s test of equality of error variances:		F = 25.102, df ₁ = 3, df ₂ = 296, Sig. = .000			

[†]Natural Logarithm