# Using Prospectus and IP Information to Evaluate IPO Characteristics and Performance

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**November 2007**

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The author acknowledges the helpful comments on earlier drafts of this paper from Joy Begley, Asher Curtis, David Emanuel, Gerald Feltham, Kin Lo, Zoltan Matolcsy, Dawn Matsumoto, Merav Ozair, Shiva Rajgopal, Terry Shevlin, Peter Wells, and Julian Yeo, the comments of seminar participants at the University of British Columbia, the University of New South Wales, the University of Technology, Sydney, the University of Washington, and participants at the American Accounting Association Washington Meeting 2006. The author gratefully acknowledges the research assistance provided by Valmikeya Nagri, research funding provided by the Faculty of Economics and Commerce at the University of Melbourne and the Intellectual Property Research Institute of Australia at the University of Melbourne, the intellectual property data supplied by Intellectual Property Research Institute of Australia in collaboration with IP Australia, and the market data supplied by Securities Industry Research Centre of Asia-Pacific (SIRCA) on behalf of the data provider the Australian Stock Exchange.

***Abstract***

This study contributes new evidence from a unique data set and setting on the usefulness of the mandatory "proposed use of proceeds" disclosures in the IPO prospectus, for explaining underpricing and post-listing performance. This is the first known study other than Leone, Rock and Willenborg (2007) to provide detailed evidence on this issue. The paper also examines whether capitalized intangible assets and registered intellectual property (patents, trademarks and designs) (IP) are quality signals that help reduce underpricing and provide information about future performance. The results from this study indicate that the "use of proceeds" information is useful for evaluating the level of underpricing and future operating and market performance. Consistent with the theoretical arguments, factors that are important in interpreting the "use of proceeds" and the capitalized intangible assets and IP information are whether or not the company is in the pre-production or production phase and the amount of information provided that relates to the firm's stock of growth opportunities, concerns relating to free cash flow and corporate governance issues, whether the firm has scale economies and how well the firm performed historically, and adverse selection issues that lead to investor demand for information about the firms' growth opportunities. The results reveal a number of differences between the "use of proceeds", and their interactions with intangibles and IP, relations with future *operating* performance versus future *market* performance which suggest this information may not be readily interpretable by investors.

## 1. Introduction

This paper examines the usefulness of mandated disclosures in the initial public offering (IPO) prospectus relating to the proposed use of the issue proceeds for evaluating the underpricing of the offer and future performance.[1] Because information about growth opportunities is important in the IPO setting, this "proposed use of proceeds" information is studied in the context of accounting information in the prospectus pro forma balance sheet about intangible assets, and the extent that the IPO holds registered intellectual property rights over its assets. Disclosure of the proposed use(s) of the issue proceeds is mandatory in the IPO prospectus in some jurisdictions. These disclosures are reported by insiders and are potentially key information items for evaluating the IPO pricing and expected performance in a setting where relevant financial information is scarce. Security regulators frequently question companies lodging prospectuses about their reliability. The transparency and detail relating to the "use of proceeds" is one area of concern.[2] Despite these compliance and potential value relevance issues, the role of the proposed "use of the proceeds" disclosure for evaluating IPO prospects has received limited attention in the literature.

This paper addresses this gap in the literature. The focus of the paper is the proposed "use of the issue proceeds", which is hand collected data from IPO prospectuses, comprising the proposed use, the dollar amount and the total expected proceeds. Eight categories of proposed "uses of proceeds" are identified from the prospectus and classified as either *pre-production*

[1] Economic uncertainty and information asymmetry relating to the incentives of management and the firm's prospects are relatively higher on average in the IPO market as the firms going public are typically younger and in earlier life cycle compared to their listed counterparts (e.g., Ritter 1999). These uncertainties are reflected in the widely documented underpricing of the offer, and declining operating and stock price performance for up to five years after the IPO (e.g., Jain and Kini 1994; Loughran and Ritter 1995; Lee, Taylor and Walter 1996; Pagano, Panetta and Zingales 1998; Ritter and Welch 2002). Underpricing and underperformance has been associated with factors such as the firm characteristics including the market-to-book ratio, age and size (Ritter 1999); information asymmetry (Rock 1986); and bargaining power (e.g., Fishe 1999; Daniel 2002; Derrien 2006)

[2] For example, Lee, Taylor, Yee and Yee (1993) find management earnings forecasts in prospectus inaccurate, over-optimistic, and "blamed" on external factors such as competition. In the United States, the Securities and Exchange Commission (SEC) adopted new plain English disclosure rules effective on October 1, 1998. Further new SEC rules, effective from December 2005, have liberalized disclosure procedures but also expand the disclosure required in Exchange Act (Form 10-K) reports to encompass risk factors, voluntary filer status, well-known seasoned issuer status, and material unresolved SEC staff comments. The Australian Securities and Investment Commission (ASIC)

*related expenditures*, comprising *working capital*, *R&D,* and *exploration* that relate to growth or financing; or *production* related expenditures that relate to financing, expansion or control comprising *working capital* and investments in securities, *capital expenditures*, *acquisitions*, *repayment of debt* and *insiders selling shares* (cashing out). A ninth factor with potential corporate governance issues due to large insider controlling interests is examined. This is the *backdoor* listing phenomenon where an existing company purchases a private company and relists as a new company. Because information about the existence and value of growth opportunities is particularly important to investors in the IPO setting, two indicators of growth opportunities are also examined including recorded intangible assets in the *pro forma* balance sheet; and the IPO firms' ownership of registered intellectual property at the listing date comprising patents, trademarks and designs. This paper extends the IPO literature by exploiting a unique setting in which "use of proceeds" disclosures are required in the prospectus under company law and intangible assets are commonly reported including acquired goodwill and identifiable intangible assets, R&D assets, and internally generated identifiable intangible assets. Further, the fund-raising method of "fixed price offers" increases information asymmetry relative to settings adopting other selling mechanisms (Lee, Taylor and Walter 1996). The setting therefore provides a strong test for the prospectus information due to the absence of other information avenues (e.g., book building and "road shows").

The results from this study indicate that the "use of proceeds" information is useful for evaluating the level of underpricing and future operating and market performance. Consistent with the theoretical arguments, factors that are important in interpreting the "use of proceeds" and the capitalized intangible assets and IP information are whether or not the company is in the pre-production or production phase and the amount of information provided that relates to the firm's stock of growth opportunities, concerns relating to free cash flow and corporate governance issues,

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"consistently identified problems with prospective financial information as a leading cause of ASIC issuing stop

whether the firm has scale economies and how well the firm performed historically, and adverse selection issues that lead to investor demand for information about the firms' growth opportunities.

The results reveal a number of differences between the "use of proceeds" and interactions with intangibles and IP associated with future *operating* performance versus future *market* performance. For example, there is the incremental value relevance of R&D "use of proceeds" companies for five years after listing while the R&D "use of proceeds" is not significant in the operating performance tests suggesting this group of firms does not perform well on average up to seven years after going public. Another example is the *purchased goodwill interactions* with repayment of debt, capital expenditures and insider selling which are all positively and significantly associated with *market* performance. However, none of these interactions are associated with the firms' post-listing *operating* performances over the same seven year period.

These differences could be due to omitted correlated variables, or to lead-lag relations between operating performance and market value in which expected value is reflected in market value before it appears in earnings. Another possibility is that investors do not understand the implications of different types of capitalized intangible assets and IP for the operating performance of different types of firms. This could be because the value relevant intangibles and IP change over time or vary across industries and strategies. Another possibility is that investors do not take into account the difference between intangibles and IP that are already mature and generating only a normal return and intangibles and IP that have yet to mature and are therefore capable of generating rents into the future.

This study contributes to the IPO literature in several ways. First, using hand-collected data from prospectus, this paper contributes new evidence and raises many questions relating to the usefulness to investors of mandated information concerning the new issuers' "use of proceeds"

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orders since the mid-1990s" (ASIC Draft Policy Statement 170.22 2001).

disclosures. Leone, Rock and Willenborg (2007) is the only other known study that examines the "use of proceeds" disclosures in the prospectus. This study builds on their work, which focuses on the amount of the disclosures rather than the underlying economics as in the current study. Further the Leone et al study is set in the US setting where book building is used as opposed to fixed offers as in the current setting. Second, this study contributes new evidence to the long-running debate on the reliability of recorded intangible assets and the signal conveyed by registered property rights.. Recorded intangible assets in prospectus have received limited attention in the United States setting due to accounting rules that prohibit the recognition of intangible assets. This censure of recorded intangible assets has renewed prominence with the issue of IAS 38 Intangible Assets by the International Accounting Standards Board (IASB). IAS 38 takes a strict stance to effectively prohibit recording of all but purchased intangible assets. Since the United States Financial Accounting Standards Board (FASB) is committed to the international harmonization of accounting standards, the strict stance already adopted by the FASB is destined to continue. There is a growing body of literature studying quality weighted IP measures because individual patents, trademarks and designs vary widely in value (see Wyatt 2007). Intangibles on the other hand are subject to accounting regulations which theoretically should lead to more reliable information. However, differences in the investors' perceptions of the signal conveyed by intangibles compared to their relation with operating performance raises questions about the interpretability of intangibles under the current regulatory approach.

The remainder of this paper is organized as follows. Section 2 presents the hypothesis development; Section 3 provides background on the setting and sample statistics. Section 4 provides the empirical analyzes and Section 5 concludes the study.

## 2. Theoretical Framework and Hypothesis Development

Figures 1 and 2 provide an overview of the "uses of proceeds" and the theory and hypotheses developed in this section. We begin in Section 2.1 with a description of the "proposed use of proceeds" from the prospectus.

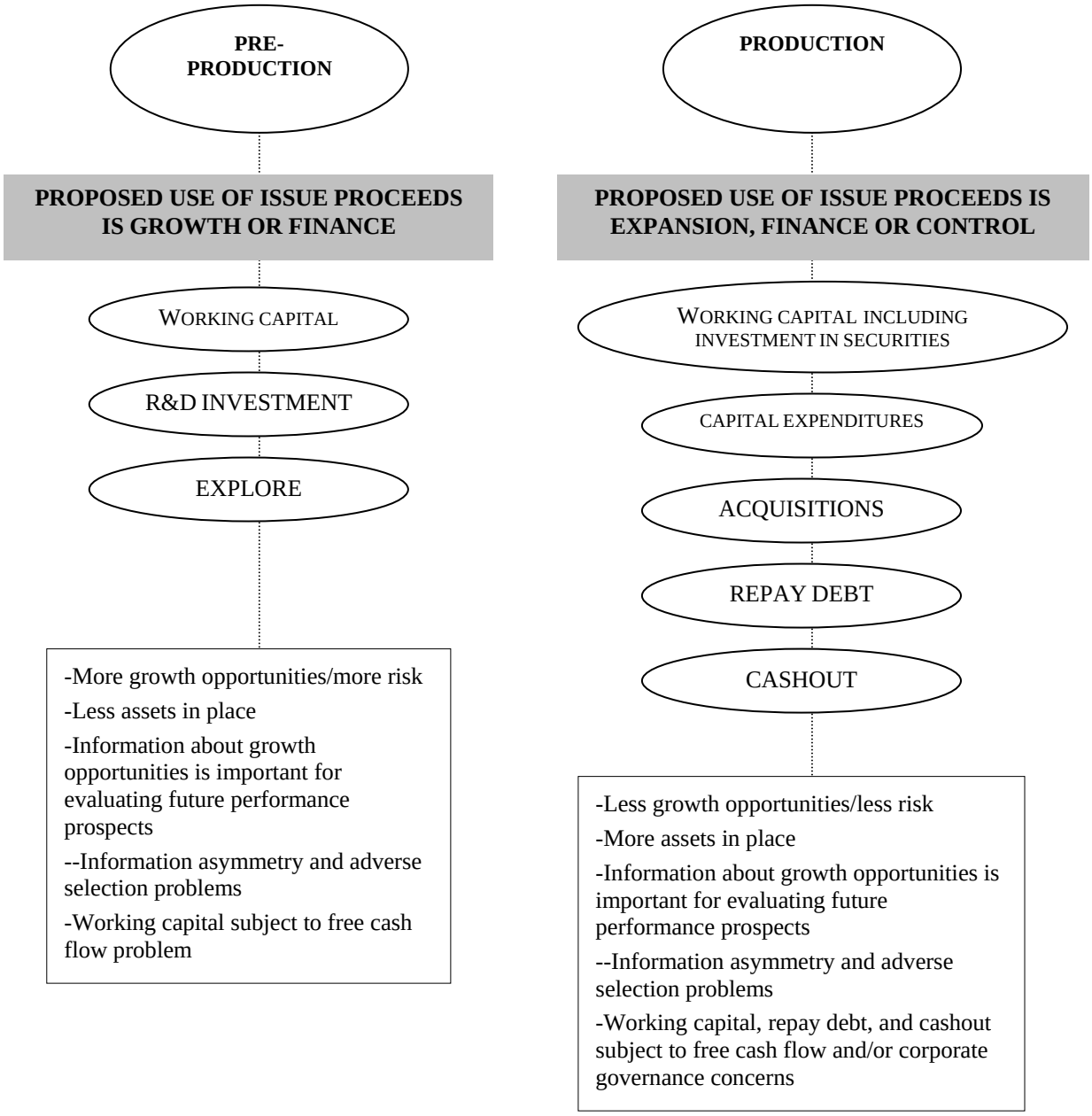
*2.1 Classification of the "Proposed Use of Proceeds"*

This study is conducted in the Australian setting where the security regulator, the Australian Securities and Investments Commission, requires that IPOs disclose their proposed use of the issue proceeds in the prospectus including the "use" and the dollar amount proposed to be allocated to that "use". The ASIC requirement stems from the content requirement for prospectuses set out in Section 710 of the Corporations Act 2001(Cth). Inadequate disclosure relating to the "use of proceeds" has been the subject of ASIC actions (ASIC 2006). The standard of disclosure envisaged by the securities regulator is "all information that would enable investors and their professional advisers to make an informed assessment of the issuer's prospects" (Policy Statement 170 Prospectus Financial Information, 2002 PS 170.10). Commercial benefits do not justify withholding information from investors (Draft Policy Statement: Better Prospectus Disclosure, PS No. 66, ASIC 2006, para. 67). An example of inadequate disclosure is designating all proceeds are to be used for working capital.

The IPOs' proposed "use of the offer proceeds" was manually collected from the prospectus including the proposed use of proceeds, the dollar amount allocated to each use, and the total expected proceeds. As summarized in Figure 1 and described in Table 1, eight major proposed uses for the issue proceeds were identified from the sample firm's prospectuses (the sample is discussed later) including: (1) working capital; (2) investment in securities; (3) R&D

investment; (4) exploration; (5) capital expenditures; (6) acquisitions; (7) repayment of debt; and (8) founders selling shares.[3]

**Figure 1 "Proposed Uses of the Issue Proceeds"**




In approximately 25 percent of the prospectuses, extensive reading was required to determine the proposed use of the proceeds and amounts allocated to each proposed use. The remaining 75 percent of the sample firms' prospectuses clearly tabulated or discussed the firm's

[3] The seven uses identified by Leone et al (2007) in the US setting include: (1) repay debt; (2) acquisition or expansion; (3) advertising, marketing, promotion and sales; (4) working capital; (5) R&D; and (6) selling by pre-IPO

proposed use of proceeds in the text. Below is an example of the classification of proposed expenditures for the Australian Tourism Group. The text is reproduced from the company's prospectus and the right hand column shows the classification.

PURPOSE OF THE ISSUE
The purpose of the issue is to raise $50 million in new funds to enable ATF and ATC to:

| | | |
|---|---|---|
| * repay bank debt | $30.7m | REPAY |
| * develop the existing asset portfolio through addition of | | |
| Rooms and refurbishment | $5.2m | WC |
| * fund the purchase and upgrading of Country Comfort Inn | | |
| Mudgee (refer Section 11.9) | $4.7m | CAPEX |
| * pay final call on partly paid units in Reef Casino Trust due on | | |
| 1 April 1995 (refer Section 6.2) | $4.8m | WC |
| * meet issue expenses | $3.8m | WC |
| * pay stamp duty on leases | $0.8m | WC |
| | $50.0m | |

For expenditures to be classified as capital expenditures (USE_CAPEX) or acquisitions (USE_ACQUIRE), the company must *specifically* identify the commitment to which the proceeds are allocated. Otherwise, the expenditures are classified as working capital. For example, the the $5.2 million item in the Australian Tourism Group example is flagged as a capital expenditure but there is no firm commitment to a specific capital investment disclosed in the prospectus. Hence, the amount is conservatively classified as working capital. This approach implicitly assumes unsubstantiated "proposed expenditures" are unreliable which is consistent with the ASIC concern with, and evidence documenting, consistent incidences of unsubstantiated disclosures in the prospectus.[4] Accounting conservatism is also consistent with this coding approach as contingent assets cannot be capitalized: i.e., capital expenditures imply the existence of a long lived asset.

investors; and (7) other.

[4] For example, http://www.asic.gov.au/asic/asic_pub.nsf/byheadline/06-027+ASIC+releases+draft+guidance+on+shorter,+better+prospectuses?openDocument
ASIC has draft guidelines for issuers and advisers on the preparation of prospectuses. The policy statement also provides guidance on specific prospectus content issues including: risk disclosure and the use of proceeds of the fundraising.

One additional factor which is also examined alongside these proposed uses of proceeds is "backdoor" listings. Sixty-two of the 241 in the IPO sample employed in this study involve a new core business through a backdoor listing. "Backdoor listing" involves an existing public company purchasing a private or public company by issue of shares and options. Relisting of inactive mining companies as dot com companies is the most common "backdoor" transaction. Backdoor purchase and capital raisings are undertaken in accordance with a prospectus lodged with ASIC and ASX. Usually the public listed company is suspended from trading on the Australian Stock Exchange (ASX) or is inactive at the time of the transaction. Gillespie (2002) provides an example of a typical share structure for this type of arrangement as follows.

| Shares Issued | Number of Shares | Capital |
|---|---|---|
| Existing Shares on Issue in Mining Ltd | 3,825,000 | 1,577,500 |
| Shares issued to buy 'XY dot com' Company | 20,000,000 | 10,000,000 |
| Shares offered under additional Capital Raising Prospectus | 10,000,000 | 5,000,000 |
| TOTAL | **33,825,000** | **$16,577,500** |

Corporate governance issues arise with backdoor listings because the owner and founder of the company taken public is usually a significant blockholder in the new IPO company. In Gillespie's (2002) example above, the founder effectively receives the 20 million shares giving the founder two-thirds of the company's shares and complete control over the Board of the new company. Gillespie (2002) reports anecdotally that for small cap public companies, the firm value decreases for insider blockholdings in excess of 25 percent due to the lack of power of the Board to enforce good corporate governance. This form of IPO therefore has characteristics that would be expected to impact the level of underpricing of the offer and investor expectations of post-listing performance.

Table 1 summarizes the proposed use of proceeds variables employed in this study.

PUT TABLE 1 ABOUT HERE

Table 2 Panel B provides summary statistics for the eight uses of proceeds.

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Only nine IPOs did not nominate any allocation of proceeds to working capital. Consistent with the ASIC concerns relating to the transparency and clarity of reporting of the proposed uses of proceeds, thirty-seven companies out of the 241 in the sample proposed working capital as the primary usage for 100 percent of their issue proceeds. For example, Mobile Communication Holdings Limited included the following proposed use for the issue proceeds:

> "Directors intend to utilise the cash in order to pay the costs of the issue, to provide working capital for the Company and through it, Mobiletronics, MDT and United Telecommunications." (Section 1 Investment Review).

Consistent with prior evidence (e.g., Pagano, Panetta and Zingales 1998), 38.6 percent of the firms planned to repay debt with the issue proceeds. The maximum dollar amount of debt repayment is 96.3 percent of the total issue. Pagano et al (1998) find "debt repayment" issuers are mature firms with few apparent growth options. Also consistent with Zingale's (1995) proposal that "going public" is a step in the sale of a company by its initial owner, 21.6 percent of the sample firms had vendors selling their shares in the company.[5] Four companies had founders selling 100 percent of their shares while untabulated statistics show there are 29 companies (12 percent of the sample) with founders selling 50 percent or more of their shares. In relation to the dollar amounts that the IPOs proposed to allocate to the various listing purposes, deflated by the total offer amount, working capital has the largest mean and median, 50.7 and 45.1 percent of the issue respectively. Allocations to R&D have a mean of 2.7 percent of the total issue and ranging from a minimum of zero dollars up to 70 percent of the total issue. The standard deviation of the

[5] This is a conservative estimate of cashing out as vendors often timed their sale of shares with the public issue, advertised the sale in the prospectus, but apparently managed their sale of founding shares separately from the public issue. If these were included the percentage of cashouts would be higher.

uses of proceeds relative to the total issue is highest for working capital, cashout, and explore, and lowest for R&D reflecting the smaller dollar amounts of the total issue.

*2.2 Pre-Production and Production Related Expenditures*

Figure 1 distinguishes the IPO firms and their proposed use of proceeds on the basis of the firm's investment type, specifically, whether the companies are proposing to use the proceeds for *pre-production* investments (USE_RD or USE_EXPLORE) or financing (USE_WC) or use the proceeds for *production* including expansion (USE_CAPEX, USE_ACQUIRE), financing (USE_WC, USE_REPAY) or control transactions (i.e., USE_CASHOUT is the selling of founder's shares).

The significance of the pre-production/production categorization relates to the distinction between growth firms with growth opportunities versus established firms with more assets in place and fewer growth opportunities. Firms can increase their assets and earnings without increasing stock price if the internal rate of return on the firm's investments does not exceed the cost of capital (Miller and Modigliani 1961). Growth due to growth opportunities and a return on investment above the cost of capital is distinguished from expansion of production that grows assets and earnings over time but does not generate value above the cost of capital (Chung and Chareoenwong 1991). The pre-production related "use of proceeds" in Figure 1 relate to growth opportunities and possible future rents. In contrast, the goal to use the proceeds for expansion of production does not have implications for future rents and value in the absence of other information about the existence of growth opportunities.

Further, some proposed uses of the proceeds are not directly funding growth. These uses of proceeds include repayment of debt, working capital for firms already in production, and firms with insiders selling. While these companies might be intending to grow, the proposed use of

proceeds is expected to be insufficient information on its own without information about the existence of growth opportunities, for evaluating pricing and future performance.

*2.3 Information Asymmetry*

Information asymmetry relating to the incentives and skills of management and the firm's prospects, and among differentially informed investors, is relatively higher for IPO companies compared to listed companies with a public financial history. Firms going public are typically younger and in earlier life cycle compared to their listed counterparts (e.g., Ritter 1999).

The dominant source of information for evaluating the expected performance of IPOs is growth opportunities rather than assets in place since growth opportunities relate to future rents and value creation (e.g., Ambarish, John and Williams 1987). Pre-production "uses of proceeds" relate to growth including the pre-production R&D and exploration investments. These expenditures are more risky than the expansion type investments comprising capital expenditures and acquisitions (e.g., Chung and Chareoenwong 1991). This suggests a positive association between pre-production R&D and exploration investments and the underpricing of the offer. Pre-production R&D and exploration investments are expected to be value relevant due to the forward looking nature of growth investments and stock prices.

H1: Proposed use of proceeds with growth implications (RD, EXPLORE) are positively related to underpricing and are related to future operating and stock performance.

No sign is predicted for the relation between pre-production R&D and exploration investments use of proceeds and future operating and stock performance because risky investments can succeed or fail.

In relation to the "use of proceeds" relating to production, the value of assets in place and growth opportunities of the more established IPOs are known to managers but not outsiders (by

definition of listing for first time). In the absence of information indicating the existence of growth opportunities, "use of proceeds" relating to expansion of production comprising capital expenditures and acquisitions (USE_CAPEX and USE_ACQUIRE) are not expected to have stock price implications (Chung and Chareoenwong 1991). There might be other information in the prospectus or elsewhere that is informative about the value of the offer and future stock performance but the CAPEX and ACQUIRE proposed uses of proceeds are not expected to be informative on their own about the firms' ability to generate future rents.

H2: In the absence of other information about growth opportunities, proposed use of proceeds for expansion (CAPEX, ACQUIRE) are not related to underpricing and future stock performance.

*2.4 Free Cash Flow and Corporate Governance Issues*

Concerns have been raised by ASIC about the transparency and clarity of prospectus disclosures relating to the purpose to which the issue proceeds will be applied. One area of concern is companies disclosing that 100 percent of the proceeds will be used for working capital (USE_WC). Since it is unclear how this use of proceeds can create value, nominating working capital raises concerns about free cash flow abuses. Jensen (1986) proposed the free cash flow theory that managers with incentives to grow the firm to a sub-optimal size spend the free cash flows in excess of the firm's positive NPV projects wastefully. In the IPO setting, without other information indicating the existence of growth opportunities to which the working capital might be applied, investors are expected to respond negatively when working capital is the proposed "use of proceeds", leading to a positive (negative) relation between the working capital "use of proceeds" and underpricing (future stock performance).

The other two "use of proceeds" for which the long-term performance implications are unclear is the repayment of debt (USE_REPAY) and the situation where founders are selling

shares (USE_CASHOUT). Pagano, Panetta and Zingales (1998) find that IPO's listing to fund a recapitalization of debt are mature firms that have already grown and appear to have few growth opportunities suggesting recapitalization of debt is a negative signal about the IPO's future performance. Insider selling is also a negative signal (Leland and Pyle 1977). Selling is viewed negatively by investors because selling by founders reduces the alignment between insider and new shareholder interests increasing the chances of agency conflicts. This is compounded by possible adverse selection problems due to the high level of information asymmetry. On top of these uncertainties, Ang and Brau (2003) find that insiders selling shares are successful in taking deliberate actions to hide the number of shares they are selling. They find that the founders benefit from concealing because the strategy is activated only if higher demand for the shares is revealed between the original and subsequent amendment filings. Finally, there is a high level of information asymmetry surrounding BACKDOOR listings and possible corporate governance issues relating to the founder's controlling interest in the new IPO (as discussed in Section 2.1). Investors are therefore uncertain about the IPO insiders' incentives, and the firm's growth opportunities and value which leads to the following hypothesis.

H3: In the absence of other information about growth opportunities, BACKDOOR listings, use of proceeds to relieve financial constraints (USE_WC, USE_REPAY), and use of proceeds to pay insiders selling their stock (USE_CASHOUT) are positively (negatively) related to underpricing (future stock price performance).

### *2.5 Minimum Economic Scale and Post-Listing Operating Performance*

An increasing proportion of IPOs are weak firms and/or firms that take on long-term risky projects which is associated with a declining rate of IPO survival (Fama and French 2003). Audretsch (1995) shows that an important element of survival for new firms entering product markets is the firm's ability to quickly reach the minimum efficient scale (MES) in the industry.

He finds that firm survival (growth) is positively (negatively) related to firm size. Given the dramatic decline in the survival rate of IPOs documented by Fama and French (2003) over several decades, it is predicted that the IPOs that have positive operating performance in the foreseeable future are the established IPOs at the listing date already generating revenues from production.

H4: The proposed "uses of proceeds" for established firms (already in production) at the IPO date are positively related to future operating performance.

*2.6 Adverse Selection*

The high levels of information asymmetry in the IPO setting create the potential for adverse selection problems (Downes and Heinkel 1982). If there are some informed investors that have superior information relative to the firm and other investors, then the issuer will have to underprice the stock to induce the uninformed investors to participate (Rock 1986). To maximize the demand for the IPO and the proceeds of the issue, the IPO insiders have incentives to signal favorable information that they hold about their firm's unobservable growth opportunities (Verrecchia 1983; Dye 1985). This type of disclosure is one of the costs of going public which the issuers trade-off against the benefits of access to public proceeds and information intermediaries. In fact, the IPO issuers have potentially strong disclosure incentives even in the face of proprietary costs of disclosure because of strong demand from investors for information about growth opportunities.

Signals relating to alterable, observable characteristics of the firm that are costly to mimic can distinguish potentially profitable IPOs from unprofitable IPOs (Spence 1973). Underlying growth options are not generally observable. Two possible signals are capitalized intangibles in the pro forma balance sheet in the prospectus, and registered intellectual property (patents, trademarks, and designs) (IP) which are readily searchable on the public databases of the patent office.

A large number of studies using different research designs, settings, and financial and market-based measures of value suggest that reported intangible assets and researcher constructed assets (e.g., from the firm's expenditures on advertising or R&D) are value relevant (see the review in Wyatt 2007). Reported intangibles that do not lead to future rents on average impose a future cost on the disclosing firm in terms of a loss of the firm's reputation for credible reporting (Healy and Palepu 1993). In a setting where GAAP allows the reporting of internal and acquired intangible assets, the negative stock price effects of investors' speculations about the information issuers are withholding is expected to motivate the reporting of intangible assets if the firm has valuable underlying intangibles (Verrecchia 1983; Dye 1985).

Signaling using IP is costly due to the research and development up front and the application costs including the IP attorney's remuneration and patent office fees. The registered IP provides forward-looking information about the nature and period of the issuers' monopoly over the expected benefits from an invention. The patent, trademark, and designs specify the details of the "invention", prior related IP, technology classifications, and the period of the monopoly. IP infringements by competitors are regulated through the courts. Registered IP is direct evidence of property rights. An inability to obtain property rights over the expected benefits from investment is a key uncertainty that adversely affects the firm's ability to realize the expected benefits from investment (Webster 1999). Registered and expected (to be registered) intellectual property is a form of verification that the firm has generated an invention and the firm has some control over access and use of the invention. While inventions vary greatly in their expected value (Griliches 1990), compared to investment with no legal property rights, the firm with IP has verifiable evidence of growth opportunities. Consistent with this argument, a review of the prospectuses indicates that issuers tend to highlight the IP protection.

It is therefore proposed that the firms with better prospects (more valuable growth opportunities) capitalize intangible assets (obtain IP) to signal quality consistent with Spence (1973) and Leland and Pyle (1977).

H5: Capitalized intangibles and IP are negatively related to underpricing and positively related to future stock price and operating performance.

Reported intangible assets and IP are also expected to provide incremental information about growth opportunities so that interactions with the "proposed use of proceeds" are value relevant. The positive information effect is expected to be strongest for the pre-production R&D investment (USE_RD) because these firms are directly engaged in exercising growth opportunities. For exploration firms (USE_EXPLORE), the strength of any relation is an empirical issue due to the area of interest basis of accounting which is similar to full cost accounting for oil and gas in the US. The effect of the area of interest accounting is that the firm's exploration "asset" includes all expenditures outlaid not just those expected to generate future benefits until commercial feasibility is known.

For the other "uses of proceeds", the incremental (interaction) effect can be positive or negative depending on the level of demand/relative importance of information about growth opportunities compared to assets in place; and also on the credibility of the CAP and IPlist information in signaling future rents relative to investors' perceptions of the extent the firm has valuable underlying intangible assets.

H6: Capitalized intangibles and IP condition the relation between the "use of proceeds" variables and underpricing, future stock price, and operating performance.

## Figure 2 Summary of the Hypotheses

| | Underpricing | Future Operating performance | Future stock performance |
|---|---|---|---|
| **Hypothesis 1** *Proposed use of proceeds with growth implications (RD, EXPLORE) are positively related to underpricing and are related to future operating and stock performance.* | | | |
| USE_RD | + | +/- | +/- |
| USE_EXPLORE | + | +/- | +/- |
| **Hypothesis 2** *In the absence of other information about growth opportunities, proposed use of proceeds for expansion (CAPEX, ACQUIRE) are not related to underpricing and future stock performance.* | | | |
| USE_CAPEX | Insignificant | | Insignificant |
| USE_ACQUIRE | Insignificant | | Insignificant |
| **Hypothesis 3** *: In the absence of other information about growth opportunities, proposed use of proceeds to change/establish new core business (BACKDOOR), relieve financial constraints (WC, REPAY), or sell cash flow and control rights (CASHOUT) are positively (negatively) related to underpricing (future stock price performance).* | | | |
| BACKDOOR | + | | - |
| USE_WC | + | | - |
| USE_REPAY | + | | - |
| USE_CASHOUT | + | | - |
| **Hypothesis 4** *The proposed "uses of proceeds" for established firms (already in production) at the IPO date are positively related to future operating performance.* | | | |
| USE_WC | | + | |
| USE_CAPEX | | + | |
| USE_ACQUIRE | | + | |
| USE_REPAY | | + | |
| USE_CASHOUT | | + | |
| **Hypothesis 5** *Capitalized intangibles and IP are negatively related to underpricing and positively related to future stock price and operating performance.* | | | |
| CAP | - | + | + |
| IPlist | - | + | + |
| **Hypothesis 6** *Capitalized intangibles and IP condition the relation between the "use of proceeds" variables and underpricing and future stock price and operating performance. Negative sign for USE_RD and no sign for other "use of proceeds".* | | | |
| BACKDOOR*CAP or IPlist | +/- | +/- | +/- |
| **PRE-PRODUCTION** | | | |
| USE_WC*CAP or IPlist | +/- | +/- | +/- |
| USE_RD*CAP or IPlist | - | + | + |
| USE_EXPLORE*CAP or IPlist | +/- | +/- | +/- |
| **PRODUCTION** | | | |
| USE_WC*CAP or IPlist | +/- | +/- | +/- |
| USE_INVEST*CAP or IPlist | +/- | +/- | +/- |
| USE_CAPEX*CAP or IPlist | +/-- | +/-- | +/-- |
| USE_ACQUIRE*CAP or IPlist | +/- | +/- | +/- |
| USE_REPAY*CAP or IPlist | +/-- | +/-- | +/-- |
| USE_CASHOUT*CAP or IPlist | +/-- | +/-- | +/-- |

## 3. Setting and Sample Statistics

### *3.1. Institutional Setting*

The Australian setting presents a unique opportunity to study prospectus disclosures. First, the proposed "use of proceeds" disclosures are required by the security regulator as previously outlined. Second, management has the choice to record intangible assets in the prospectus. Prior to the 1 January 2005 adoption of AASB 138 Intangible Assets (IAS 38 Intangible Assets), Australian companies had the discretion to capitalize purchased goodwill, research and development, and acquired and internally generated identifiable intangible assets.

Similar to the recent FASB business combinations standard (SFAS 141), AASB 1015 *Acquisition of Assets* required (pre-2005) purchased identifiable intangible assets from a business combination to be recorded at fair value. Internally generated identifiable intangible assets (except internal goodwill) were unregulated in the 1994-2000 period of this study, giving management wide discretion. AASB 1013 *Accounting for Goodwill* prohibited the recognition of internally generated goodwill. However, internal goodwill is not a well-defined item and some observed internally generated identifiable intangible assets fit the internal goodwill category (e.g., recorded assets labeled as "proprietary technology").

Third, Australian issuers and investors do not have information revelation from formal book building before the issue. Instead, a fixed price mechanism operates in which the issuer and underwriter commit to a fixed offer price in the prospectus an average of 65 days before trading commences. The primary information source is therefore the prospectus, increasing the probability that investors rely on this information and therefore the relevance and power of the tests.

### *3.2. Sample and Data*

To ensure only "unseasoned" issues are included in the sample, the sample excludes foreign owned or affiliated companies, companies either previously listed on or registered on a foreign

stock exchange before listing on the ASX, companies formed through a Scheme of Arrangement, trust companies, and privatized public sector entities. The final sample comprises 241 IPOs with a prospectus available on the Connect4 database that listed between June 1994 and December 2000. Concluding the sample at December 2000 permits after market performance to be examined.

Data manually collected from the prospectus includes: the dollar breakdown of the "proposed use of the issue proceeds"; recorded intangible assets in the prospectus; financial characteristics of the firm at the time of initial public offering; historical (pre IPO) performance data (if any); the details of the offer; the identity of the underwriter and auditor and investigating accountant; and management earnings forecasts. Share price data are extracted from the CRIF Share Price Relatives (SPPR) database and SIRCA to compute underpricing and post listing stock price performance. Subsequent (post listing) data is obtained from IRESS Technologies and ASPECT Financial databases. The Intellectual Property Research Institute of Australia in collaboration with IP Australia provided the firm level IP data including at the listing date, patent applications, patents, trademarks and designs; and for each of five years after the listing date, the number of patents, trademarks and designs granted by the patent office. Table 1 summarizes the data and variables employed in the study.

Table 2 provides summary statistics for the sample of IPOs. In Panel B, the retained ownership is a mean 55.1 percent (median 57 percent) while 54 IPOs (22.4 percent) issued shres with warrants attached indicating these firms are very risky. There is a large variation in the offer size ranging from $0.337 million to $400 million. Panel D shows the mean intangible assets to total assets ratio is about the same as prior studies for seasoned companies (i.e., about 10 percent: Wyatt 2005; Ritter and Wells 2006). Intangible assets comprise purchased goodwill, capitalized R&D, and identifiable intangible assets including items such as patents, trademarks, designs, licenses, brands, software, film and broadcasting rights, and technology under development. Fifty-seven percent of the sample capitalizes intangible assets. Goodwill, identifiable intangibles and

R&D are capitalized by 32 percent, 39 percent and 23 percent of the sample, respectively. In Panel F, only 2.1 percent of the sample has a count of IP at listing date that is greater than 20 and less than 73. Fourteen firms have greater than 10 IP at listing date and 31 firms have greater than two. In the post-listing five years, 19.1 percent of the sample is granted IP which is similar to the 20.1 percent of the sample firms holding IP at the listing date. Panel G shows a mean underpricing of 22.2 percent with a large range between the maximum of 342.0 percent and a minimum (overpricing) of -75.0 percent. The largest firm was $805 million at listing date to an average of $2,310 million over the seven years after the listing date, growth of 34.8 percent. However, the mean and median average operating performance and free cash flows over the seven years after listing are all negative.

## 4. Empirical Analyses

### *4.1 Empirical Models*

Table 1 summarizes the measurement of all the variables referred to in this section. To test the underpricing hypotheses summarized in Figure 1, equations (1) and (2) are estimated using ordinary least squares regressions.

$$\begin{aligned} UND_{i,t} = {} & \chi_0 + \chi_1 LOG(Age)_{i,t} + \chi_2 BACKDOOR_{i,t} + \chi_3 LOG(Offer)_{i,t} + \chi_4 RETAIN_{i,t} + \\ & \chi_5 DELAY_{i,t} + \chi_6 PIPO_{i,t} + \chi_7 HOT_{i,t} + \chi_8 UWRITER_{i,t} + \chi_9 AUDQUAL_{i,t} + \chi_{10} FORECAST_{i,t} + \\ & \chi_{11}\mathbf{USE}\_WC_{i,t} + \chi_{12}\mathbf{USE}\_RD_{i,t} + \chi_{13}\mathbf{USE}\_Explore_{i,t} + \chi_{14}\mathbf{USE}\_Repay_{i,t} + \chi_{15}\mathbf{USE}\_Capex_{i,t} + \\ & \chi_{16}\mathbf{USE}\_Acquire_{i,t} + \chi_{17}\mathbf{USE}\_Invest_{i,t} + \chi_{18}\mathbf{USE}\_Cashout_{i,t} + \chi_{19} CAP_{i,t} + \chi_{20} IPlist_{i,t} + \\ & + \chi_{21}(CAP_{i,t} * IPlist_{i,t}) + \chi_{22}(\mathbf{USE}_{j,i,t} * CAP_{i,t}) + \chi_{23}(\mathbf{USE}_{j,i,t} * IPlist_{i,t}) + \chi_{24}(\mathbf{USE}_{j,i,t} * CAP_{i,t} * IPlist_{i,t}) \\ & + \varepsilon_{i,t} \end{aligned} \quad (1)$$

Equation (2) disaggregates the CAP and IPlist variables to test Hypothesis 6. Hypothesis 6 predicts that the capitalized intangible assets (CAP) and IP at the listing date will condition the relation between underpricing and the "use of proceeds" variables. However, CAP and IPlist include sub-sets of intangible assets and IP which are not relevant for all firms. For example,

capitalized extractive industry intangible assets comprising exploration and evaluation costs and mining tenement assets are not relevant to other industries. Therefore to test the underpricing prediction in Hypothesis 6, the CAP and IPlist variables are disaggregated. Equation (2) is estimated separately for each of the eight "use of proceeds" variables.

$$\begin{aligned}UND_{i,t} = {} & \chi_0 + \chi_1 BACKDOOR_{i,t} + \chi_2 \mathbf{USE}_{j,i,t} + \chi_3 LOG(Age)_{i,t} + \chi_4 LOG(Offer)_{i,t} + \chi_5 RETAIN_{i,t} \\ & + \chi_6 DELAY_{i,t} + \chi_7 PIPO_{i,t} + \chi_8 HOT_{i,t} + \chi_9 UWRITER_{i,t} + \chi_{10} AUDQUAL_{i,t} + \chi_{11} CAP\_GW_{i,t} + \\ & \chi_{12} CAP\_RD_{i,t} + \chi_{13} CAP\_IIA_{i,t} + \chi_{14} CAP\_EXTRACT_{i,t} + \chi_{15} Patapplic_{i,t} + \chi_{16} Patent_{i,t} + \\ & \chi_{17} Trademark_{i,t} + \chi_{18} Design_{i,t} + \chi_{19} IPpost_{i,t} + \chi_{20} (\mathbf{USE}_{j,i,t} * CAP\_GW_{i,t}) \\ & + \chi_{21} (\mathbf{USE}_{j,i,t} * CAP\_RD_{i,t}) + \chi_{22} (\mathbf{USE}_{j,i,t} * CAP\_IIA_{i,t}) + \chi_{23} (\mathbf{USE}_{j,i,t} * CAP\_EXTRACT_{i,t}) + \\ & \chi_{24} (\mathbf{USE}_{j,i,t} * Patapplic_{i,t}) + \chi_{25} (\mathbf{USE}_{j,i,t} * Patent_{i,t}) + \chi_{26} (\mathbf{USE}_{j,i,t} * Trademark_{i,t}) + \\ & \chi_{27} (\mathbf{USE}_{j,i,t} * Design_{i,t}) + \varepsilon_{i,t} \end{aligned} \quad (2)$$

As summarized in Table 1, the underpricing measure (UND) is the closing price, $P_1$, on the first day of listing minus the offer price, $P_0$, divided by the offer price, $P_0$.

Equations (1) and (2) include variables previously related to underpricing as summarized in Table 1. Earnings forecasts are commonly observed in the prospectus. For example, How and Yeo (2001) find about 75 percent of IPO firms (in the post-Corporations Law period) voluntarily provide point estimates of earnings.[6] How and Yeo (2001) find the market penalizes firms that fall short of the earnings forecasts provided in their prospectus. The earnings forecast (FORECAST) for year 1 (or zero if no forecast is provided in the prospectus) is included in equation (1). No sign is predicted.

Firm age and size proxy for the life cycle stage of the firms, which affects the amount of risk. Firm age (AGE) is the number of days from incorporation to listing date. Smaller values of AGE indicate the IPO is in earlier life cycle, more speculative and uncertain (Audretsch 1995).

[6] Section 1022(1) of the Corporations Law requires prospectus to contain all information that investors and their professional advisers would reasonably require and expect to find for the purpose of making an informed decision.

The size measure is offer size, is also included comprising the offer price multiplied by the number of ordinary shares offered (OFFER).

The demand for the issue is also associated with underpricing. The proxy employed for the demand for the issue is the number of days from the date of the prospectus registration to the listing date (DELAY). The shorter the delay period (DELAY) the higher the level of demand from informed investors, and the more underpricing is needed to overcome the information disadvantage of uninformed investors (Rock 1986), leading to a negative association between the delay and underpricing (e.g., Lee et al 1996). How and How (2001) provide evidence that firms issuing stock with warrants attached, which are options to buy additional shares, have higher information asymmetry and are riskier compared to other firms, consistent with the Chemmanur and Fulghieri (1997) signaling hypothesis. Accordingly a dummy variable is included for packaged IPOs equal to one if the issue is a joint offering of common shares and warrants, and zero otherwise (PIPO). A dummy variable also controls for "hot" issue periods equal to one for hot issue periods and zero otherwise (HOT). A 'hot issue' period (HOT) is one of very high volume of IPOs following a period of very high initial returns (Ritter 1984). These can be accompanied by higher than usual pricing errors (e.g., Logue and Lindvall 1974). Based on the returns of prior IPOs, in the sample period, the hot issue period is October 1996 to June 2000.

Equations (1) and (2) include proxies for agency conflicts comprising the level of ownership retained by the original owners of the IPO (RETAIN), and the quality of the underwriter (UWRITER) and auditor and investigating accountants (AUDQUAL). Retained ownership signals the quality of the issue and is associated with lower underpricing (Leland and Pyle 1977).[7] Underwriters and auditors/accounting firms with a higher reputation have been

[7] Although, this signal can be misleading if some issuers sell their secondary shares but try to hide the sale to avoid sending a negative signal (Ang and Brau 2003).

associated with lower underpricing of new issues (e.g., Beatty and Ritter, 1986). Prior studies suggest this effect is due to a reduction in the *ex ante* uncertainty surrounding the IPO.[8]

Equations (3)-(6) test the hypothesized relations relating to post-listing operating and market performance. Equations (4) and (6) disaggregate CAP and IPlist as discussed above to test the incremental effects of the interactions between the "use of proceeds" variables and intangible assts and IP arising from Hypothesis 6. Equation (3) is estimated for eight individual years including the IPO year and the following seven years.

$$NI/TA_{i,t+1,t+7} = \chi_0 + \chi_1 BVE_{i,t-n}/TA_{i,t+n} + \boldsymbol{\chi_2 USE\_WC_{i,t}} + \boldsymbol{\chi_3 USE\_RD_{i,t}} + \boldsymbol{\chi_4 USE\_Explore_{i,t}} + \boldsymbol{\chi_5 USE\_Repay_{i,t}} + \boldsymbol{\chi_6 USE\_Capex_{i,t}} + \boldsymbol{\chi_7 USE\_Acquire_{i,t}} + \boldsymbol{\chi_8 USE\_Invest_{i,t}} + \boldsymbol{\chi_9 USE\_Cashout_{i,t}} + \chi_{11} BACKDOOR_{i,t} + \chi_{12} UWRITER_{i,t} + \chi_{13} AUDQUAL_{,i,t} + \chi_{14} CAP_{i,t} + \chi_{15} IPlist_{i,t} + \chi_{16} INTANG_{i,t+n}/TA_{i,t+n} + \chi_{17} IPpost_{i,t+n} + \varepsilon_{i,t} \quad (3)$$

The dependent variable for equation (4) is the average post-listing net income to total assets for the seven years following the IPO not including the listing year. Equation (3) includes capitalized intangible assets for the individual post-listing years from the sample firms annual financial reports and count variable for IP granted in the post-listing five years (IPpost).

[8] Underwriters are concerned with their reputation as it is reputation that attracts future issuers (e.g., Simunic 1980; Beatty and Ritter 1986). This provides underwriters with incentives to err on the side of conservative monitoring. The Australian Corporations Law requires the underwriter, issuer and investigating accountants to form a due diligence committee that is responsible for compiling the prospectus. The Corporations Law makes them liable for their own omissions from the prospectus.

$$NI/TA_{i,t+1,t+7}=\chi_0 +\chi_1 BVE_{i,t-n}/TA_{i,t+n} + \boldsymbol{\chi_2 USE\_WC_{i,t}} + \boldsymbol{\chi_3 USE\_RD_{i,t}} + \boldsymbol{\chi_4 USE\_Explore_{i,t}} + \boldsymbol{\chi_5 USE\_Repay_{i,t}} + \boldsymbol{\chi_6 USE\_Capex_{i,t}} + \boldsymbol{\chi_7 USE\_Acquire_{i,t}} + \boldsymbol{\chi_8 USE\_Invest_{i,t}} + \boldsymbol{\chi_9 USE\_Cashout_{i,t}} + \chi_{10} BACKDOOR_{i,t} + \chi_{11} CAP\_GW_{i,t} + \chi_{12} CAP\_RD_{i,t} + \chi_{13} CAP\_IIA_{i,t} + \chi_{14} CAP\_EXTRACT_{i,t} + \chi_{15} Patapplic_{i,t} + \chi_{16} Patent_{i,t} + \chi_{17} Trademark_{i,t} + \chi_{18} Design_{i,t} + \chi_{19} IPpost_{i,t} + \chi_{20}(\boldsymbol{USE_{j,i,t}} * CAP\_GW_{i,t}) + \chi_{21}(\boldsymbol{USE_{j,i,t}} * CAP\_RD_{i,t}) + \chi_{22}(\boldsymbol{USE_{j,i,t}} * CAP\_IIA_{i,t}) + \chi_{23}(\boldsymbol{USE_{j,i,t}} * CAP\_EXTRACT_{i,t}) + \chi_{24}(\boldsymbol{USE_{j,i,t}} * Patapplic_{i,t}) + \chi_{25}(\boldsymbol{USE_{j,i,t}} * Patent_{i,t}) + \chi_{26}(\boldsymbol{USE_{j,i,t}} * Trademark_{i,t}) + \chi_{27}(\boldsymbol{USE_{j,i,t}} * Design_{i,t}) + \chi_{28}(\boldsymbol{USE_{j,i,t}} * IPpost_{i,t}) + \varepsilon_{i,t} \quad (4)$$

Equation (5) is estimated for eight individual years including the IPO year and the following seven years. Equation (5) also includes a proxy for the extent the firm's industry is high technology, TECH. This measure is defined using the OECD classification of technology value added as summarized in Table 1.

$$MVE/TA_{i,t+1,t+7}=\chi_0 +\chi_1 BVE_{i,t-n}/TA_{i,t+n} +\chi_2 NI_{i,t+n,}/TA_{i,t+n} + \boldsymbol{\chi_3 USE\_WC_{i,t}} + \boldsymbol{\chi_4 USE\_RD_{i,t}} + \boldsymbol{\chi_5 USE\_Explore_{i,t}} + \boldsymbol{\chi_6 USE\_Repay_{i,t}} + \boldsymbol{\chi_7 USE\_Capex_{i,t}} + \boldsymbol{\chi_8 USE\_Acquire_{i,t}} + \boldsymbol{\chi_9 USE\_Invest_{i,t}} + \boldsymbol{\chi_{10} USE\_Cashout_{i,t}} + \chi_{11} BACKDOOR_{i,t} + \chi_{12} CAP\_GW_{i,t} + \chi_{13} CAP\_RD_{i,t} + \chi_{14} CAP\_IIA_{i,t} + \chi_{15} CAP\_EXTRACT_{i,t} + \chi_{16} Patapplic_{i,t} + \chi_{17} Patent_{i,t} + \chi_{18} Trademark_{i,t} + \chi_{19} Design_{i,t} + \chi_{20} IP\_yr1_{i,t+1} + \chi_{21} IP\_yr2_{i,t+1} + \chi_{22} IP\_yr3_{i,t+1} + \chi_{23} IP\_yr4_{i,t+1} + \chi_{24} IP\_yr5_{i,t+1} + \chi_{25} INTANG_{i,t+n}/TA_{i,t+n} + \chi_{26} TECH + \varepsilon_{i,t} \quad (5)$$

The dependent variable for Equation (6) is the market value of equity deflated by total assets averaged over the seven years following the IPO, t+1 to t+7 (not including the IPO year). Equation (6) includes the interaction effects for the "use of proceeds" variables and the intangible assets and IP.

$$MVE/TA_{i,t+1,t+7}=\chi_0 +\chi_1 BVE_{i,t-n}/TA_{i,t+n} +\chi_2 NI_{i,t+n,}/TA_{i,t+n} + \boldsymbol{\chi_3 USE\_WC_{i,t}} + \boldsymbol{\chi_4 USE\_RD_{i,t}} + \boldsymbol{\chi_5 USE\_Explore_{i,t}} + \boldsymbol{\chi_6 USE\_Repay_{i,t}} + \boldsymbol{\chi_7 USE\_Capex_{i,t}} + \boldsymbol{\chi_8 USE\_Acquire_{i,t}} + \boldsymbol{\chi_9 USE\_Invest_{i,t}} + \boldsymbol{\chi_{10} USE\_Cashout_{i,t}} + \chi_{11} BACKDOOR_{i,t} + \chi_{12} CAP\_GW_{i,t} + \chi_{13} CAP\_RD_{i,t} + \chi_{14} CAP\_IIA_{i,t} + \chi_{15} CAP\_EXTRACT_{i,t} + \chi_{16} Patapplic_{i,t} + \chi_{17} Patent_{i,t} + \chi_{18} Trademark_{i,t} + \chi_{19} Design_{i,t} + \chi_{20} IPpost_{i,t+1} + + \chi_{21}(\boldsymbol{USE_{j,i,t}} * CAP\_GW_{i,t}) + \chi_{22}(\boldsymbol{USE_{j,i,t}} * CAP\_RD_{i,t}) + \chi_{23}(\boldsymbol{USE_{j,i,t}} * CAP\_IIA_{i,t}) + \chi_{24}(\boldsymbol{USE_{j,i,t}} * CAP\_EXTRACT_{i,t}) +$$

$$\chi_{25}(\mathbf{USE}_{j,i,t}\mathbf{*}\text{Patapplic}_{i,t}) + \chi_{26}(\mathbf{USE}_{j,i,t}\mathbf{*}\text{Patent}_{i,t}) + \chi_{27}(\mathbf{USE}_{j,i,t}\mathbf{*}\text{Trademark}_{i,t}) +$$
$$\chi_{28}(\mathbf{USE}_{j,i,t}\mathbf{*}\text{Design}_{i,t}) + \chi_{29}(\mathbf{USE}_{j,i,t}\mathbf{*}\text{IPpost}_{i,t}) + \varepsilon_{i,t} \quad (6)$$

Table 3 provides Spearman Rho correlations for the dependent and independent variables.

PUT TABLE 3 ABOUT HERE

Starting at the top of the table, BACKDOOR is significantly positively correlated with USE_WC and USE_explore indicating that working capital and extractive industry exploration are the two primary "uses of proceeds" nominated by the BACKDOOR listed companies. The AGE correlations reveal the oldest companies are in the USE_REPAY and USE_CASHOUT "use of proceeds" categories. The USE_REPAY and USE_CASHOUT also have the largest sales and leverage (LIA/TA prospectus) indicating the companies nominating these two "uses of proceeds" are established companies. Looking at the established company issue further, the PPE/TA (prospectus) is positive and significant for the USE_REPAY, USE_ACQUIRE, USE_CAPEX, and USE_CASHOUT which suggests these are all established companies with material assets in place. This conclusion is consistent with the classification of these four proposed "uses of proceeds" in the production grouping reflecting the fact that the proposed expenditures relate to already existing production processes. Working capital (USE_WC) is also included in this production grouping. It is not clear from the Spearman Rho correlations that this is descriptive. However, an untabulated regression of the USE_WC variable on the variables in Table 3 confirms the USE_WC tend to be established firms. Specifically, the untabulated regression indicates that in a multivariate analysis the firms nominating higher amounts of USE_WC are larger as measured by positive significant relations with the offer size and financial leverage (i.e., banks are usually unwilling to lend to firms without an established stream of cash inflows).

Table 3 also reveals the companies relating to the USE_WC, USE_RD and BACKDOOR listings have lower reputation underwriters while the USE_EXPLORE companies have lower quality auditors. These findings are not that surprising given the free cash flow and corporate governance issues flagged earlier relating to USE_WC and BACKDOOR and the usually small size and high risk associated with R&D (USE_RD) and exploration (USE_EXPLORE) companies.

Moving on to the IP, the USE_RD and USE_CASHOUT companies have significant IP at the date of listing and also are granted significant IP in the post-listing five years. Disaggregating the IP into its constituent parts shows that the USE_RD companies' IP at the listing date includes significant numbers of patent applications and patents. In contrast, the USE_CASHOUT companies' IP comprises primarily trademarks. The correlations also suggest that the USE_CASHOUT firms have the highest underpricing of the offer while the USE_EXPLORE firms have the lowest underpricing. This may in part reflect differences in the reputation of the underwriters which has been linked to the level of underpricing. The cashout firms have high reputation underwriters whereas the correlation between underwriter and USE_EXPLORE is not significant. Finally, the better (poorer) average operating performers over the seven years post-listing are the companies relating to the USE_REPAY and USE_CASHOUT (USE_WC, USE_RD, USE_EXPLORE, USE_BACKDOOR).

### *4.2 Underpricing Results*

Table 4 reports the results for the underpricing hypothesis tests from equation (1).

PUT TABLE 4 ABOUT HERE

Hypothesis 1 predicts that USE_RD and USE_EXPLORE are associated with higher underpricing due to the pre-production phase and risk of the proposed investments. This hypothesis is robustly supported for USE_RD but not for USE_EXPLORE. The coefficients for USE_EXPLORE are always positive in Table 4 but significant only in one of the ten regressions in

Table 4. This result is surprising in that exploration is inherently risky. A possible explanation is that financial intermediaries and investors rely heavily on expert reports for mining IPOs which is a correlated omitted variable. Consistent with this notion, the securities regulator, ASIC, has stated that "it is prepared to ensure that mining companies adequately disclose their prospects in a prospectus".[9] One example is an interim stop order issued by ASIC on 23 February 2001 that prevented Tawana Resources (NL) from offering or issuing securities under its prospectus (ASIC 2001, 01/085). ASIC's stated concerns related to lack of clarity and detail in the prospectus and an expert report relating to a gold project in Botswana which ASIC considered to be confusing. ASIC sought its own independent expert advice and required Tawana to lodge a detailed supplementary prospectus including further information on: the expiry and renewal of various tenements; breakdowns on the application of funds raised to meet objectives; exploration programs and timing; option agreement over Flinders Island Diamond Project; and an additional report from the Independent Technical Consultant clarifying various aspects of the first report, including its compliance with the VALMIN Code.

Hypothesis 2 predicts that USE_CAPEX and USE_ACQUIRE will *not* be significantly associated with underpricing, in the absence of other information about growth opportunities, because these expenditures relate to expansion and not directly to future rents. The results are generally consistent with hypothesis. The coefficient for USE_CAPEX is insignificant in eight of the ten regressions in Table 4 and the USE_ACQUIRE coefficient is insignificant in seven of the ten regressions in Table 4.

Hypothesis 3 predicts that the BACKDOOR, USE_WC, USE_REPAY and USE_CASHOUT variables are associated with higher underpricing due to free cash flow and corporate governance concerns. This hypothesis is supported for USE_WC and USE_CASHOUT consistent with the latter concerns in Table 4. The USE_REPAY coefficient is positive and

[9] http://www.asic.gov.au/asic/asic.nsf/byheadline/01%2F085+ASIC+seeks+clarity+on+diamond+prospectus?

significant in four of the ten regressions providing some evidence consistent with hypothesis 3. However the BACKDOOR coefficient is not significant in Table 4.

Hypothesis 5 predicts that capitalized intangible assets and the firm's stock of IP at the listing date are associated with lower underpricing. Hypothesis 5 is supported. The coefficients for CAP and IPlist are generally negative and significant. This evidence is consistent with these variables signaling valuable underlying growth opportunities and control over underlying valuable assets.

Hypothesis 6 predicts that CAP and IPlist interact with the "use of proceeds" variables. The interaction with the pre-production "use of proceeds", USE_RD, is expected to be associated with lower underpricing due to the saliency of the information about growth opportunities for these firms. However, as argued earlier, the result for the exploration "use of proceeds" interaction with CAP and IPlist is an empirical issue due to the area of interest accounting method and the fact that exploration firms typically do not engage in R&D and have few intangibles other than mining tenements.

For to the remaining firms, the incremental interaction effect is expected to be positive or negative depending on the level of demand/relative importance of information about growth opportunities compared to assets in place; and also on the credibility of the CAP and IPlist information in signaling future rents relative to investors' perceptions of the extent the firm has valuable underlying intangible assets.

The results are consistent with Hypothesis 6 for USE_RD (pre-production) for both CAP and IPlist as predicted. The disaggregated intangibles and IP results in Table 5 show that this incremental reduction in underpricing relates to capitalization of R&D and identifiable intangible assets, and the ownership by trademarks by USE_RD firms. For the remaining "use of proceeds" variables, there is an incremental decrease (increase) in underpricing for USE_ACQUIRE and

USE_CASHOUT firms (USE_WC and BACKDOOR) that capitalize intangible assets. This suggests that the agency and corporate governance issues associated with the working capital and BACKDOOR "proposed use of proceeds" leads to higher underpricing. Table 5 shows that this increase in underpricing relates to capitalized goodwill for the USE_WC and BACKDOOR firms. This is also consistent with other evidence in the Australian setting which suggests that purchased goodwill is not always value relevant or positively valued (e.g., Wyatt 2005).

Other insights from the disaggregation of intangible assets and IP in Table 5 are as follows. The USE_REPAY firms with trademarks at listing date experience incrementally higher underpricing which is consistent with the perception that the debt repayment firms have few growth opportunities consistent with Pagano et al (1998). The USE_ACQUIRE firms experience an incremental reduction in underpricing when they report goodwill assets, identifiable intangible assets or extractive industry intangible assets in the prospectus, and own patents at the listing date; suggesting that these assets and IP signal growth opportunities and valuable property rights over the firms' assets, respectively.

PUT TABLE 5 ABOUT HERE

Finally, compared to prior studies, the control variables play a much less important role in explaining the level of underpricing once the "use of proceeds", intangible assets, and IP are included in the regressions. In particular, the positive association between the age, size and retained ownership variables (AGE, OFFER, RETAIN) is not observed in Tables 4 and 5 suggesting these effects are subsumed by the additional variables. The correlations in Table 3 confirm this conjecture. For example, retained ownership is highest for the USE_WC, USE_RD and USE_REPAY firms and is lowest for the USE_EXPLORE and BACKDOOR firms. One exception is the underwriter quality for which the coefficients in Table 4 are positive and significant in each regression suggesting that higher reputation underwriters are associated with

higher underpricing of the offers. This result is consistent with prior studies that argue the underpricing is a deliberate action by underwriters and can be explained by a number of factors relating to underwriter reputation and asymmetric information (see Ritter 1999).

*Underpricing Results Summary*—the underpricing results are consistent with (1) higher underpricing for USE_RD as predicted in Hypothesis 1 but not for USE_EXPLORE; (2) an insignificant association with underpricing for USE_CAPEX and USE_ACQUIRE as predicted in Hypothesis 2 due to these two "uses of proceeds" predicting expansion but not future rents (in the absence of other information about the existence of growth opportunities); (3) higher underpricing for USE_WC and USE_CASHOUT as predicted in Hypothesis 3 (due to free cash flow and corporate governance concerns) but Hypothesis 3 is not supported for BACKDOOR and USE_REPAY; (4) lower underpricing for firms capitalizing intangibles and owning IP at listing date as predicted in Hypothesis 5 consistent with these variables reflecting quality signals relating to growth opportunities; and (5) incremental reduction in underpricing for USE_RD firms capitalizing intangibles and owning IP at listing date as predicted in Hypothesis 6 as well as an incremental underpricing reduction (increase) for USE_ACQUIRE and USE_CASHOUT (BACKDOOR and USE_WC) firms capitalizing or owning IP at listing date. This latter result suggests that intangible assets and IP are perceived to reflect growth opportunities for the acquisition and cashout firms but not for backdoor listing and the working capital "use of proceeds" firms.

### *4.3 Operating Performance Results*

Table 6 reports the results for the post listing operating performance tests.

PUT TABLE 6 ABOUT HERE

Hypothesis 1 predicts an association between operating performance and USE_RD and USE_EXPLORE but no sign because these firms can succeed or fail. In the time period of this

study, Table 6 shows a significant negative relation between USE_EXPLORE and the future operating performance in the individual year regressions in Table 6 but no relation for USE_RD. The additional operating performance results in Table 7 using the seven year average of post-listing return on assets confirm no relation for USE_RD and a significant negative relation for USE_EXPLORE (first column of Table 7) consistent with the high risk exploration activities.

PUT TABLE 7 ABOUT HERE

Hypothesis 4 predicts positive relations between future operating performance and USE_WC, USE_CAPEX, USE_ACQUIRE, USE_REPAY and USE_CASHOUT based on the more established nature of these firms and lower likelihood that these more established firms will fail because they are unable to attain the minimum efficient scale for the industry (e.g., Audretch 1995). The results in Tables 6 and 7 are mixed. The only significant variable of these five variables is working capital (USE_WC) in Table 6 but the sign is *negative* not the predicted positive sign. The Table 7 results are consistent with Hypothesis 4 for USE_REPAY and USE_CASHOUT. However, USE_CAPEX and USE_ACQUIRE are not associated with future operating performance. This negative relation for USE_WC is consistent with the ASIC concerns about the vagueness of nominating “working capital” as a proposed “use of proceeds”.

Hypothesis 5 predicts positive relations between capitalized intangible assets, IP owned at listing date and future operating performance. The results in Table 6 are not consistent with Hypothesis 5. Disaggregated results for the intangibles and IP in Table 7 suggest that capitalized R&D is robustly negatively related to future operating performance, capitalized identifiable intangibles are positively related to operating performance but this result is not robust across all firms, listing date owned patents are negatively related to operating performance, and designs are positively related to post-listing performance with these last two results also not holding for all

firms. We can conclude that the intangibles and IP are not robust signals of future operating performance on their own.

Hypothesis 6 predicts that the intangible assets and IP condition the relations between the use of proceeds and operating performance. The results are consistent with this hypothesis. First, the positive relation predicted for USE_RD firms between capitalized intangibles, IP and future performance is confirmed. Table 7 shows that capitalized R&D assets and ownership of patents at the listing date are associated with the average (seven year) operating performance for the USE_RD firms. The USE_CAPEX firms experience an incremental negative operating performance effect in the future if they have reported R&D assets in the prospectus and own patents at the listing date but experience positive operating performance if these firms have patent applications pending at the listing date. The results for the BACKDOOR listing firms are similar to the USE_CAPEX firms except the negative future performance relates to pre-existing goodwill on the balance sheet at the listing date rather than R&D assets.

These results for the USE_RD "pre-production" firms, USE_CAPEX "already in production" firms, and BACKDOOR listing firms suggest that it is the *maturing* growth options that are important for future operating performance and not the *already matured* growth options. That is, all the USE_RD growth opportunities are still maturing whereas the USE_CAPEX firms' existing patents and BACKDOOR existing goodwill assets are already in production and it is the patent applications pending that are yet to mature and therefore are relevant for evaluating these firms' future rents.

*Operating Performance Results Summary*—the future operating performance results are as follows. First, Hypothesis 1 predicts that USE_RD and USE_EXPLORE are associated with future operating performance and the results are consistent for USE_EXPLORE but not USE_RD. Hence, it is not enough to know that an IPO is planning to raise funds for R&D projects to predict

the firm's future operating performance. However, raising funds for exploration predicts negative future operating performance on average. Second, Hypothesis 4 predicts a positive relation between USE_WC, USE_CAPEX, USE_ACQUIRE and USE_CASHOUT because on average these companies are already established when they list. The results suggest Hypothesis 4 only holds for the most established firms with the highest historical (pre-IPO) operating performance (see the correlations with historical NI/TA in Table 3), which are the USE_REPAY and USE_CASHOUT firms. On average, these latter firms exhibit positive operating performance in the post-listing years. Hence, we can evaluate the future performance prospects using information on the scale and historical performance of the IPO. On the other hand, the "use of proceeds" information *on its own* is not useful at all for evaluating future operating performance if the firm is established but did not perform well historically and is proposing to raise funds for expansion (i.e., the USE_CAPEX and USE_ACQUIRE firms). Third, Hypotheses five predicts a positive association between capitalized intangibles, IP and future operating performance. The results suggest the sign and significance of these relations depends on the type of intangible and IP. Fourth, Hypothesis 6 predicts that intangibles and IP condition the relation between the "use of proceeds" and operating performance. The results are consistent with this hypothesis suggesting that capitalized intangible assets and IP owned are two classes of relevant conditioning variables that can supplement some types of "proposed uses of proceeds" in evaluating future expected operating performance. The results suggest that capitalized intangible assets and listing date IP are most relevant for supplementing the USE_RD, USE_CAPEX, and BACKDOOR information.

### *4.4 Stock Market Performance Results*

Tables 8 and 9 provide the results for the stock market performance tests. The dependent variable in Table 8 is the annual market value of equity deflated by total assets for the end of the listing fiscal year and the following seven post-listing years (MVE/TA). To facilitate unbiased significance tests, the dependent variable is logged to reduce the wide dispersion in the raw data.

The dependent variable in Table 9 is the average MVE/TA for the seven years $t_1$ to $t_7$ after the listing year.

PUT TABLE 8 ABOUT HERE

Hypothesis 1 predicts that the pre-production "uses of proceeds", USE_RD and USE_EXPLORE, are associated with future market performance. The results in Table 8 are consistent with Hypothesis 1. USE_RD (USE_EXPLORE) is significantly positively (negatively) associated with future market performance. The significant positive R&D effect persists for five years after the listing year while the significant negative exploration "use of proceeds" effect persists for three years after listing. This evidence suggests investors believe the R&D "use of proceeds" firms have growth opportunities that will generate future rents on average while the exploration "use of proceeds" firms do not have valuable growth opportunities on average (probably because failure to find viable reserves is more likely than finding viable reserves). The gestation period for the two types of investments also appears to differ with a longer period for R&D compared to exploration.

PUT TABLE 9 ABOUT HERE

Hypothesis 2 predicts that the expansion investments, USE_CAPEX and USE_ACQUIRE are not associated with stock performance in the absence of other information about the firms' growth opportunities. The results in Tables 8 and 9, taken together are consistent with this prediction. The coefficients for USE_CAPEX and USE_ACQUIRE are negative and significant in Table 8, three years ahead for CAPEX and eight years ahead for ACQUIRE. In Table 9, the coefficients for the variables USE_CAPEX and USE_ACQUIRE *on their own* are insignificant as predicted in Hypothesis 2 after including interactions in the regression to capture additional information about growth opportunities (where USE_CAPEX and USE-ACQUIRE are interacted

with capitalized intangible assets, IP at listing date, and IP granted in the post-listing period). Hypothesis 2 is therefore supported.

Hypothesis 3 predicts that BACKDOOR, USE_WC, USE_REPAY, USE_CASHOUT are negatively associated with stock performance in the absence of other information about the firms' growth opportunities. It was argued earlier that this result is expected due to investor concerns about free cash flows and/or corporate governance issues. The results in Table 8 and taken with the interaction results in Table 9 are consistent with Hypothesis 3 for all four of the variables above. The coefficients for USE_WC are negative and significant in every year in Table 8. The coefficients for BACKDOOR are always negative and are significant in the first and fourth years in Table 8 and the BACKDOOR coefficient in Table 9 is negative and significant as predicted, overall confirming Hypothesis 3. The coefficients for USE_REPAY are negative and significant in six of the eight years in Table 8 and the coefficient is negative and significant in Table 9 confirming Hypothesis 3. Finally, the USE_CASHOUT coefficients are always negative and are significant in the second and third years post-listing in Table 8 providing some evidence consistent with Hypothesis 3.

Hypothesis 5 predicts that capitalized intangibles and IP at listing date are positively related to post-listing market performance. The results in Tables 8 and 9 are consistent with this Hypothesis only for capitalized exploration costs and mining tenements (EXTRACT/TA).

Table 9 results suggest that the control variable, IP granted in the post-listing period by the patent office (IPpost), is positively and significantly related to market performance. In fact, IPpost is not associated with operating performance in the tests reported in Table 7. IPpost is also not positively associated with operating performance interactively with the "use of proceeds" variables, which suggests that investors are emphasizing information not associated with operating performance. We return to consider this issue at the conclusion of this section.

Hypothesis 6 predicts that capitalized intangibles and IP condition the relations between the "use of proceeds" variables and market performance. The results for Hypothesis 6 indicate that the lack of support for Hypothesis 5 is due to the fact that capitalized intangibles and IP are conditioning variables that provide information to investors about growth opportunities incrementally to the "use of proceeds" information. Table 9 shows that different types of intangible assets and IP are value relevant (with either positive or negative signs) for the different proposed "uses of proceeds".

What is most striking from Table 9 is that the intangibles and IP on which *investors* condition the various "uses of proceeds" are not the same intangibles and IP that condition the various "use of proceeds" relations with future *operating* performance. For example, *purchased goodwill interactions* with USE_REPAY, USE-CAPEX, USE_INVEST, and USE_CASHOUT are all positively and significantly associated with *market* performance. However, none of these interactions are associated with the firms' post-listing *operating* performances over the same seven year period.

Another example is patents and patent applications from Tables 7 and 9. Specifically, *patent application interactions* with USE_RD, USE_REPAY and BACKDOOR are significantly *negatively* related to *market* performance. Further, the *patent application interaction* with USE_CAPEX is not significantly related to *market* performance. However, *patent application interactions* with USE_CAPEX and BACKDOOR are positively significantly associated with future *operating* performance while the USE_RD and USE_REPAY *patent application* interaction is unrelated to operating performance.

Further, *patent interactions* with USE_CAPEX and BACKDOOR are significantly positively related to *market* performance while the *patent interaction* with USE_RD is unrelated to *market* performance. Almost the opposite is observed for operating performance. The *patent*

*interaction* with USE_RD is positively significantly associated with *operating* performance while the *patent interactions* with USE_CAPEX and BACKDOOR are significantly negatively associated with operating performance. Similar types of differences are observed for trademarks and designs.

These differences could be due to a lead-lag relation between the valuations and the operating performance. Another possibility is that investors do not understand the implications of different types of capitalized intangible assets and IP for the operating performance of different types of firms. Investors also may not take into account the difference between intangibles and IP that are already mature and generating only a normal return and intangibles and IP that has yet to mature and are therefore capable of generating rents into the future.

*Market Performance Results Summary*—the results in this section are as follows (1) the Hypothesis 1 prediction is supported that pre-production related "proposed uses of proceeds' (USE_RD and USE_EXPLORE) relate to growth and are therefore value relevant and associated with future market performance; (2) the Hypothesis 2 prediction is supported that the "proposed uses of proceeds" relating to expansion of assets rather than growth through future rents (USE_CAPEX, USE_ACQUIRE) are not significantly associated with market performance in the absence of other information about the firms' growth opportunities (3) the Hypothesis 3 prediction is supported that the "proposed uses of proceeds" that give rise to free cash flows and corporate governance concerns (BACKDOOR, USE_WC, USE_REPAY, USE_CASHOUT) are significantly negatively associated with market performance in the absence of other information about the firms' growth opportunities; (4) the Hypothesis 5 prediction that capitalized intangibles and IP are value relevant growth and/or quality signals is generally not supported; and (5) the Hypothesis 6 prediction that capitalized intangible assets and IP combine with some types of "proposed uses of proceeds" to impact market value is supported, however, the results generally

differ from the nature and signs of the interactions that are significantly associated with the sample firms' operating performance over the same seven year post-listing period.

## 5. Conclusion

This paper examines whether the mandated "proposed use of proceeds" and voluntary disclosures of intangible assets in the prospectus, along with public information relating to ownership of IP, explains some of the variation in underpricing and post-listing performance. Disclosures of the proposed use of proceeds are mandatory. ASIC frequently issue stop orders on IPO prospectus due to issues with disclosure and one such issue is the detail and clarity of the use of proceeds disclosures. Studying the links between prospectus disclosures and IPO pricing and performance is important given the dearth of relevant financial information and the central information role of the prospectus.

Not all firms going public are equally assured of success. Information asymmetry relating to firm value is reflected in pricing anomalies which are problematic to the extent they reflect market inefficiencies. Prior studies have examined a number of possible determinants of these anomalies including IPO attributes (see Ritter 1999), disclosure strategies (e.g., Hanley and Hoberg 2007), and information asymmetry and incentive effects such as the reputation of financial intermediaries (e.g., Rock 1986). This study contributes new insights to this literature on the usefulness of prospectus and IP data for evaluating the likelihood of success.

The results from this study indicate that the "use of proceeds" information is useful for evaluating the level of underpricing and future operating and market performance. Consistent with the theoretical arguments, factors that are important in interpreting the "use of proceeds" and the capitalized intangible assets and IP information are whether or not the company is in the pre-production or production phase and the amount of information provided that relates to the firm's stock of growth opportunities, concerns relating to free cash flow and corporate governance issues,

whether the firm has scale economies and how well the firm performed historically, and adverse selection issues that lead to investor demand for information about the firms' growth opportunities.

There are many differences in the "use of proceeds", intangibles and IP information that are associated with future operating performance compared to future market performance. Several possible explanations for future research include omitted correlated variables such as expert reports for exploration companies, and lead/lag relations between operating performance and valuation. Other possibilities include the "limited attention" explanation for pricing anomalies proposed by Hirshleifer and Teoh (2005) that investors condition their expectations on subsets but not all of the available public information. This behavior is more likely in uncertain settings such as the IPO market in which financial information is scarce and information reliability is difficult to evaluate. Investors may not understand the implications of different types of capitalized intangible assets and IP for the operating performance of different types of firms. This could be a function of the changing value relevance of intangibles and IP over time, industries and a business strategy, which is difficult to predict ex ante (see the Wyatt 2007 review). Investors may not take into account the difference between intangibles and IP that are already mature and generating only a normal return and intangibles and IP that have yet to mature and are therefore capable of generating rents into the future.

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## TABLE 1 MEASUREMENT OF VARIABLES

| *Explanatory variables* | *Denoted by* | *Measured as* | *Predicted signs* | |
|---|---|---|---|---|
| | | | UND Model | Perform. Model |
| **PROPOSED USE OF ISSUE PROCEEDS AS REPORTED IN THE PROSPECTUS** | | | | |
| (DUMMY variable or CONTINUOUS variable deflated by the total proceeds expected to be raised) | | | | |
| Working capital | USE_WC | Proposed use of issue proceeds is working capital. | | |
| Research and development | USE_RD | Proposed use of issue proceeds to undertake research and development. | | |
| Exploration | USE_Explore | Proposed use of issue proceeds is exploration, evaluation and development in extractive industry. | | |
| Repay debt | USE_Repay | Proposed use of issue proceeds to pay down debt. | | |
| Capital expenditures | USE_Capex | Proposed use of issue proceeds is firm commitment to capital expenditures. | | |
| Acquisition | USE_Acquire | Proposed use of issue proceeds to make acquisitions of business or companies. | | |
| Invest | USE_Invest | Proposed use of issue proceeds to invest in securities. | | |
| Cashout | USE_Cashout | Proposed use of issue proceeds is to enable the founder(s) to cash out of their company. | | |
| **INTANGIBLE ASSETS REPORTED IN THE PROSPECTUS** | | | | |
| Intangible assets | INTANG/TA | Intangible assets recorded in the prospectus *pro forma* balance sheet divided by *pro forma* total assets. | - | + |
| Identifiable intangible assets | IIA/TA | Identifiable intangible assets recorded in the prospectus *pro forma* balance sheet divided by *pro forma* total assets. | - | + |
| Research and development assets | RD/TA | Research and development assets recorded in the prospectus *pro forma* balance sheet divided by *pro forma* total assets. | - | + |
| Goodwill assets | GW/TA | Goodwill assets recorded in the prospectus *pro forma* balance sheet divided by *pro forma* total assets. | - | + |
| Extractive industry assets | EXTRACT/TA | Exploration, evaluation and development and mining tenement assets recorded in the prospectus *pro forma* balance sheet divided by *pro forma* total assets. | - | + |
| Firm reports intangible assets in the prospectus | CAP<br>CAP_IIA<br>CAP_RD<br>CAP_GW<br>CAP_EXTRACT | Dummy variable taking a value of one for firms recording intangible assets in the prospectus *pro forma* balance sheet and zero otherwise. | - | +/- |
| **CHARACTERISTICS OF THE IPO** | | | | |
| IPO firm age | AGE | The number of calendar days from incorporation to the date of prospectus. | - | |

| *Explanatory variables* | *Denoted by* | *Measured as* | *Predicted signs* | |
|---|---|---|---|---|
| | | | UND Model | Perform. Model |
| Backdoor listing | BACKDOOR | Relisting of inactive companies as new companies with name change and/or establishment of entirely new core business (e.g., dot com) | +/- | +/- |
| Size of the offer | OFFER | The product of offer price times the number of ordinary shares offered in the issue, in 2000 Dollars. | +/- | +/- |
| Retained ownership | RETAIN | One minus the number of shares offered in the prospectus as a percentage of total shares outstanding after the IPO. | - | +/- |
| Demand for the issue | DELAY | The number of days from the date of prospectus registration to the listing date. | + | - |
| Joint offerings of common shares and options | PIPO | Dummy variable taking a value of one for IPOs that are joint offerings of common shares and options (i.e., package IPOs) and zero otherwise | + | |
| Underwriter's reputation | UWRITER | The dollar value of all shares underwritten by a given underwriter divided by the dollar value of all IPOs. The measure is weighted to the extent that an IPO has more than one underwriter. | - | +/- |
| Auditor and investigating accountants' reputations | AUDQUAL | The fees paid by the sample companies audited or investigated by a given auditor or accounting firm divided by the dollar value of all fees paid by the IPO firms for these services. The measure is weighted where the auditor and investigating accountant are not the same firm. | - | +/- |
| Historical pre-IPO operating performance | $NI/TA^{PRE\text{-}IPO}$ | Average historical net operating profit as reported in the prospectus for the years prior to the IPO, divided by the prospectus *pro forma* total assets. | - | |
| Leverage | LIAB/TA | Total liabilities divided by total assets from the prospectus *pro forma* balance sheet. | - | |
| Retained earnings | RETAIN/TA | Retained earnings divided by total assets from the prospectus *pro forma* balance sheet. | - | |
| Technological complexity of business and products | TECH | Dummy variable coded 1 for higher technology industries and 0 for lower technology industries based on the OECD classification[10] | +/- | +/- |
| IPO earnings forecast | FORECAST | The issuers' earnings forecasts reported in the prospectus or zero otherwise. | - | +/- |
| **CHARACTERISTICS OF THE IPO MARKET** | | | | |
| Hot issue period | HOT | Dummy variable indicator of market state taking a value of one from October 1996 to June 2000. | - | - |
| **REGISTERED INTELLECTUAL PROPERTY RIGHTS (IP)** | | | | |

[10] OECD Science and Technology division uses R&D intensity statistics to classify industries on technology bases as follows: High and medium-high tech – aerospace, office and computing equipment, drugs and medicines, radio, TV and communications equipment, motor vehicles, professional goods, chemicals, electrical machinery, non-electrical machinery, other transport industries; Medium-low and low tech – rubber and plastics, non-metallic mineral products, shipbuilding, ferrous and non-ferrous metals, metal products, petroleum, other manufacturing, all other industries.

| *Explanatory variables* | *Denoted by* | *Measured as* | *Predicted signs* | |
|---|---|---|---|---|
| | | | UND Model | Perform. Model |
| Registered IP held by the firm at the IPO listing date | IPlist | Count of the patents, patent applications, trademarks and designs held by the firm at the listing date | - | +/- |
| Patent application | Patapplic | Count of the firm's patent applications pending at the listing date | - | +/- |
| Patent | Patent | Count of the firm's patents at the listing date | - | +/- |
| Trademark | Trademark | Count of the firm's trademarks at the listing date | - | +/- |
| Design | Design | Count of the firm's designs at the listing date | - | +/- |
| IP applications and grants in the five years post the IPO | IPpost<br>IP_yr1<br>IP_yr2<br>IP_yr3<br>IP_yr4<br>IP_yr5 | Count of the grants of the firm's patents, trademarks and designs in the five years after the listing date (in total is IPpost and each of the five years is IP_yr1 etc.) | - | +/- |
| **IPO MARKET AND OPERATING PERFORMANCE** | | | | |
| Underpricing of the offer | UND | $UND = \frac{P_1 - P_0}{P_0}$ where $P_1$ is the closing price on the first day of listing and $P_0$ is the offer price. | | |
| Market value of equity | MVE/TA | Market value of equity is number of common shares on issue at the end of the fiscal year multiplied by balance date closing stock price and divided by total assets. | | |
| Operating performance | NI/TA | Net profit divided by total assets from the annual financial report. | | |

## TABLE 2 DESCRIPTIVE STATISTICS

*Panel A Distribution of IPOs by GICS Industry Codes*

| GICS Code | Industry | Count | Percent |
|---|---|---|---|
| 10 | Energy | 10 | 4.15 |
| 15 | Materials | 45 | 18.67 |
| 20 | Industrial | 38 | 15.77 |
| 25 | Consumer discretionary | 33 | 13.69 |
| 30 | Consumer staple | 13 | 5.39 |
| 35 | Healthcare | 16 | 6.64 |
| 40 | Financial | 18 | 7.47 |
| 45 | Information technology | 50 | 20.75 |
| 50 | Telecommunications | 16 | 6.64 |
| 55 | Utilities | 2 | 0.83 |
| *Total* | | *241* | *100.00* |

*Panel B IPO Characteristics*

| | AGE (days) | OFFER ($) | LOG(AGE) ($) | LG(OFFER) ($) | RETAIN | FORECAST (eps) | PIPO | BACKDOOR |
|---|---|---|---|---|---|---|---|---|
| Mean | 2,261 | 21,260,028 | 6.610 | 16.095 | 0.551 | 3.523 | | |
| Median | 912 | 8,000,000 | 6.817 | 15.895 | 0.570 | 0.000 | | |
| Maximum | 34,264 | 400,000,000 | 10.442 | 19.807 | 0.995 | 25.000 | | |
| Minimum | 0 | 337,083 | 0.000 | 12.728 | 0.000 | -12.700 | | |
| Std. Dev. | 3,942 | 46,847,818 | 1.714 | 1.094 | 0.208 | 5.512 | | |
| # With attribute | | | | | | | 54 | 62 |
| # Without attribute | | | | | | | 187 | 179 |

*Panel C Proposed Use of Proceeds in DOLLARS as Reported in the Prospectus – Deflated by the Dollar Amount of the Total Issue*

| | USE_ WC | USE_ RD | USE_ REPAY | USE_ ACQUIRE | USE_ CAPEX | USE_ INVEST | USE_ CASHOUT | USE_ EXPLORE |
|---|---|---|---|---|---|---|---|---|
| Mean | 0.507 | 0.027 | 0.100 | 0.065 | 0.053 | 0.017 | 0.119 | 0.130 |
| Median | 0.451 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Maximum | 1.000 | 0.700 | 0.963 | 1.000 | 0.944 | 1.000 | 1.000 | 0.892 |
| Minimum | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Std. Dev. | 0.325 | 0.101 | 0.193 | 0.186 | 0.139 | 0.121 | 0.262 | 0.260 |
| # Firms with some use of proceeds in this category | 232 | 22 | 93 | 44 | 59 | 6 | 52 | 52 |
| # Firms with NO use of proceeds in this category | 9 | 219 | 148 | 197 | 182 | 235 | 189 | 189 |

## TABLE 2 DESCRIPTIVE STATISTICS CONTINUED

*Panel D Financial Attributes Reported in the Prospectus*

| | INTANG/TA | GW/TA | IIA/TA | RD/TA | EXTRACT/TA | RETAIN/TA | LIAB/TA | NI/TA$^{PRE-IPO}$ |
|---|---|---|---|---|---|---|---|---|
| Mean | 0.122 | 0.044 | 0.069 | 0.005 | 0.090 | -0.120 | 0.208 | 0.011 |
| Median | 0.014 | 0.000 | 0.000 | 0.000 | 0.000 | -0.009 | 0.102 | 0.000 |
| Maximum | 0.813 | 0.832 | 0.751 | 0.180 | 0.999 | 0.306 | 0.998 | 0.381 |
| Minimum | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | -15.117 | 0.000 | -0.500 |
| Std. Dev. | 0.191 | 0.119 | 0.153 | 0.023 | 0.188 | 0.926 | 0.235 | 0.084 |
| *# With attribute* | 138 (57%) | 78 (32%) | 94 (39%) | 23 (10%) | 56 (23%) | | | |
| *# Without attribute* | 103 (43%) | 163 (68%) | 147 (61%) | 218 (90%) | 185 (77%) | | | |

*Panel F Registered Intellectual Property Held by the IPO Firms*

| | IP at the Listing Date | | | | | IP Granted in the Five Years After Listing Date | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | IPlist | PATAPPLIC | PATENT | TRADEMARK | DESIGN | IPpost | IP_yr 1 | IP_yr 2 | IP_yr3 | IP_yr4 | IP_yr5 |
| Mean | 3 | 1 | 0 | 2 | 0 | 3 | 1 | 1 | 1 | 0 | 0 |
| Median | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Max. | 72 | 34 | 37 | 39 | 2 | 80 | 28 | 27 | 25 | 9 | 13 |
| Min. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Std. Dev. | 7 | 3 | 3 | 5 | 0 | 8 | 3 | 3 | 2 | 1 | 1 |

| IPlist Count | Firms | Percent |
|---|---|---|
| 0 | 155 | 64.3 |
| 1 | 21 | 8.7 |
| 2 | 15 | 6.2 |
| >2 | 31 | 12.9 |
| >10 | 14 | 5.8 |
| >20<73 | 5 | 2.1 |
| | *241* | *100.0* |

| IPpost Count | Firms | Percent |
|---|---|---|
| 0 | 147 | 60.9 |
| 1 | 31 | 12.9 |
| 2 | 17 | 7.1 |
| >2 | 34 | 14.1 |
| >10 | 5 | 2.1 |
| >20<81 | 7 | 2.9 |
| | *241* | *100.0* |

*Panel G IPO Performance Characteristics*

| | | | Financial Ratios are the Average for the Seven Years ($t_1$ *to* $t_7$) after the Listing Date (but not including the listing year) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | UND | MVE *(end of list fiscal year)* | MVE average | MVE/TA average | INTANG/TA average | LIAB/TA average | NI/TA average | SALE/TA average | FCF/TA average |
| Mean | 0.222 | 55,921,653 | 80,984,148 | 1.284 | 0.129 | 0.370 | -0.235 | 0.796 | -0.184 |
| Median | 0.088 | 13,792,381 | 17,303,907 | 0.868 | 0.055 | 0.359 | -0.135 | 0.424 | -0.123 |
| Maximum | 3.420 | 805,000,000 | 2,310,000,000 | 11.480 | 0.789 | 0.930 | 0.304 | 5.978 | 0.421 |
| Minimum | -0.750 | 892,331 | 1,049,558 | 0.109 | 0.000 | 0.006 | -4.286 | 0.000 | -1.702 |
| Std. Dev. | 0.534 | 117,000,000 | 227,000,000 | 1.414 | 0.166 | 0.232 | 0.439 | 1.049 | 0.245 |

## TABLE 3 SPEARMAN'S RHO CORRELATIONS

| SPEARMAN'S RHO | USE_WC | USE_RD | USE_REPAY | USE_ACQUIRE | USE_CAPEX | USE_INVEST | USE_CASHOUT | USE_EXPLORE | BACKDOOR |
|---|---|---|---|---|---|---|---|---|---|
| **BACKDOOR** | **0.15** | **-0.12** | -0.10 | -0.01 | 0.03 | -0.03 | **-0.18** | **0.25** | |
| | **2.31*** | **-1.94*** | -1.59 | -0.18 | 0.45 | -0.50 | **-2.78*** | **4.03**** | |
| **AGE** | **-0.12** | 0.05 | **0.17** | -0.07 | -0.01 | -0.04 | **0.30** | **-0.16** | -0.08 |
| | **-1.93*** | 0.82 | **2.64*** | -1.09 | -0.13 | -0.68 | **4.81**** | **-2.53*** | -1.29 |
| **OFFER** | **-0.27** | -0.02 | 0.08 | **0.14** | 0.04 | **0.16** | **0.41** | **-0.26** | **-0.28** |
| | **-4.29**** | -0.31 | 1.20 | **2.21*** | 0.56 | **2.48*** | **7.02**** | **-4.18**** | **-4.44**** |
| **RETAIN** | **0.37** | **0.15** | **0.13** | -0.01 | -0.04 | -0.12 | -0.09 | **-0.36** | **-0.18** |
| | **6.17**** | **2.40*** | **2.02*** | -0.23 | -0.58 | -1.82 | -1.35 | **-5.89**** | **-2.78*** |
| **DELAY** | 0.04 | -0.03 | 0.02 | -0.05 | -0.04 | 0.04 | **-0.24** | **0.23** | **0.18** |
| | 0.58 | -0.42 | 0.23 | -0.79 | -0.55 | 0.65 | **-3.88**** | **3.69**** | **2.83*** |
| **UWRITER** | **-0.20** | **-0.13** | 0.03 | 0.07 | 0.09 | 0.08 | **0.20** | -0.10 | **-0.18** |
| | **-3.17**** | **-1.99*** | 0.43 | 1.10 | 1.33 | 1.25 | **3.14**** | -1.52 | **-2.78*** |
| **AUDQUAL** | -0.01 | 0.05 | 0.03 | 0.01 | -0.01 | -0.07 | 0.08 | **-0.16** | -0.11 |
| | -0.14 | 0.73 | 0.47 | 0.15 | -0.22 | -1.04 | 1.26 | **-2.50*** | -1.77 |
| **SALES (prospectus)** | **-0.13** | -0.10 | **0.23** | 0.08 | 0.08 | -0.10 | **0.42** | **-0.52** | **-0.24** |
| | **-2.05*** | -1.60 | **3.59**** | 1.26 | 1.20 | -1.49 | **7.26**** | **-9.29**** | **-3.81**** |
| **LIAB/TA (prospectus)** | **-0.19** | **-0.20** | **0.23** | 0.08 | -0.07 | **-0.16** | **0.46** | **-0.49** | **-0.20** |
| | **-2.98**** | **-3.18**** | **3.65**** | 1.26 | -1.02 | **-2.58*** | **7.92**** | **-8.63**** | **-3.08**** |
| **RETAIN/TA (prospectus)** | **-0.16** | -0.08 | -0.02 | 0.12 | 0.09 | 0.03 | **0.40** | **-0.28** | **-0.18** |
| | **-2.44*** | -1.19 | -0.38 | 1.86 | 1.34 | 0.47 | **6.69**** | **-4.54**** | **-2.87**** |
| **NI/TA (historical)** | **-0.35** | **-0.14** | **0.15** | 0.07 | -0.02 | -0.01 | **0.50** | **-0.19** | **-0.24** |
| | **-5.76**** | **-2.27*** | **2.41*** | 1.10 | -0.24 | -0.20 | **8.99**** | **-2.98**** | **-3.87**** |
| **GW/TA (prospectus)** | -0.08 | -0.09 | **0.22** | **0.17** | 0.00 | -0.02 | **0.24** | **-0.33** | **-0.14** |
| | -1.19 | -1.47 | **3.55**** | **2.70*** | -0.02 | -0.27 | **3.81**** | **-5.45**** | **-2.14*** |
| **RD/TA (prospectus)** | **0.26** | 0.12 | **-0.14** | 0.06 | 0.04 | 0.04 | -0.05 | **-0.17** | -0.03 |
| | **4.22**** | 1.85 | **-2.24*** | 0.89 | 0.63 | 0.63 | -0.75 | **-2.64*** | -0.40 |
| **IIA/TA (prospectus)** | **0.15** | **0.18** | **0.16** | 0.06 | 0.06 | 0.01 | -0.04 | **-0.35** | -0.13 |
| | **2.38*** | **2.76*** | **2.43*** | 0.99 | 0.91 | 0.15 | -0.65 | **-5.85**** | -1.95 |
| **EXTRACT/TA (prospectus)** | **-0.26** | **-0.17** | **-0.17** | -0.04 | -0.02 | -0.09 | **-0.25** | **0.83** | **0.22** |
| | **-4.24**** | **-2.70*** | **-2.65*** | -0.68 | -0.28 | -1.35 | **-4.05**** | **22.97**** | **3.47**** |
| **PPE/TA (prospectus)** | **-0.13** | -0.11 | **0.20** | **0.15** | **0.13** | **-0.14** | **0.26** | **-0.38** | -0.06 |
| | **-2.06*** | -1.70 | **3.07**** | **2.27*** | **2.10*** | **-2.23*** | **4.15**** | **-6.40**** | -0.86 |
| **IPlist** | 0.09 | **0.15** | 0.12 | 0.02 | 0.01 | 0.01 | **0.14** | **-0.36** | -0.05 |

| SPEARMAN'S RHO | USE_WC | USE_RD | USE_REPAY | USE_ACQUIRE | USE_CAPEX | USE_INVEST | USE_CASHOUT | USE_EXPLORE | BACKDOOR |
|---|---|---|---|---|---|---|---|---|---|
| | 1.43 | **2.39*** | 1.90 | 0.24 | 0.17 | 0.16 | **2.24*** | **-5.98**** | -0.74 |
| **IPpost** | -0.02 | **0.18** | -0.02 | 0.05 | 0.11 | -0.02 | **0.20** | **-0.27** | 0.02 |
| | -0.33 | **2.85**** | -0.25 | 0.82 | 1.78 | -0.32 | **3.17**** | **-4.28**** | 0.29 |
| **PATAPPLIC** | 0.03 | **0.34** | 0.02 | 0.01 | 0.06 | 0.03 | 0.01 | **-0.15** | 0.02 |
| | 0.52 | **5.52**** | 0.29 | 0.17 | 0.91 | 0.49 | 0.21 | **-2.38*** | 0.30 |
| **PATENT** | 0.03 | **0.27** | 0.05 | 0.00 | 0.06 | 0.04 | 0.01 | **-0.13** | 0.09 |
| | 0.53 | **4.36**** | 0.74 | 0.03 | 0.86 | 0.59 | 0.12 | **-2.08*** | 1.39 |
| **TRADEMARK** | 0.07 | 0.10 | 0.10 | 0.05 | -0.01 | 0.03 | **0.13** | **-0.34** | -0.10 |
| | 1.11 | 1.62 | 1.57 | 0.72 | -0.11 | 0.40 | **1.98*** | **-5.56**** | -1.55 |
| **DESIGN** | -0.10 | 0.06 | 0.07 | 0.02 | 0.08 | -0.02 | 0.08 | -0.07 | 0.07 |
| | -1.51 | 0.95 | 1.05 | 0.37 | 1.24 | -0.32 | 1.22 | -1.05 | 1.13 |
| **UND** | 0.07 | 0.12 | 0.00 | 0.07 | -0.01 | -0.07 | **0.14** | **-0.26** | -0.11 |
| | 1.01 | 1.85 | 0.02 | 1.03 | -0.21 | -1.12 | **2.19*** | **-4.09**** | -1.62 |
| **NI/TA (7yr aver. post list)** | **-0.39** | **-0.17** | **0.14** | 0.06 | -0.10 | 0.08 | **0.33** | **-0.13** | **-0.26** |
| | **-6.38**** | **-2.59*** | **2.05*** | 0.84 | -1.45 | 1.23 | **5.24**** | **-1.98*** | **-3.96**** |
| **TOTDESIGN** | 0.04 | -0.09 | -0.01 | -0.01 | 0.09 | -0.01 | -0.02 | 0.12 | 0.08 |
| | 0.62 | -1.47 | -0.20 | -0.15 | 1.39 | -0.19 | -0.23 | 1.83 | 1.22 |
| **TOTPAT** | 0.04 | 0.05 | -0.04 | 0.10 | **0.14** | **0.13** | 0.10 | -0.07 | -0.08 |
| | 0.61 | 0.77 | -0.58 | 1.56 | **2.19*** | **2.02*** | 1.46 | -1.11 | -1.23 |
| **TOTTRADEMARK** | 0.11 | 0.05 | 0.11 | **0.30** | **0.23** | **0.10** | **0.35** | **0.17** | -0.01 |
| | 1.73 | 0.78 | 1.73 | **4.78**** | **3.55**** | **1.54** | **5.49**** | **2.61*** | -0.10 |
| **IP_YR1** | 0.09 | 0.06 | 0.00 | **0.18** | 0.08 | 0.10 | **0.15** | -0.04 | -0.11 |
| | 1.41 | 1.00 | -0.04 | **2.88**** | 1.23 | 1.52 | **2.25*** | -0.66 | -1.68 |
| **IP_YR2** | 0.00 | 0.08 | 0.02 | **0.22** | **0.23** | 0.10 | **0.24** | 0.02 | -0.07 |
| | 0.01 | 1.25 | 0.35 | **3.51**** | **3.60**** | 1.53 | **3.70**** | 0.36 | -1.02 |
| **IP_YR3** | 0.01 | 0.04 | 0.02 | **0.21** | **0.25** | 0.12 | **0.18** | 0.05 | 0.05 |
| | 0.20 | 0.69 | 0.26 | **3.31**** | **3.84**** | 1.79 | **2.65*** | 0.77 | 0.76 |
| **IP_YR4** | -0.03 | -0.01 | -0.03 | **0.20** | **0.22** | 0.10 | 0.07 | 0.11 | 0.12 |
| | -0.44 | -0.16 | -0.47 | **3.10**** | **3.45**** | 1.54 | 1.07 | 1.66 | 1.80 |
| **IP_YR5** | -0.01 | -0.04 | -0.02 | 0.10 | **0.14** | 0.11 | 0.07 | 0.01 | 0.00 |
| | -0.23 | -0.57 | -0.24 | 1.56 | **2.18*** | 1.61 | 1.11 | 0.08 | -0.07 |

## TABLE 4 UNDERPRICING HYPOTHESIS TESTS

**OLS Regressions of underpricing (UND) on "proposed use of proceeds", capitalized intangibles, IP, and other firm characteristics**

| | | USE_WC | USE_RD | USE_Explore | USE_Repay | USE_Capex | USE_Acquire | USE_Invest | USE_Cashout | BACKDOOR |
|---|---|---|---|---|---|---|---|---|---|---|
| Log(Age) | -0.001 | 0.001 | -0.004 | -0.002 | 0.004 | -0.004 | 0.001 | -0.004 | 0.005 | -0.004 |
| | -0.04 | 0.07 | -0.23 | -0.10 | 0.21 | -0.20 | 0.02 | -0.22 | 0.25 | -0.19 |
| BACKDOOR | 0.110 | 0.111 | 0.039 | 0.120 | 0.115 | 0.096 | 0.102 | 0.116 | 0.118 | -0.066 |
| | 1.31 | 1.32 | 0.52 | 1.13 | 1.38 | 1.13 | 1.22 | 1.38 | 1.42 | -0.57 |
| Log(Offer) | -0.026 | -0.023 | -0.053 | -0.030 | -0.053 | -0.023 | -0.040 | -0.033 | -0.017 | -0.018 |
| | -0.62 | -0.55 | -1.39 | -0.71 | -1.23 | -0.53 | -0.93 | -0.77 | -0.38 | -0.42 |
| RETAIN | 0.097 | 0.135 | -0.175 | 0.104 | 0.073 | 0.095 | 0.077 | 0.063 | 0.106 | 0.127 |
| | 0.46 | 0.65 | -0.93 | 0.50 | 0.35 | 0.15 | 0.37 | 0.30 | 0.51 | 0.60 |
| DELAY | **-0.302** | **-0.277** | **-0.288** | **-0.315** | **-0.295** | **-0.293** | **-0.303** | **-0.304** | **-0.263** | **-0.298** |
| | **-3.01**** | **-2.74**** | **-3.24**** | **-3.15**** | **-2.98**** | **-2.89**** | **-3.05**** | **-3.05**** | **-2.61**** | **-3.02**** |
| PIPO | **-0.169** | **-0.171** | -0.129 | -0.161 | **-0.179** | **-0.178** | **-0.192** | **-0.170** | **-0.172** | -0.156 |
| | **-2.04*** | **-2.06*** | -1.75 | -1.93 | **-2.18** | **-2.12*** | **-2.31*** | **-2.05*** | **-2.09*** | -1.90 |
| HOT | 0.106 | 0.101 | 0.100 | 0.130 | **0.079** | 0.104 | 0.112 | 0.114 | 0.107 | 0.102 |
| | 1.33 | 1.27 | 1.42 | 1.60 | **0.98** | 1.28 | 1.40 | 1.43 | 1.34 | 1.28 |
| UWRITER | **4.279** | **4.294** | 1.821 | **4.355** | **5.099** | **4.066** | **4.848** | **4.248** | **3.963** | **4.075** |
| | **2.48*** | **2.50*** | 1.18 | **2.53*** | **2.95**** | **2.30*** | **2.81**** | **2.42*** | **2.30*** | **2.38*** |
| AUDQUAL | 0.63 | 0.682 | 0.018 | 0.621 | 0.799 | 0.643 | 0.681 | 0.699 | 0.827 | 0.650 |
| | 1.37 | 1.48 | 0.04 | 1.34 | 1.73 | 1.37 | 1.48 | 1.52 | 1.77 | 1.42 |
| FORECAST | 0.001 | 0.003 | -0.001 | 0.001 | 0.0003 | 0.001 | -0.0002 | 0.001 | 0.002 | 0.0002 |
| | 0.14 | 0.39 | -0.08 | 0.09 | 0.05 | 0.07 | -0.04 | 0.12 | 0.28 | 0.03 |
| USE_WC | **1.852** | 1.502 | **2.412** | **1.980** | **2.278** | **1.813** | **2.008** | **1.989** | 1.414 | 1.751 |
| | **2.03*** | 1.63 | **2.98**** | **2.18*** | **2.50*** | **1.98*** | **2.22*** | **2.20*** | 1.51 | 1.95 |
| USE_RD | **3.303** | **3.190** | **14.774** | **3.450** | **4.006** | **3.331** | **3.412** | **3.499** | **2.740** | **3.149** |
| | **3.45**** | **3.18**** | **8.95**** | **3.61**** | **4.08**** | **3.46**** | **3.60**** | **3.67**** | **2.73**** | **3.31**** |
| USE_Explore | 1.352 | 1.257 | **1.919** | 1.374 | 1.707 | 1.299 | 1.571 | 1.491 | 1.015 | 1.311 |
| | 1.48 | 1.37 | **2.36*** | 1.51 | 1.88 | 1.41 | 1.73 | 1.64 | 1.08 | 1.46 |
| USE_Repay | 1.769 | 1.709 | **2.328** | **1.916** | 1.598 | 1.728 | **1.934** | **1.903** | 1.323 | 1.681 |
| | 1.87 | 1.79 | **2.77**** | **2.03*** | 1.67 | 1.82 | **2.06*** | **2.03*** | 1.36 | 1.81 |
| USE_Capex | 1.440 | 1.355 | **2.094** | 1.586 | **1.844** | 1.192 | 1.819 | 1.600 | 1.017 | 1.339 |
| | 1.55 | 1.44 | **2.53*** | 1.70 | **1.99*** | 1.20 | 1.75 | 1.72 | 1.06 | 1.46 |
| USE_Acquire | 1.701 | 1.669 | **2.124** | 1.850 | **2.150** | 1.66 | **2.495** | 1.844 | 1.252 | 1.653 |
| | 1.80 | 1.75 | **2.53*** | 1.96 | **2.28*** | 1.74 | **2.48*** | 1.96 | 1.29 | 1.78 |
| USE_Invest | 1.516 | 1.430 | **2.001** | 1.632 | **1.919** | 1.461 | 1.715 | 1.647 | 1.135 | 1.451 |
| | 1.59 | 1.48 | **2.35*** | 1.71 | **2.01*** | 1.51 | 1.80 | 1.73 | 1.15 | 1.54 |
| USE_Cashout | **1.923** | 1.863 | **2.442** | **2.062** | **2.376** | **1.887** | **2.075** | **2.087** | **2.049** | **1.862** |
| | **2.05*** | 1.96 | **2.92**** | **2.20*** | **2.53*** | **2.00*** | **2.22*** | **2.23*** | **2.14*** | **2.01*** |

**OLS Regressions of underpricing (UND) on "proposed use of proceeds", capitalized intangibles, IP, and other firm characteristics**

| | | USE_WC | USE_RD | USE_Explore | USE_Repay | USE_Capex | USE_Acquire | USE_Invest | USE_Cashout | BACKDOOR |
|---|---|---|---|---|---|---|---|---|---|---|
| CAP | **-0.192** | **-0.416** | -0.083 | **-0.246** | **-0.252** | **-0.219** | -0.0112 | **-0.196** | -0.083 | **-0.284** |
| | **-2.39*** | **-2.90**** | -1.12 | **-2.85**** | **-2.87**** | **-2.52*** | -1.30 | **-2.43*** | -0.92 | **-3.25**** |
| IPlist | **-0.092** | **-0.122** | -0.034 | **-0.095** | **-0.106** | **-0.107** | **-0.088** | **-0.092** | **-0.082** | **-0.093** |
| | **-4.44**** | **-2.94**** | -1.17 | **-4.57**** | **-4.85**** | **-4.29**** | **-4.20**** | **-4.50**** | **-3.80**** | **-4.17**** |
| CAP*IPlist | **0.077** | **0.114** | 0.024 | **0.81** | **0.085** | **0.092** | **0.072** | **0.076** | **0.065** | **0.081** |
| | **3.86**** | **2.81**** | 0.85 | **4.01**** | **4.08**** | **3.81**** | **3.62**** | **3.86**** | **3.07**** | **3.79**** |
| **USE$_j$***CAP | | **0.492** | **-11.971** | 0.594 | 0.674 | 0.362 | **-0.945** | -0.154 | **-0.829** | **0.472** |
| | | **2.10*** | **-7.99**** | 1.67 | 1.76 | 0.72 | **-2.30*** | -0.28 | **-2.69**** | **2.85**** |
| **USE$_j$***IPlist | | 0.076 | **-0.701** | -0.625 | 0.196 | 0.234 | 0.439 | **0.760** | -0.175 | 0.022 |
| | | 0.97 | **-7.26**** | -0.42 | 0.74 | 1.10 | 0.76 | **2.30*** | -1.07 | 0.45 |
| **USE$_j$***CAP*IPlist | | -0.097 | **0.706** | - | -0.154 | -0.256 | -0.423 | - | 0.185 | -0.051 |
| | | -1.23 | **7.24**** | | -0.58 | -1.15 | -0.73 | | 1.12 | -1.03 |
| Adj. $R^2$ | 0.19 | 0.20 | 0.37 | 0.19 | 0.21 | 0.18 | 0.20 | 0.20 | 0.21 | 0.21 |

OLS regressions with continuous "USE of proceeds" independent variables deflated by the total proposed issue of proceeds. OLS standard errors are White (1980) adjusted and Huber-White adjusted for the Probit parameters. One tailed significance test statistics are reported where a sign is predicted otherwise the tests are two tailed: ** denotes less then 1 percent and * denotes less than 5 percent. The sample comprises IPOs listing between 1994 and 2000. Firm number is approximately 241. Variables are described in Table 1.

$$UND_{i,t} = \chi_0 + \chi_1 LOG(Age)_{i,t} + \chi_2 BACKDOOR_{i,t} + \chi_3 LOG(Offer)_{i,t} + \chi_4 RETAIN_{i,t} + \chi_5 DELAY_{i,t} + \chi_6 PIPO_{i,t} + \chi_7 HOT_{i,t} + \chi_8 UWRITER_{i,t} + \chi_9 AUDQUAL_{i,t} + \chi_{10} FORECAST_{i,t} + \chi_{11} USE\_WC_{i,t} + \chi_{12} USE\_RD_{i,t} + \chi_{13} USE\_Explore_{i,t} + \chi_{14} USE\_Repay_{i,t} + \chi_{15} USE\_Capex_{i,t} + \chi_{16} USE\_Acquire_{i,t} + \chi_{17} USE\_Invest_{i,t} + \chi_{18} USE\_Cashout_{i,t} + \chi_{19} CAP_{i,t} + \chi_{20} IPlist_{i,t} + + \chi_{21}(CAP_{i,t} * IPlist_{i,t}) + \chi_{22}(USE_{j,i,t} * CAP_{i,t}) + \chi_{23}(USE_{j,i,t} * IPlist_{i,t}) + \chi_{24}(USE_{j,i,t} * CAP_{i,t} * IPlist_{i,t}) + \varepsilon_{i,t} \quad (1)$$

## TABLE 5 UNDERPRICING TESTS INCLUDING DISAGGREGATED INTANGIBLE ASSETS AND INTELLECTUAL PROPERTY

**OLS Regressions of underpricing (UND) on individual "proposed use of proceeds", disaggregated capitalized intangibles and IP**

| | USE_WC | USE_RD | USE_Explore | USE_Repay | USE_Capex | USE_Acquire | USE_Invest | USE_Cashout | BACKDOOR |
|---|---|---|---|---|---|---|---|---|---|
| BACKDOOR | | | | | | | | | -0.115 |
| | | | | | | | | | -0.76 |
| USE_WC | **-1.042** | | | | | | | | |
| | **-2.02*** | | | | | | | | |
| USE_RD | | **1.670** | | | | | | | |
| | | **6.03**** | | | | | | | |
| USE_Explore | | | -0.294 | | | | | | |
| | | | -0.90 | | | | | | |
| USE_Repay | | | | -0.252 | | | | | |
| | | | | -1.89 | | | | | |
| USE_Capex | | | | | -0.116 | | | | |
| | | | | | -0.69 | | | | |
| USE_Acquire | | | | | | **0.789** | | | |
| | | | | | | **4.62**** | | | |
| USE_Invest | | | | | | | -0.251 | | |
| | | | | | | | -0.78 | | |
| USE_Cashout | | | | | | | | **0.501** | |
| | | | | | | | | **3.45**** | |
| Log(Age) | 0.013 | 0.013 | 0.006 | 0.009 | 0.007 | 0.008 | 0.001 | -0.0002 | 0.009 |
| | 0.59 | 0.67 | 0.31 | 0.42 | 0.31 | 0.40 | 0.37 | -0.01 | 0.41 |
| Log(Offer) | -0.023 | -0.041 | -0.043 | -0.027 | -0.040 | -0.050 | -0.043 | -0.062 | -0.014 |
| | -0.54 | -1.06 | -1.04 | -0.65 | -0.95 | -1.122 | -1.05 | -1.45 | -0.33 |
| RETAIN | 0.134 | 0.016 | 0.164 | 0.281 | 0.145 | 0.105 | 0.082 | 0.125 | 0.204 |
| | 0.68 | 0.08 | 0.82 | 1.42 | 0.71 | 0.54 | 0.40 | 0.64 | 1.04 |
| DELAY | **-0.303** | **-0.291** | **-0.327** | **-0.292** | **-303** | **-0.334** | **-0.294** | **-0.259** | **-0.294** |
| | **-2.92**** | **-2.99** | **-3.12**** | **-2.83**** | **-2.87**** | **-3.28**** | **-2.83**** | **-2.50*** | **-2.87**** |
| PIPO | -0.135 | -0.102 | -0.108 | -0.102 | -0.113 | -0.082 | -0.116 | -0.106 | -0.102 |
| | -1.59 | -1.28 | -1.25 | -1.21 | -1.25 | -0.97 | -1.38 | -1.26 | -1.16 |
| HOT | 0.158 | 0.128 | 0.153 | 0.127 | 0.135 | 0.123 | 0.150 | 0.143 | 0.131 |
| | 1.90 | 1.66 | 1.79 | 1.55 | 1.59 | 1.55 | -1.83 | 1.75 | 1.59 |
| UWRITER | 2.623 | 1.976 | 2.393 | 2.803 | 2.810 | 2.956 | 2.714 | 2.160 | 2.846 |
| | 1.45 | 1.22 | 1.37 | 1.62 | 1.56 | 1.74 | 1.54 | 1.25 | 1.65 |
| AUDQUAL | 0.744 | 0.425 | 0.708 | 0.755 | 0.777 | **0.973** | 0.802 | 0.826 | 0.778 |
| | 1.53 | 0.95 | 1.46 | 1.59 | 1.60 | **2.10*** | 1.69 | 1.73 | 1.62 |
| CAP_GW | **-1.369** | 0.009 | -0.076 | -0.131 | -0.129 | 0.050 | -0.098 | 0.049 | -0.146 |
| | **-2.14*** | 0.12 | -0.96 | -1.22 | -1.38 | 0.60 | -1.25 | 0.54 | -1.67 |

**OLS Regressions of underpricing (UND) on individual "proposed use of proceeds", disaggregated capitalized intangibles and IP**

| | USE_WC | USE_RD | USE_Explore | USE_Repay | USE_Capex | USE_Acquire | USE_Invest | USE_Cashout | BACKDOOR |
|---|---|---|---|---|---|---|---|---|---|
| CAP_RD | -0.126 | -0.0601 | -0.136 | -0.127 | -0.131 | -0.056 | -0.122 | -0.035 | -0.101 |
| | -1.09 | -0.50 | -1.16 | -0.98 | -0.93 | -0.44 | -1.04 | -0.27 | -0.77 |
| CAP_IIA | -0.273 | -0.068 | -0.083 | -0.080 | -0.031 | 0.015 | -0.081 | 0.033 | -0.114 |
| | -0.42 | -0.90 | -1.05 | -0.60 | -0.33 | 0.19 | -1.06 | 0.38 | -1.31 |
| CAP_EXTRACT | -1.948 | -0.163 | -0.131 | **-0.286** | **-0.231** | -0.131 | **-0.246** | -0.102 | -0.235 |
| | -0.83 | -1.72 | -0.67 | **-2.45*** | **-1.97*** | -1.28 | **-2.37*** | -0.98 | -1.93 |
| Patapplic | -2.078 | -0.012 | -0.009 | 0.016 | -0.043 | 0.009 | 0.012 | -0.014 | -0.034 |
| | -0.62 | -0.42 | -0.40 | 0.56 | -0.87 | 0.37 | 0.48 | -0.41 | -0.73 |
| Patent | -0.021 | -0.026 | -0.020 | -0.028 | 0.031 | -0.018 | -0.023 | -0.027 | 0.023 |
| | -0.96 | -1.16 | -0.94 | -1.21 | 0.68 | -0.83 | -1.08 | -1.15 | 0.51 |
| Trademark | 0.214 | -0.005 | -0.013 | **-0.040** | -0.012 | -0.013 | **-0.017** | -0.009 | -0.010 |
| | 0.29 | -0.61 | -1.71 | **-3.20**** | -1.38 | -1.60 | **-2.09*** | -0.94 | -1.25 |
| Design | -1.820 | 0.225 | 0.174 | 0.298 | 0.222 | 0.235 | 0.157 | 0.322 | -0.161 |
| | -1.12 | 1.16 | 0.88 | 1.28 | 0.95 | 1.17 | 0.80 | 1.43 | -0.44 |
| IPpost | -0.002 | -0.007 | -0.002 | 9.9e-05 | -0.003 | -0.002 | -0.001 | -0.001 | -0.002 |
| | -0.35 | -1.28 | -0.34 | 0.02 | -0.51 | -0.34 | -0.11 | -0.17 | -0.33 |
| **USE$_j$***CAP_GW | **1.315** | -0.680 | 0.395 | 0.203 | 0.182 | **-0.658** | **1.682** | **-0.454** | **0.479** |
| | **2.04*** | -1.87 | 0.64 | 1.27 | 0.95 | **-3.25**** | **2.27*** | **-2.42*** | **2.29*** |
| **USE$_j$***CAP_RD | - | **-0.869** | - | -0.143 | 0.075 | -0.300 | -1.297 | 0.042 | -0.064 |
| | | **-2.51*** | | -0.49 | 0.29 | -0.94 | -1.76 | 0.13 | -0.22 |
| **USE$_j$***CAP_IIA | 0.215 | **-1.119** | 0.211 | -0.005 | -0.073 | **-0.567** | -0.132 | -0.276 | 0.300 |
| | 0.33 | **-3.85**** | 0.64 | -0.03 | -0.40 | **-2.76**** | -0.22 | -1.46 | 1.60 |
| **USE$_j$***CAP_EXTRACT | 1.759 | - | 0.183 | 0.204 | 0.037 | **-0.554** | - | -0.291 | 0.078 |
| | 0.75 | | 0.49 | 1.02 | 0.15 | **-2.17*** | | -0.54 | 0.39 |
| **USE$_j$***Patapplic | 2.087 | 0.021 | -0.173 | 0.004 | 0.067 | 0.137 | - | -0.001 | -0.010 |
| | 0.62 | 0.25 | -0.33 | 0.07 | 1.07 | 0.94 | | -0.01 | -0.15 |
| **USE$_j$***Patent | - | 0.010 | - | -0.021 | -0.060 | **-0.658** | - | 0.033 | -0.062 |
| | | 0.13 | | -0.30 | -1.11 | **-2.12*** | | 0.45 | -1.16 |
| **USE$_j$***Trademark | -0.230 | **-0.111** | - | **0.037** | -0.004 | 0.039 | - | -0.004 | -0.048 |
| | -0.31 | **-4.18**** | | **2.48*** | -0.16 | 1.42 | | -0.25 | -1.71 |
| **USE$_j$***Design | 2.075 | -0.242 | - | -0.423 | -0.314 | 0.443 | - | -0.567 | 0.552 |
| | 1.26 | -0.35 | | -0.98 | -0.65 | 0.50 | | -1.23 | 1.28 |
| Intercept | 2.626 | 1.879 | 2.059 | 1.674 | 1.944 | 2.064 | 2.001 | 1.999 | 1.449 |
| | 2.54* | 2.09* | 2.22* | 1.82 | 2.07* | 2.28* | 2.01* | 2.17* | 1.57 |
| Adj. $R^2$ | 0.12 | 0.25 | 0.11 | 0.14 | 0.10 | 0.19 | 0.14 | 0.15 | 0.15 |

OLS regressions with binary "USE of proceeds" independent variables. One tailed significance test statistics are reported where a sign is predicted otherwise the tests are two tailed: ** denotes less then 1 percent and * denotes less than 5 percent. The sample comprises IPOs listing between 1994 and 2000. Firm number is approximately 241. Variables are described in Table 1.

$$UND_{i,t} = \chi_0 + \chi_1 BACKDOOR_{i,t} + \chi_2 \mathbf{USE_{j,i,t}} + \chi_3 LOG(Age)_{i,t} + \chi_4 LOG(Offer)_{i,t} + \chi_5 RETAIN_{i,t} + \chi_6 DELAY_{i,t} + \chi_7 PIPO_{i,t} + \chi_8 HOT_{i,t} + \chi_9 UWRITER_{i,t} + \chi_{10} AUDQUAL_{i,t} + \chi_{11} CAP\_GW_{i,t} + \chi_{12} CAP\_RD_{i,t} + \chi_{13} CAP\_IIA_{i,t} + \chi_{14} CAP\_EXTRACT_{i,t} + \chi_{15} Patapplic_{i,t} + \chi_{16} Patent_{i,t} + \chi_{17} Trademark_{i,t} + \chi_{18} Design_{i,t} + \chi_{19} IPpost_{i,t} + \chi_{20} (\mathbf{USE_{j,i,t}} * CAP\_GW_{i,t}) + \chi_{21} (\mathbf{USE_{j,i,t}} * CAP\_RD_{i,t}) + \chi_{22} (\mathbf{USE_{j,i,t}} * CAP\_IIA_{i,t}) + \chi_{23} (\mathbf{USE_{j,i,t}} * CAP\_EXTRACT_{i,t}) + \chi_{24} (\mathbf{USE_{j,i,t}} * Patapplic_{i,t}) + \chi_{25} (\mathbf{USE_{j,i,t}} * Patent_{i,t}) + \chi_{26} (\mathbf{USE_{j,i,t}} * Trademark_{i,t}) + \chi_{27} (\mathbf{USE_{j,i,t}} * Design_{i,t}) + \varepsilon_{i,t} \quad (2)$$

## TABLE 6 POST-LISTING OPERATING PERFORMANCE

| | $NI/TA_{t+1}$ (n= 1093) | $NI/TA_{t+2}$ (n= 854) | $NI/TA_{t+3}$ (n= 652) | $NI/TA_{t+4}$ (n= 468) | $NI/TA_{t+5}$ (n= 292) | $NI/TA_{t+6}$ (n= 190) | $NI/TA_{t+7}$ (n= 110) |
|---|---|---|---|---|---|---|---|
| $BVE_t / TA_{beginning}$ | **-0.187** | **-0.166** | **-0.131** | **-0.080** | **-0.071** | **-0.062** | -0.051 |
| | **-12.62**** | **-10.46**** | **-7.72**** | **-4.39**** | **-3.46**** | **-2.55*** | -1.24 |
| USE_WC | **-0.407** | **-0.412** | **-0.392** | **-0.360** | **-0.382** | -0.433 | -0.382 |
| | **-4.52**** | **-3.84**** | **-3.56**** | **-2.49*** | **-1.98*** | -1.50 | -1.11 |
| USE_RD | -0.065 | -0.056 | -0.285 | -0.364 | -0.208 | -0.586 | -0.829 |
| | -0.21 | -0.15 | -0.74 | -0.73 | -0.31 | -0.56 | -0.70 |
| USE_Explore | -0.070 | -0.176 | **-0.319** | **-0.452** | **-0.673** | **-0.659** | -0.577 |
| | -0.71 | -1.52 | **-2.78**** | **-3.09**** | **-3.71**** | **-2.49*** | -1.80 |
| USE_Repay | 0.092 | 0.124 | 0.070 | -0.064 | -0.088 | -0.097 | -0.114 |
| | 0.67 | 0.77 | 0.43 | -0.28 | -0.34 | -0.26 | -0.28 |
| USE_Capex | -0.290 | -0.345 | -0.081 | -0.124 | -0.302 | -0.157 | -0.159 |
| | -1.18 | -1.18 | -0.28 | -0.32 | -0.66 | -0.24 | -0.21 |
| USE_Acquire | 0.191 | 0.267 | 0.024 | -0.017 | -0.302 | 0.112 | 0.305 |
| | 1.22 | 1.44 | 0.13 | -0.07 | -0.66 | 0.22 | 0.50 |
| USE_Cashout | 0.037 | 0.012 | -0.032 | -0.076 | -0.157 | -0.148 | -0.167 |
| | 0.28 | 0.08 | -0.20 | -0.36 | -0.525 | -0.31 | -0.27 |
| BACKDOOR | **-0.184** | **-0.187** | **-0.212** | **-0.225** | -0.111 | -0.113 | -0.070 |
| | **-2.60**** | **-2.17*** | **-2.44*** | **-1.99*** | -0.70 | -0.49 | -0.24 |
| UWRITER | **3.056** | 2.620 | 3.220 | 4.071 | 5.331 | 4.915 | 4.841 |
| | **2.09*** | 1.48 | 1.75 | 1.61 | 1.62 | 0.99 | 0.83 |
| AUDQUAL | -0.357 | -0.239 | 0.032 | 0.199 | 0.159 | -0.493 | -1.219 |
| | -0.86 | -0.48 | 0.06 | 0.29 | 0.17 | -0.34 | -0.66 |
| CAP | 0.024 | 0.025 | 0.018 | 0.101 | 0.171 | 0.191 | 0.099 |
| | 0.37 | 0.32 | 0.22 | 0.96 | 1.25 | 0.96 | 0.42 |
| IPlist | 0.001 | 0.001 | -0.0004 | 0.001 | 0.0002 | -0.003 | 0.005 |
| | 0.28 | 0.15 | -0.06 | 0.22 | 0.02 | -0.13 | 0.14 |
| INTANG/TA (post list) | 0.262 | 0.297 | 0.300 | **-0.006** | 0.037 | 0.122 | 0.557 |
| | 1.66 | 1.59 | 1.62 | **-3.75**** | 0.11 | 0.24 | 1.09 |
| IPpost | -0.0004 | -0.001 | 0.001 | -0.001 | -0.003 | 0.006 | -0.0003 |
| | -0.09 | -0.24 | 0.22 | -0.14 | -0.18 | 0.22 | -0.01 |
| Adj. $R^2$ | 0.18 | 0.16 | 0.14 | 0.13 | 0.08 | 0.03 | -0.06 |

OLS regressions with continuous "USE of proceeds" independent variables. One tailed significance test statistics are reported where a sign is predicted otherwise the tests are two tailed: ** denotes less then 1 percent and * denotes less than 5 percent. The sample comprises IPOs listing between 1994 and 2000. Variables are described in Table 1.

## TABLE 7 OPERATING PERFORMANCE TESTS FOR DISAGGREGATED INTANGIBLE ASSETS AND INTELLECTUAL PROPERTY

**OLS Regressions of NI/TA averaged for seven years on individual "proposed use of proceeds", disaggregated capitalized intangibles and IP**

| | | USE_WC | USE_RD | USE_Explore | USE_Repay | USE_Capex | USE_Acquire | USE_Invest | USE_Cashout | BACKDOOR |
|---|---|---|---|---|---|---|---|---|---|---|
| $BVE_t / TA_{t+n}$ | -0.035 | **-0.039** | **-0.038** | **-0.042** | **-0.041** | **-0.038** | **-0.038** | **-0.040** | **-0.038** | **-0.042** |
| | -1.92 | **-2.12*** | **-2.05*** | **-2.25*** | **-2.18*** | **-2.08*** | **-2.06*** | **-2.17*** | **-2.07*** | **-2.31*** |
| USE_WC | **-0.316** | **-0.401** | | | | | | | | |
| | **-6.37**** | **-4.35**** | | | | | | | | |
| USE_RD | -0.322 | | 0.279 | | | | | | | |
| | -1.71 | | 0.31 | | | | | | | |
| USE_Explore | **-0.293** | | | 0.154 | | | | | | |
| | **-3.02**** | | | 0.61 | | | | | | |
| USE_Repay | 0.020 | | | | **0.326** | | | | | |
| | 0.26 | | | | **2.62**** | | | | | |
| USE_Capex | -0.238 | | | | | 0.045 | | | | |
| | -1.70 | | | | | 0.21 | | | | |
| USE_Acquire | 0.051 | | | | | | 0.509 | | | |
| | 0.55 | | | | | | 1.34 | | | |
| USE_Invest | 0.194 | | | | | | | -0.059 | | |
| | 1.51 | | | | | | | -0.39 | | |
| USE_Cashout | 0.063 | | | | | | | | **0.367** | |
| | 0.95 | | | | | | | | **2.87**** | |
| BACKDOOR | **-0.105** | | | | | | | | | **-0.259** |
| | **-2.62**** | | | | | | | | | **-3.36**** |
| CAP_GW | -0.012 | 0.141 | 0.038 | 0.058 | 0..061 | 0.049 | 0.048 | 0.053 | 0.002 | **0.088** |
| | -0.28 | 1.95 | 0.88 | 1.42 | 1.27 | 1.12 | 1.12 | 1.29 | 0.03 | **1.98*** |
| CAP_RD | **-0.315** | -0.349 | **-0.497** | **-0.419** | **-0.440** | **-0.238** | **-0.474** | **-0.120** | **-0.407** | **-0.440** |
| | **-4.97**** | -1.89 | **-6.99**** | **-6.80**** | **-6.37**** | **-3.42**** | **-6.98**** | **-6.69**** | **-5.94**** | **-6.15**** |
| CAP_IIA | 0.062 | -0.025 | 0.076 | 0.034 | 0.084 | **0.083** | 0.066 | 0.048 | **0.112** | -0.018 |
| | 1.63 | -0.36 | 1.87 | 0.85 | 1.89 | **2.01*** | 1.63 | 1.25 | **2.63**** | -0.41 |
| CAP_EXTRACT | 0.061 | **-0.229** | -0.042 | 0.095 | 0.045 | -0.030 | -0.042 | -0.031 | 0.019 | -0.072 |
| | 0.95 | **-2.62**** | -0.92 | 1.20 | 0.90 | -0.65 | -0.89 | -0.67 | 0.39 | -1.33 |
| Patapplic | **0.028** | -0.036 | **0.030** | **0.031** | **0.037** | -0.019 | **0.028** | **0.031** | 0.013 | -0.021 |
| | **2.22*** | -0.78 | **2.00*** | **2.51*** | **2.79**** | -0.83 | **2.27*** | **2.47*** | 0.78 | -0.85 |
| Patent | -0.022 | 0.045 | **-0.040** | **-0.027** | **-0.029** | 0.022 | **-0.023** | **-0.026** | **-0.032** | 0.026 |
| | -1.91 | 0.96 | **-3.01**** | **-2.29*** | **-2.40*** | 0.97 | **-1.98*** | **-2.22*** | **-2.49*** | 1.06 |
| Trademark | 0.004 | -0.005 | 0.005 | 0.004 | 0.006 | 0.006 | 0.005 | 0.004 | **0.009** | 0.004 |
| | 0.97 | -0.66 | 1.02 | 1.110 | 1.18 | 1.37 | 1.11 | 1.11 | **2.01*** | 0.97 |
| Design | 0.171 | -0.066 | 0.149 | **0.273** | **0.494** | **0.773** | 0.159 | **0.283** | 0.240 | 0.181 |
| | 1.24 | -0.23 | 0.86 | **2.02** | **2.29*** | **2.41*** | 0.93 | **2.09*** | 1.23 | 1.05 |

**OLS Regressions of NI/TA averaged for seven years on individual "proposed use of proceeds", disaggregated capitalized intangibles and IP**

| | | USE_WC | USE_RD | USE_Explore | USE_Repay | USE_Capex | USE_Acquire | USE_Invest | USE_Cashout | BACKDOOR |
|---|---|---|---|---|---|---|---|---|---|---|
| IPpost | -0.001 | -0.006 | -0.001 | -0.001 | -0.003 | -0.002 | -0.002 | -0.002 | -0.001 | -0.003 |
| | -0.31 | -0.88 | -0.12 | -0.51 | -0.806 | -0.80 | -0.87 | -0.64 | -0.35 | -1.01 |
| **USE$_j$***CAP_GW | | **-0.280** | -1.995 | -0.391 | -0.118 | 0.155 | -0.184 | 2.045 | 0.047 | **-0.413** |
| | | **-2.26*** | -1.62 | -0.94 | -0.65 | 0.41 | -0.79 | 0.80 | 0.32 | **-3.75**** |
| **USE$_j$***CAP_RD | | -0.008 | **2.910** | - | 1.072 | **-4.074** | 0.377 | -0.061 | 0.367 | -0.138 |
| | | -0.04 | **2.39*** | | 1.27 | **-5.27**** | 0.64 | -0.01 | 0.91 | -0.85 |
| **USE$_j$***CAP_IIA | | 0.210 | -0.428 | 0.076 | -0.095 | -0.353 | -0.280 | 0.311 | -0.145 | **0.309** |
| | | 1.86 | -0.50 | 0.29 | -0.53 | -0.96 | -0.73 | 1.14 | -0.98 | **3.24**** |
| **USE$_j$***CAP_EXTRACT | | 0.362 | | -0.384 | **-1.228** | 0.242 | -0.181 | - | -0.024 | 0.132 |
| | | 1.93 | | -1.39 | **-2.11*** | 0.49 | -0.44 | | -0.06 | 1.37 |
| **USE$_j$***Patapplic | | 0.062 | -0.25 | - | -0.236 | **0.735** | 0.721 | - | -0.086 | **0.102** |
| | | 1.05 | -1.87 | | -1.07 | **2.53*** | 1.27 | | -0.91 | **3.20**** |
| **USE$_j$***Patent | | -0.090 | **0.275** | - | 0.171 | **-0.571** | -0.718 | - | 0.174 | **-0.075** |
| | | -1.64 | **2.15*** | | 1.04 | **-2.40*** | -0.87 | | 1.24 | **-2.65**** |
| **USE$_j$***Trademark | | 0.027 | -0.005 | - | -0..001 | 0.0418 | -0.005 | - | -0.013 | **0.057** |
| | | 1.73 | -0.08 | | -0.04 | 0.49 | -0.14 | | -0.75 | **2.77**** |
| **USE$_j$***Design | | 3.21 | 14.223 | - | -0.134 | -3.560 | -2.42 | - | 0.436 | **0.751** |
| | | 1.07 | 1.59 | | -0.19 | -1.75 | -0.98 | | 0.59 | **2.37*** |
| **USE$_j$***IPpost | | 0.008 | -0.008 | **-0.148** | 0.004 | -0.028 | 0.019 | - | **-0.010** | **-0.015** |
| | | 0.56 | -0.61 | **-2.62**** | 0.40 | -0.56 | 0.51 | | **-0.32** | **-1.01** |
| Intercept | | 0.001 | -0.199 | -0.195 | -0.261 | -0.217 | -0.223 | -0.207 | -0.265 | -0.121 |
| | | 0.02 | -5.63** | -5.50** | -6.66** | -6.02** | -6.17** | -5.82** | -6.90** | -3.09** |
| Adj. $R^2$ | 0.09 | 0.08 | 0.05 | 0.06 | 0.06 | 0.07 | 0.05 | 0.05 | 0.06 | 0.09 |

OLS regressions with continuous "USE of proceeds" independent variables deflated by the total proposed issue of proceeds One tailed significance test statistics are reported where a sign is predicted otherwise the tests are two tailed: ** denotes less then 1 percent and * denotes less than 5 percent. The sample comprises IPOs listing between 1994 and 2000. Variables are described in Table 1.

## TABLE 8 POST-LISTING MARKET PERFORMANCE

Dependent variable is Log(MVE/TA)

| | *t* (n= 1351) | *t+1* (n= 1092) | *t+2* (n= 853) | *t+3* (n= 651) | *t+4* (n= 403) | *t+5* (n= 292) | *t+6* (n= 190) | *t+7* (n= 109) |
|---|---|---|---|---|---|---|---|---|
| $BVE_t / TA_{t+n}$ | **0.107** | **0.048** | **0.052** | **0.052** | **0.059** | **0.058** | **0.062** | **0.140** |
| | **3.61**** | **3.05**** | **3.34**** | **2.82**** | **3.11**** | **3.16**** | **3.40**** | **3.39**** |
| $NI/TA_{t+n}$ | **-0.146** | **-0.128** | **-0.126** | **-0.166** | **-0.221** | **-0.214** | **-0.217** | **-0.324** |
| | **-5.33**** | **-4.22**** | **-3.94**** | **-4.02**** | **-4.35**** | **-4.11**** | **-4.00**** | **-3.29**** |
| USE_WC | **-0.572** | **-0.533** | **-0.594** | **-0.595** | **-0.453** | **-1.050** | **-1.296** | -0.811 |
| | **-5.27**** | **-4.38**** | **-4.30**** | **-3.75**** | **-2.21*** | **-4.15**** | **-4.13**** | -1.75 |
| USE_RD | **1.588** | **1.519** | **1.450** | **1.662** | **1.644** | **2.135** | 1.067 | 2.242 |
| | **5.06**** | **4.20**** | **3.30**** | **3.23**** | **2.45*** | **2.46*** | 0.94 | 1.16 |
| USE_Explore | **-0.580** | **-0.552** | **-0.541** | **-0.499** | -0.292 | -0.584 | -0.703 | -0.849 |
| | **-3.60**** | **-3.13**** | **-2.81**** | **-2.34*** | -1.09 | -1.97 | -1.98 | -1.61 |
| USE_Repay | **-0.524** | **-0.537** | **-0.599** | **-0.607** | -0.455 | **-0.669** | **-0.847** | -0.478 |
| | **-4.04**** | **-3.76**** | **-3.84**** | **-3.45**** | -1.89 | **-2.71**** | **-2.96**** | -1.14 |
| USE_Capex | **-0.837** | **-0.782** | **-0.813** | **-0.681** | -0.443 | -0.466 | -0.593 | -0.142 |
| | **-4.00**** | **-3.21**** | **-2.99**** | **-2.24*** | -1.10 | -1.08 | -1.17 | -0.19 |
| USE_Acquire | **-1.096** | **-1.183** | **-1.199** | **-1.157** | **-0.994** | **-1.406** | **-1.644** | **-1.564** |
| | **-7.15**** | **-6.89**** | **-6.21**** | **-5.29**** | **-3.44**** | **-4.15**** | **-3.68**** | **-2.15*** |
| USE_Invest | **-0.537** | **-0.455** | **-0.560** | **-0.587** | -0.394 | -0.556 | -0.599 | -0.879 |
| | **-2.72**** | **-2.11*** | **-2.37*** | **-2.19*** | -1.17 | -1.56 | -1.35 | -1.26 |
| USE_Cashout | -0.107 | -0.233 | **-0.391** | **-0.392** | -0.232 | -0.356 | -0.584 | -0.110 |
| | -0.89 | -1.72 | **-2.55*** | **-2.19*** | -0.98 | -1.19 | -1.46 | -0.16 |
| BACKDOOR | -0.103 | **-0.154** | -0.126 | -0.077 | **-0.241** | -0.100 | -0.166 | 0.079 |
| | -1.66 | **-2.21*** | -1.59 | -0.85 | **-2.11*** | -0.70 | -0.92 | 0.30 |
| CAP_GW | 0.047 | 0.008 | 0.023 | 0.078 | 0.159 | 0.306 | 0.199 | -0.001 |
| | 0.74 | 0.15 | 0.28 | 0.82 | 1.27 | 1.94 | 0.96 | -0.00 |
| CAP_RD | -0.054 | -0.080 | 0.079 | **0.327** | 0.419 | 0.050 | -0.210 | -1.089 |
| | -0.58 | -0.73 | 0.62 | **2.06*** | 1.85 | 0.15 | -0.53 | -1.91 |
| CAP_IIA | **-0.199** | -0.124 | **-0.157** | -0.087 | -0.110 | -0.017 | 0.003 | 0.122 |
| | **-2.08*** | -1.92 | **-2.17*** | -1.04 | -0.99 | -0.12 | 0.02 | 0.41 |
| CAP_EXTRACT | 0.141 | **0.239** | **0.261** | **0.309** | **0.404** | **0.621** | **0.634** | 0.594 |
| | 1.44 | **2.22*** | **2.23*** | **2.36*** | **2.47*** | **3.38**** | **2.83**** | 1.71 |
| Patapplic | **-0.051** | **-0.048** | **-0.054** | -0.053 | -0.057 | -0.041 | -0.089 | -0.131 |
| | **-2.74**** | **-2.29*** | **-2.26*** | -1.86 | -1.44 | -0.48 | -0.72 | -0.51 |
| Patent | 0.014 | -0.005 | -0.013 | -0.016 | 0.026 | -0.024 | 0.029 | 0.088 |
| | 0.86 | -0.25 | -0.61 | -0.61 | 0.68 | -0.25 | 0.21 | 0.25 |
| Trademark | 0.011 | 0.008 | 0.006 | 0.001 | 0.010 | 5.5e-05 | 0.026 | 0.055 |
| | 1.99 | 1.21 | 0.83 | 0.07 | 0.88 | 0.00 | 0.61 | 0.59 |

| | *t* (n= 1351) | *t+1* (n= 1092) | *t+2* (n= 853) | *t+3* (n= 651) | *t+4* (n= 403) | *t+5* (n= 292) | *t+6* (n= 190) | *t+7* (n= 109) |
|---|---|---|---|---|---|---|---|---|
| Design | -0.139 | -0.023 | -0.167 | -0.456 | -0.366 | **-0.510** | -0.148 | 0.241 |
| | -0.72 | -0.10 | -0.63 | -1.54 | -0.88 | **-1.24** | -0.29 | 0.24 |
| IP_yr1 | | **0.039** | **0.098** | **0.107** | **0.088** | 0.114 | 0.126 | 0.187 |
| | | **2.94**** | **3.93**** | **3.54**** | **2.15*** | 1.90 | 1.48 | 1.24 |
| IP_yr2 | | | **-0.056** | **-0.082** | -0.035 | -0.070 | -0.154 | -0.367 |
| | | | **-2.43*** | **-2.66**** | -0.81 | -1.10 | -1.19 | -1.26 |
| IP_yr3 | | | | 0.016 | 0.001 | 0.099 | 0.198 | 0.318 |
| | | | | 0.51 | 0.02 | 1.20 | 1.36 | 1.38 |
| IP_yr4 | | | | | **-0.178** | -0.195 | -0.141 | -0.207 |
| | | | | | **-2.48*** | -1.69 | -0.95 | -0.80 |
| IP_yr5 | | | | | | 0.033 | 0.053 | 0.045 |
| | | | | | | 0.43 | 0.59 | 0.32 |
| INTANG/TA$_{t+n}$ | **-0.311** | -0.043 | -0.113 | -0.318 | -0.003 | **-0.731** | -0.744 | -1.060 |
| | **-2.17*** | -0.26 | -0.62 | -1.55 | -1.76 | **-2.25*** | -1.89 | -1.93 |
| TECH | **0.129** | **0.107** | **0.139** | **0.107** | 0.024 | 0.091 | 0.178 | 0.078 |
| | **4.09**** | **2.97**** | **3.34**** | **2.16*** | 0.36 | 0.96 | 1.43 | 0.38 |
| Adj. $R^2$ | 0.14 | 0.14 | 0.16 | 0.16 | 0.17 | 0.27 | 0.31 | 0.25 |

OLS regressions with continuous "USE of proceeds" independent variables deflated by the total proposed issue of proceeds. One tailed significance test statistics are reported where a sign is predicted otherwise the tests are two tailed: ** denotes less then 1 percent and * denotes less than 5 percent. The sample comprises IPOs listing between 1994 and 2000. Variables are described in Table 1.

## TABLE 9 MARKET PERFORMANCE TESTS FOR DISAGGREGATED INTANGIBLE ASSETS AND INTELLECTUAL PROPERTY

**OLS Regressions of log(MVE/TA) averaged for seven years on individual "proposed use of proceeds", disaggregated capitalized intangibles and IP**

| | USE_WC | USE_RD | USE_Explore | USE_Repay | USE_Capex | USE_Acquire | USE_Invest | USE_Cashout | BACKDOOR |
|---|---|---|---|---|---|---|---|---|---|
| $BVE_t / TA_{t+n}$ | **0.055** | **0.053** | **0.063** | **0.056** | **0.057** | **0.053** | **0.056** | **0.057** | **0.054** |
| | **4.11**** | **4.09**** | **4.46**** | **4.13**** | **4.18**** | **3.92**** | **4.16**** | **4.25**** | **4.05**** |
| $NI/TA_{t+n}$ | **-0.065** | **-0.069** | **-0.055** | **-0.067** | **-0.065** | **-0.072** | **-0.068** | **-0.071** | **-0.071** |
| | **-2.51*** | **-2.76**** | **-2.10*** | **-2.59**** | **-2.50*** | **-2.77**** | **-2.66**** | **-2.77**** | **-2.82**** |
| USE_WC | -0.071 | | | | | | | | |
| | -0.59 | | | | | | | | |
| USE_RD | | **2.895** | | | | | | | |
| | | **2.19*** | | | | | | | |
| USE_Explore | | | -0.129 | | | | | | |
| | | | -0.36 | | | | | | |
| USE_Repay | | | | **-0.447** | | | | | |
| | | | | **-2.53*** | | | | | |
| USE_Capex | | | | | -0.337 | | | | |
| | | | | | -1.10 | | | | |
| USE_Acquire | | | | | | -0.196 | | | |
| | | | | | | -0.36 | | | |
| USE_Invest | | | | | | | -0.330 | | |
| | | | | | | | -1.53 | | |
| USE_Cashout | | | | | | | | 0.101 | |
| | | | | | | | | 0.55 | |
| BACKDOOR | | | | | | | | | **-0.296** |
| | | | | | | | | | **-2.61**** |
| CAP_GW | 0.006 | 0.050 | -0.098 | **-0.166** | **-0.154** | -0.056 | **-0.117** | -0.112 | -0.112 |
| | 0.06 | 0.85 | -1.68 | **-2.39*** | **-2.46*** | -0.92 | **-2.00*** | -1.66 | -1.76 |
| CAP_RD | **0.589** | 0.111 | 0.098 | 0.105 | 0.043 | 0.079 | 0.125 | 0.178 | 0.058 |
| | **2.10*** | 1.10 | 1.08 | 1.04 | 0.42 | 0.79 | 1.35 | 1.78 | 0.56 |
| CAP_IIA | **-0.327** | **-0.166** | -0.083 | **-0.131** | -0.092 | -0.062 | **-0.111** | -0.104 | **-0.209** |
| | **-3.22**** | **-2.97**** | -1.46 | **-2.05*** | -1.55 | -1.08 | **-2.01*** | -1.70 | **-3.36**** |
| CAP_EXTRACT | **0.439** | **0.357** | -0.064 | **0.215** | **0.237** | **0.309** | **0.245** | **0.303** | **0.206** |
| | **3.47**** | **5.66**** | -0.57 | **2.98**** | **3.49**** | **4.62**** | **3.74**** | **4.45**** | **2.65**** |
| Patapplic | 0.094 | -0.001 | -0.014 | 0.009 | 0.043 | -0.009 | -0.006 | 0.029 | **0.088** |
| | 1.42 | -0.23 | -0.77 | 0.47 | 1.36 | -0.48 | -0.33 | 1.20 | **2.45*** |
| Patent | -0.116 | 0.022 | -0.001 | -0.018 | **-0.071** | -0.005 | -0.008 | 0.017 | **-0.104** |
| | -1.74 | 1.23 | -0.05 | -1.04 | **-2.22*** | -0.28 | -0.48 | 0.94 | **3.00**** |
| Trademark | -0.008 | 0.005 | 0.005 | 0.009 | -0.0004 | 0.010 | 0.003 | 0.011 | 0.004 |
| | -0.68 | 0.97 | 0.90 | 1.24 | -0.07 | 1.76 | 0.54 | 1.75 | 0.63 |

**OLS Regressions of log(MVE/TA) averaged for seven years on individual "proposed use of proceeds", disaggregated capitalized intangibles and IP**

| | USE_WC | USE_RD | USE_Explore | USE_Repay | USE_Capex | USE_Acquire | USE_Invest | USE_Cashout | BACKDOOR |
|---|---|---|---|---|---|---|---|---|---|
| Design | **1.049** | 0.131 | -0.0312 | **-0.962** | -0.047 | 0.013 | -0.327 | -0.352 | -0.105 |
| | **2.57*** | 0.55 | -1.60 | **-2.98**** | -0.10 | 0.05 | -1.67 | -1.27 | -0.43 |
| IPpost | **0.028** | 0.001 | **0.019** | **0.021** | **0.028** | **0.019** | **0.021** | **0.020** | **0.025** |
| | **2.74**** | 0.03 | **5.21**** | **4.87**** | **6.61**** | **1.83**** | **5.44**** | **5.05**** | **6.44**** |
| **USE$_j$***CAP_GW | -0.222 | -2.012 | -0.727 | **0.714** | 1.204 | -0.153 | **11.566** | **0.446** | 0.267 |
| | -1.22 | -1.16 | -1.21 | **2.77**** | 2.19* | -0.47 | **3.22**** | **2.12*** | 0.10 |
| **USE$_j$***CAP_RD | -0.642 | 1.673 | - | 0.699 | 0.499 | **2.101** | **-20.819** | | 0.197 |
| | -1.85 | 0.98 | | 0.55 | 0.43 | **2.26*** | **-3.24**** | | 0.82 |
| **USE$_j$***CAP_IIA | **0.433** | 0.201 | -0.287 | 0.393 | -0.538 | -0.268 | 0.169 | -0.078 | 0.129 |
| | **2.64**** | 0.16 | -0.77 | 1.54 | -0.99 | -0.49 | 0.44 | -0.37 | 0.92 |
| **USE$_j$***CAP_EXTRACT | -0.499 | - | 0.752 | 0.777 | 0.397 | -0.414 | - | **1.034** | 0.211 |
| | -1.84 | | 1.90 | 0.94 | 0.57 | -0.71 | | **2.01*** | 1.48 |
| **USE$_j$***Patapplic | -0.085 | **-0.444** | - | **-0.970** | -0.388 | -0.757 | - | -0.195 | **-0.130** |
| | -1.01 | **-2.35*** | | **-3.13**** | -0.93 | -0.95 | | -1.45 | **-2.84**** |
| **USE$_j$***Patent | 0.145 | 0.292 | - | 0.409 | **0.915** | 1.321 | - | 0.154 | **0.149** |
| | 1.84 | 1.66 | | 1.76 | **2.69**** | 1.13 | | 0.78 | **3.70**** |
| **USE$_j$***Trademark | 0.029 | -0.005 | - | 0.022 | 0.214 | **-0.138** | - | 0.033 | 0.004 |
| | 1.32 | -0.06 | | 0.93 | 1.51 | **-2.76**** | | 1.30 | 0.15 |
| **USE$_j$***Design | **-19.217** | **-37.811** | - | **3.808** | -1.799 | -2.757 | - | 1.435 | -0.713 |
| | **-4.32**** | **-2.99**** | | **3.70**** | 0.62 | -0.80 | | 1.35 | -1.52 |
| **USE$_j$***IPpost | -0.015 | 0.015 | 0.011 | **-0.042** | **-0.271** | 0.018 | - | **-0.151** | **-0.057** |
| | -0.76 | 0.86 | 0.13 | **-2.82**** | **-3.69**** | 0.36 | | **-3.41**** | **-2.72**** |
| Intercept | -0.175 | -0.268 | -0.184 | -0.148 | -0.165 | -0.190 | -0.170 | -0.232 | -0.093 |
| | -2.02* | -5.61** | -3.69** | -2.67** | -3.22** | -3.80** | -3.42** | -4.26** | -1.71 |
| Adj. $R^2$ | 0.11 | 0.17 | 0.10 | 0.11 | 0.11 | 0.12 | 0.10 | 0.12 | 0.13 |

OLS regressions with continuous "USE of proceeds" independent variables deflated by the total proposed issue of proceeds One tailed significance test statistics are reported where a sign is predicted otherwise the tests are two tailed: ** denotes less then 1 percent and * denotes less than 5 percent. The sample comprises IPOs listing between 1994 and 2000. Variables are described in Table 1.