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Hoa Nguyen
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Hoa Nguyen
School of Accounting, Economics and Finance
Deakin University
221 Burwood Highway
Burwood VIC 3125
Australia

William Dimovski
School of Accounting, Economics and Finance
Deakin University
Waurn Ponds VIC 3217
Australia

Robert Brooks
Department of Econometrics and Business Statistics
Monash University
PO Box 1071
Narre Warren VIC 3805
Australia

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Abstract:

In this paper, we provide a comprehensive investigation of 260 initial public offerings (IPOs) in the Australian resource sector for the 1994 – 2004 period. Consistent with the existing IPO literature, we document a 16.13% underpricing return by firms in the sample. Despite the contention that risk management can reduce the uncertainty relating to the new issue and hence alleviates the extent of underpricing, we do not find any evidence in support of such contention. In addition to the conventional variables used to explain IPOs underpricing, we further provide evidence that the demand for resources IPOs is not 'crowded-out' by the strength of alternative IPO markets. We also show evidence that the issue price adjusts to both market return in preceding months and the average underpricing of resources IPOs in the 12 month period leading to the float which offers an explanation to the hot issue effect observed in the IPO market.

Keywords: initial public offerings, underpricing, risk management, crowding-out effect, hot issue market.

JEL classification: G15

1. Introduction

Underpricing, the extent to which the issuing price is less than the market price on the first day of trading for initial public offerings (IPOs,) is an internationally pervasive phenomenon. Despite evidence that one issue mechanism may be more efficient than others in controlling underpricing,[1] Loughran, Ritter and Rydqvist (1994) report underpricing in all 25 countries included in their study. Studies in the Australian IPO market have also documented significant underpricing. A 29.2% underpricing return was reported for earlier IPOs in the period between 1966 and 1978 (Finn and Higham 1988) while later IPOs were underpriced in the region between 11.9% (Lee, Taylor and Walter 1996) and 16.46% (How, Izan and Monroe 1995). Nevertheless, as commented by How (2000), a majority of these studies focused on industrial firms which appears to be a paradox given the increasingly important role of the resources sector in the Australian financial market. As of June 2007, resources-based companies account for 37.5% of all listed companies on the Australian Stock Exchange (ASX).[2] By the same token, for the six months leading up to June 2007, of all IPOs registered with the ASX, approximately 60% are resources based companies.[3]

Previously, How (2000) reports a substantial 119.51% underpricing on average for a sample of 130 resources firms in Australia from 1979-1990. This exceptionally high underpricing return is, however, largely attributable to the "hot" IPO market of the late 1980s that was characterized by high volume of IPO activities and large underpricing returns. Prior to this hot IPO market, underpricing return was reported at 27.06% which is more in line with recent evidence provided by Dimovski and Brooks (2006) of a 13.3% first day return in a sample of 114 gold IPOs.

A number of theories have been advanced to explain underpricing. In his widely cited article, Rock (1986) argues that underpricing is necessary to compensate 'uninformed'

[1] Derrien and Womack (2003) show that the auction method of IPO used widely in some European countries is directly related to a lower degree of underpricing compared to the book-build mechanism heavily relied upon in the US IPO market.
[2] See www.asx.com.au for more detail.
[3] For the first 6 months of 2007, there are 116 IPOs registered with the ASX of which 69 companies belong to the energy, metals and mining sectors. See www.connect4.com.au for more detail.

investors for participating in lower quality issues due to information asymmetry and to induce them to invest in future issues. Information asymmetry is also the tenet of Allen and Faulhaber's (1989) argument that high quality IPO companies 'signal' to the market their quality by underpricing the issue. These IPO issuers can then recoup the cost of underpricing through subsequent seasoned issues. The information extraction model developed by Benveniste and Spindt (1989) posits that institutional investors have private information about the value of IPO shares and as a result the issuers have to incur a cost in the form of underpricing to extract these private information. This model is, however, specific to the book building mechanism used in US IPOs where the underwriters set the issue price after a 'road-show' period during which institutional investors tentatively express their demands for the shares. In contrast, the fixed-price issue mechanism, used in Australia and some European countries, is subject to informational cascades. In particular, Welch (1992) shows that when an IPO is offered sequentially, investors form an informed opinion regarding the value of the issue based on their observation of the decision made by previous investors. As a result, issuers are forced to set a price, likely to be lower than what they believe the true worth of the shares is, to attract the first investor and hence create a positive informational cascade. Empirical evidence has provided a moderate degree of support to these theories. In particular, higher underpricing is found in smaller issues (Beatty and Ritter 1986), younger firms (Ritter 1984), IPOs with lower offer price (Bradley et al 2006), IPOs that employ lower quality underwriters (Corwin and Schultz 2005) and lower quality auditors (Beatty 1989), IPOs that do not have existing banking relationship (Schenone 2004) and IPOs with low earning potential (Koop and Li 2003).

Our paper extends the previous literature on resources IPOs by providing a comprehensive examination of 260 resources IPOs during the 1994-2004 period. Our exhaustive dataset allows us to provide a more complete picture than has been done in the past regarding the resources IPO market in Australia. There have also been major changes in the legislative and institutional environment in the last decade that warrant an updated investigation of the resources IPO market. In addition we advance and

empirically test for alternative theories that can potentially explain underpricing. They are: (i) risk management, (ii) crowding out effect and (iii) hot issue effect.

While there is no definite answer as to what causes underpricing, it is the general consensus that underpricing reflects the uncertainty relating to the true value of the IPO shares and to the long-term viability of the company. These sources of uncertainty are obviously inherent in all new issues. Nevertheless, Australian resources-based companies are particularly exposed to two major types of financial risks: commodity price risk and exchange rate risk. The resources sector in Australia is a world's leader in the production of a variety of commodities including coal, iron ore, crude oil, gold, silver, copper, diamond and natural gas.[4] The prices of these commodities are determined by global demand and supply and as such have displayed a high degree of volatility over time. As a result, the revenue of a resources firm can be adversely affected by global economic and social factors resulting in fluctuations in world commodity price. Additionally, commodity prices, more often than not, are denominated in USD which further exposes these firms to exchange rate risk. Dadalt, Gay and Nam (2002) argued that managers hedge to reduce the noise associated with fluctuations in exchange rate, interest rate and commodity price that are beyond the manager's control. To that effect, hedging can be used to reduce the asymmetric information relating to managerial ability and firm value. As a result, we hypothesize that by prudently managing these risks issuing firms can partially reduce the information asymmetry relating to the value of the shares and its future performance. Consequently, risk management should be associated with a lower degree of underpricing.

The second hypothesis that we aim to test empirically in this paper is whether IPOs in other sectors 'crowd-out' IPOs in the resources sector and consequently resources issuers are forced to underprice their issues to compete. In other words, we aim to investigate the degree to which different IPOs markets are segmented and whether investors' decision to

[4] Australia is the world's leading producer of lead, bauxite, diamonds, rutile, zircon and tantalum. It is the second largest supplier of uranium, zinc and nickel; the third biggest provider of iron ore, lignite, silver, manganese and gold; and the fourth largest producer of black coal and copper. See Maslen (2006) for more detail.

invest in the resources sector is made independently of or in conjunction with investment opportunities available in alternative IPO markets. If resources IPOs' clientele exhibit loyalty and make their investment decisions independent of alternative investment opportunities then we would expect to see no relationship between the degree of underpricing in alternative IPOs markets and the extent of underpricing in resources IPOs. On the other hand, if the aggregate demand for IPOs is derived from a common pool of funds, the strength of alternative IPO markets may 'crowd out' the demand for resources IPOs and as such a positive relationship is expected between the underpricing observed in resources IPOs and alternative IPOs. To empirically test this hypothesis we employ data from two alternative IPO industry sectors being the Telecommunication and Health Care and Pharmaceuticals sectors. These two sectors are chosen as, like the resources sector, they are relatively speculative in nature. As a result, investors that have an appetite for the risk inherent in investments in resources IPOs are likely to be attracted to investments in Telecommunication and Health Care and Pharmaceuticals IPOs.

Finally, we provide a direct test for the 'hot issue' effect. Ibbotson and Jaffe (1975) and Ritter (1984) define a hot IPO market as one which is characterized by high IPO volumes and high level of first day return, or underpricing. In a hot market, firms take a shorter time to list and also leave a larger amount of money on the table.[5] Derrien (2005), for example, comments that for the two year period between 1999 and 2000, 803 companies went public in the United States and in doing so they left $62 billion on the table, which is approximately 50% of the amount of capital sought. A hot resources IPO market was also witnessed in Australia before the 1987 crash. How (2000) reports that in the two year period before the crash, 94 companies went public compared with only 24 in the 6 year period before. On average, these IPOs produced a 133.55% first day return to investors which, given the average issue size of $544.87mil, is equivalent to $727.74mil being left on the table. A recent strand of literature has focused on these hot issue periods and the economic impact of the huge amount of money left on the table. The dynamic information acquisition model advanced by Benveniste and Spindt (1989) suggests that

[5] Money left on the table is an alternative measure of underpricing. The amount of money left on the table is calculated as the difference between the amount raised at the issue price and the amount that could have been raised at the first trading day price.

the issue price is adjusted in response to the private information extracted from institutional investors during the book building period. Nevertheless, the existence of 'hot' markets indicates that not only does the issue price adjust to private information but it also adjusts to public information being the market return. The partial adjustment to public information has been confirmed empirically by Derrien and Wormack (2003) who find that the initial returns can be explained by the market returns in the 3 month period preceding the issue. Loughran and Ritter (2002) similarly develop a prospect theory that explains price adjustment to both private and public information. They find that only one third of the public information, that is market returns, is incorporated into the issue price and conclude that due to this price adjustment process 'hot' and 'cold' markets will be present as long as the book building approach continues to be used. While these models cannot be applied directly in the context of Australia given the differing mechanisms used to issue shares to the public, it can be argued that although private information can not be extracted in a fixed price issue mechanism the issuing company, in conjunction with the underwriters where applicable, will set an issue price taking into account public information about market returns and the returns of previous IPO issues. In other words, while the price adjustment to private information is absent in a fixed price issuing mechanism since the issuers do not have an opportunity to gauge the interest of institutional investors, the issue price should follow a partial adjustment process to public information. As a result, we expect a positive correlation between an IPO's underpricing and previous IPOs' underpricing and market return in the period leading up to the float, respectively.

Our findings show that, of the 260 resources IPOs that went public in the 1994 – 2004 period, the average underpricing is 16.13%. These IPOs in total raised A$5,024,100,472 and in the process left A$97,804,734.45, or approximately 1.95% of the capital sought, on the table. It is also of interest to note that underpricing is only evidenced in 58.85% of these issues, 8.46% of firms actually had a first day closing price equal to their issue price and the remaining 32.69% of IPOs managed to overprice their issue. Second, we find no evidence that the firm's intention to use different hedging techniques to manage financial risks and their actual usage in the year following the listing have an alleviating impact on

the extent of underpricing. It appears that risk management, intentional or actual, is not a sufficiently credible signal to alleviate the uncertainty relating to a new issue. Third, the presence of investment opportunities in the Health and Pharmaceuticals and Telecommunications IPO market does not affect the degree of underpricing in the resources IPO market. This finding supports our hypothesis that these IPOs markets are segmented and the decision to invest in one market is made independently of the decision to invest in another. Finally, we find strong evidence that the issue price adjusts to public information, namely, initial returns on previous IPOs and market returns in the period leading up to the float. Our findings are consistent with that of Loughran and Ritter (2002) which explain the cyclical pattern in the behaviour of IPO markets.

The remainder of the paper proceeds as follows. In the next section we discuss our data and methodology. Our results are discussed in Section 3 and Section 4 finally concludes.

2. Data and Methodology

Our sample consists of 260 resources IPOs in Australia between 1994 and 2004. Details about these IPOs were obtained by a manual examination of the prospectuses as recorded by Connect4. Market price data such as the closing prices on the first day of trading and market indices are downloaded from Bloomberg.

Panel A of Table 1 provides a breakdown of these IPOs by year and by sub-industry groups. As is evident from Panel A of Table 1, the volume of resources IPOs fluctuates rather widely over time. The 'coldest' IPO period observed in our sampling period is between 1998 and 1999 which coincided with the onset of the downturn of the stock market in general. However, IPO activities picked up from 2000 and have since showed steady strength. The number of IPOs peaked in 2004 with 62 IPOs in total compared with 40 IPOs the year before and only 2 IPOs in 1999. The strength of the market in 2004 is evident across the board. In 2004, except for the Gold sector, all other resources sector record the highest level of IPO activities since 1994. Other Metals is the largest contributor to the overall resources IPO volume accounting for almost half of the IPOs in

the sampling period (45.77%) followed by Gold (34.62%) and Energy (18.85%). The Diversified Resources sector, on the other hand, records only 2 IPOs in this time period.

To test for our risk management hypothesis we develop two measures of risk management. The first proxy is a dummy variable equaling to unity if the company clearly states their intention to engage in a risk management program in the prospectus and zero otherwise. The second measure of risk management is also a dummy variable equaling to unity if the company reports the usage of financial derivatives to hedge commodity and exchange rate risks in the year following listing in their financial reports and zero otherwise. As can be seen from Panel C of Table 2, 11.92% of firms stated that they would engage in a certain risk management program to alleviate the risk associating with fluctuations in commodity prices and exchange rates in the prospectus but only 5.77% of firms actually use financial derivatives in the year following listing.[6] The low incidence of derivative usage by these newly listed firms is hardly surprising in light of hedging theories. Hedging in general exhibits economies of scale; hence larger firms are more likely to be engaged in derivative usage than smaller firms. Ang, Chua and McConnell (1982) and Nance, Smith and Smithson (1993) have provided empirical evidence that larger firms are more likely to have the financial and human capital required to coordinate a hedging program. Newly listed firms, on the contrary, are small in size. They are deterred by the cost of hedging and therefore are more likely to absorb financial risks than actively hedging them.

For the purpose of testing the crowding out effect, we construct two indices that proxy for the strength of the Health and Pharmaceuticals and Telecommunication IPO markets. The first measure, R_{HPi} is calculated as the average initial return on all IPOs taking place in the Health and Pharmaceuticals sector in the 12 months period prior to the listing date of a new resources issue. Similarly, R_{TELi} is an index equal to the average initial return of all

[6] On average, for those firms that use financial derivatives, the notional amount of derivative contracts outstanding as of reporting date is A$234,769.

IPOs in the Telecommunication sector in the 12 month window preceding a new resources float.[7]

Finally, we construct a variable that measures the average underpricing of the resources IPOs in the 12 months period leading to a new float (R_{MINi}) to test for the hot issue effect. Consistent with Derrien and Wormack (2003) we also use the market return 3 months prior to the float as a proxy to measure the extent to which the issue price of a new IPO adjusts to publicly available market return data. We use both the All Ordinaries Index and the ASX All Resources Index as measures of market return.

Apart from the above variables that are central to this study, we also include in our regressions a number of control variables that have been established in the literature as having some impact on underpricing. These measures include: Size of the issue (*LNTOT*), issue price (*ISSUEPRI*), time to listing (*TIMETOLIST*), whether the issue is underwritten (*UWRITTEN*), whether the issue provides options to the underwriter (*UOPTIONS*), whether the issue comes with share options (*SOPTIONS*), whether the issuing company is limited liability or no liability (*NL0LTD1*), whether the issue employs an independent accounting firm (*INDEPACC*) and the market return for the period between the proposed date and listing date (*MKTSENT*). A detailed description of these variables as well as their predicted relationship with underpricing is provided in Table 1. Additionally, a Pearson correlation matrix of these variables is reported in Table 3.

Following the convention established in the literature, we calculate underpricing (*RETURN*) as the closing price on the first day of listing divided by the issue price minus one. Our main regression models are specified below:

$$RETURN_i = \alpha_0 + \alpha_1 RISKMAN_i + \alpha_J \sum_{j=1}^{n} X_i + \omega_i \qquad [1]$$

[7] For the 1994 – 2004 period, 89 Health and Pharmaceuticals companies went public and the average underpricing return is 27.45%. For the same time period, 50 Telecommunications companies were floated and provided a 33.85% first day return to investors. To conserve space, we do not report these data in our tables.

$$RETURN_i = \beta_0 + \beta_1 R_{HPi} + \beta_2 R_{TELi} + \beta_3 R_{MINi} + \beta_j \sum_{j=1}^{n} X_i + \varepsilon_i \quad [2]$$

$$RETURN_i = \chi_0 + \chi_1 MKTRET_i + \chi_j \sum_{j=1}^{n} X_i + \varepsilon_i \quad [3]$$

where *RETURN* is underpricing return or first day initial return, *RISKMAN* is a dummy variable proxying for the firm proposed or actual risk management program, R_{HPi} is an index measuring the average underpricing in the Health and Pharmaceuticals IPOs in the 12 months period prior to the listing date of a particular resources IPO. R_{TELi} is an index measuring the average underpricing in the 12 months period prior to the listing date of a particular resources IPO. R_{MINi} is an index measuring the average underpricing in the resources IPOs in the 12 months period prior to the listing date of a particular resources IPO. *MKTRET* is the return of the market for the 3 months preceding the listing date. We use both the return on the All Ordinaries Index and the ASX All Resources Index as proxies for market return. *Xi* is a vector of the control variables whose descriptions are provided in Table 1. ω_i ε_i are the error terms.

3. Results

3.1 Resources IPOs and underpricing

Consistent with the literature on IPOs, we find substantial evidence of underpricing in our sample. In particular, over the sampling period companies that went public suffered from an average underpricing level of 16.13%. The degree of underpricing is most severe in the Other Metals sector (21.41%) while Energy companies have on average a significantly lower level of underpricing (7.95%). Our evidence of underpricing, while slightly greater than the 13.3% initial return reported by Dimovski and Brooks (2006), is significantly lower than what has been documented in the past for resources IPOs. How (2000) reports an average underpricing of 107.8% for a sample of 130 IPOs during 1979-1990 while Brailsford, Heaney and Shi (2001), in a broader sample from 1976–1997, show an underpricing level of 46.5% for 244 IPOs. It seems that the positive discrepancy in underpricing observed by Ritter (1984) between resources IPOs and other IPOs is gradually disappearing over time in the Australian market. In terms of the amount of capital sought, these IPOs in total raised A$5,024,100,472 and in the process left

A$97,804,734.45, or approximately 1.95% of the capital sought, on the table. This number appears modest due to an outlying observation in which the company (Zinifex Ltd) sought to raise $1.3 billion dollars and experienced a first day return of -29.62%. Once this outlier has been accounted for, the money left on the table is in the vicinity of 12.96% of the total amount of capital raised. In our sample, the best performing IPO, as far as the investors are concerned, returns a massive 545.5% on the first day of trading while the worst performing IPO leaves investors 37.5% worse off. Panel B of Table 1 shows that on average the sample firms seek $19.31 millions by going public with an average issue price of 33.68 cents. It also appears that energy IPOs are priced more highly and take less time to list (61 days compared to 66 days on average). Finally, as noted in the preceding section, a number of issues (32.69% of all issues) are overpriced suggesting that the Rock's (1986) winners' curse does exist in the Australian resources IPO market in our sampling period.

Panel C of Table 1 provides a more detailed picture of the resources IPO market. Approximately half of all floats are underwritten while 13.85% of issuing firms also provide options to the underwriters. Share options are offered in conjunction with subscription shares in 35.38% of the issues. Finally, 56.92% of the issuers have limited liability and 39.62% employ an independent accounting company.

3.2 Underpricing and Risk Management

The results of Equation [1] that tests the relationship between underpricing and risk management are reported in Table 4. In general, both proposed risk management and actual risk management do not exhibit any statistically significant relationship with underpricing. While hedging has been shown to reduce the asymmetric information relating to managerial ability and firm value (Dadalt, Gay and Nam 2002) and to have the potential to enhance firm value (Allayannis and Weston 2001), the role of hedging does not seem to be priced in an IPO process. There are two possible interpretations of this result. First, hedging fails to alleviate information asymmetry relating to the value of the new issue for these newly listed firms despite contrary empirical evidence for more

established firms. Second, hedging can reduce the extent of information asymmetry relating to a new issue, however it is not perceived to be a sufficiently strong signal to reduce underpricing like other asymmetric information alleviating mechanisms, such as the utilization of an underwriter, are. While it is beyond the scope of this paper to address these issues, we can conclude that in our current sample, there is no evidence that the employment of a risk management program is associated with a lower level of underpricing.

The behaviour of control variables in general conforms to our expectations. Issue size and issue price have been used widely in the literature as a proxy for the degree of ex-ante uncertainty relating to the new issue (Beatty and Ritter 1986, Lee, Taylor and Walter 1996). Larger issues and higher issues prices are hypothesized to be associated with a lower degree of ex ante uncertainty and as a result are expected to have a negative relationship with underpricing. Consistent with this contention, our results show that a higher issue price is associated with a lower first day return. The evidence, however, is absent in the case of issue size.

Lee, Taylor and Walter (1996) argue that the fixed price issuing mechanism in Australia, coupled with a concealed share allocation procedure, exacerbates the winner's curse problem faced by uninformed investors. To the extent that the issue price and the issue size can not be altered once the prospectus is released, the 'uninformed' investors have no opportunity to lessen the information heterogeneity inherent between them and the more informationally privileged investors. As a result, 'good' issues are quickly subscribed to by institutional investors while 'not so good' issues take longer to list and may be more likely to be allocated to individual investors. The time to listing can, therefore, be a measure of the extent to which the winner's curse takes place and the associating level of underpricing. Generally, the longer the time it takes for a firm to list the less institutional demand there is and the lower the degree of underpricing. This prediction is largely consistent with findings in 'hot' issue markets that underpricing tends to be larger in IPOs that are subscribed to more quickly. Our results provide strong support to the existence of the winner's curse phenomenon. In particular, IPOs that

experience more delay are associated with less underpricing. In terms of economic significance, for every day that the IPO is delayed the average underpricing return reduces by 0.16%.

Using both the return on the All Ordinaries Index and the ASX All Resources Index for the period between the proposal date and the listing date as a proxy for the market sentiment, we find strong evidence that the initial day return on IPOs reflect market sentiment. In particular, higher underpricing is observed in response to a period of strong market performance. Finally, consistent with Dimovski and Brooks (2006), we find evidence that the use of share options as an incentive for the underwriter can curb underpricing. Dimovski and Brooks (2006) report underwriters' options as one of the most important explanatory variables for underpricing.

3.3 Crowding out and hot issue effects

To test for the hot issue effect and the degree to which recent market return is incorporated into the issue price of IPOs, we regress underpricing on two measures of market return being the return on the All Ordinaries Index in the 3 month period leading up to the listing date and the return on the ASX All Resources Index in the 3 month period prior to listing. The 3 month window is chosen in light of Derrien and Wormack's (2003) finding that the 3 month market return has a significant impact on the extent of underpricing. The results of these regressions are reported in Columns (1) and (2) of Table 5. As can be seen from Table 5, the coefficients on these recent market return variables are most significant both statistically and economically. Our result lends further support to previous studies that show that IPO price adjusts to public information in the case of Australia as well as private information in the case of the US. The time to listing and the share options offered to underwriters continue to be significant factors explaining underpricing.

In Columns (3) and (4) of Table 5 we present the results of our tests for both the hot issue effect and the crowding out effect by including the R_{HPi}, R_{TELi} and R_{MINi} variables in

the regressions. Our results in general do not support the crowding out hypothesis as the returns in the Health and Pharmaceuticals and Telecommunication IPOs do not portray any relationship with the extent of underpricing in the resources IPOs. Our findings indicate that the market for IPOs is segmented and there is a distinctive clientele for resources IPOs who make their investment decisions independently of alternative IPO investment opportunities. Evidence of a hot issue effect, on the other hand, appears robust. Using an index that measures the average return of IPOs that took place 12 months prior to the listing date of a new issue, we find that this R_{MINi} variable is positively related to underpricing. In an information extraction framework, the issue price adjusts to public information including market returns and the returns of prior resources IPOs. Our finding confirms the serial correlation between initial returns that are often observed in a hot issue market.

4. Conclusion

This paper investigates 260 resources IPOs in Australia between 1994 and 2004. Equipped with the most exhaustive sample of resources IPOs that has ever been utilized in the Australia resources IPO literature, we provide evidence of underpricing which, at 16.13%, is more modest than what has been reported in the past except for Dimovski and Brooks (2006) which reports a 13.3% underpricing.

More importantly, we develop and empirically test for alternative theories that aim to explain underpricing. In particular, we empirically test for the role of risk management in alleviating the degree of information asymmetry relating to the value of the issuing firm and hence in lowering the underpricing return. Nevertheless we fail to document such a relationship. Second, we show that the market for resources IPOs is segmented and the demand for resources IPOs does not seem to be crowded out by the availability of IPOs in other industry sectors. Finally, we provide strong evidence of the hot issue effect where the issue price adjusts in response to the market return and the initial return of previous IPOs that successfully list on the market.

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Table 1 – Variable Description

Variable	Predicted sign	Description	Previous Studies
RETURN		The return to the subscribers on the first day of listing calculated as the closing price on the first day of trading divided by the issue price minus one	
RISKMAN	-	A dummy variable equaling to unity if the issuing company proposes a risk management program in the prospectus or actually uses financial derivatives in the year following listing or zero otherwise	None to our knowledge
R_{HPi}	?	The average underpricing in the Health and Pharmaceuticals IPOs in the 12 months period prior to the listing date of a particular resources IPO	None to our knowledge
R_{TELi}	?	The average underpricing in the 12 months period prior to the listing date of a particular resources IPO	None to our knowledge
R_{MINi}	+	The average underpricing in the resources IPOs in the 12 months period prior to the listing date of a particular resources IPO	Ibbotson and Jaffe (1975) Ritter (1985)
LNTOT	-	The size of the issue calculated as the issue prices times by the number of shares offered	Michaely and Shaw (1994) How (2000)
ISSUEPRI	-	The issue price at which the public are invited to subscribe to shares	Chalk and Peavy (1987) Ibbotson et al (1994)
TIMETOLIST	-	The time period between the proposed date to the listing date	Lee, Taylor and Walter (1996)
UWRITTEN	-	A dummy variable equaling to unity if the issue is guaranteed by an underwriter and zero otherwise	Carter and Manaster (1990)
UOPTIONS	-	A dummy variable equaling to unity if the share options are available to the underwriter and zero otherwise	Dunbar (1995) Dimovski and Brooks (2004)
SOPTIONS	-	A dummy variable equaling to unity if share options are offered to subscribers and zero otherwise	How and Howe (2001) Schultz (1993)
NL0LTD1		A dummy variable equaling to unity if the company is limited liability and zero if no liability	Dimovski and Brooks (2004)
INDEACC	-	A dummy variable equaling to unity if the issue has an independent auditor	Beatty (1989)
MKTSENT	+	The return on the All Ordinaries Index for the period between the proposed date and listing date	Dimovski and Brooks (2006)
RESSENT	+	The return on the ASX All Resources Index for the period between the proposed date and the listing date	Dimovski and Brooks (2006)
ALLORDS	+	The return on the All Ordinaries Index for the 3 months preceding the listing date	Derrien and Womack (2003)
ASXRES	+	The return on the ASX All Resources Index for the 3 months preceding the listing date	None to our knowledge

Table 2 - The prevalence and characteristics of resources IPOs in Australia 1994 – 2004

Panel A: Resources IPOs in Australia 1994 - 2004

	Gold	Other Metals	Diversified Resources	Energy	Total
1994	19	6	0	2	27
1995	5	1	0	3	9
1996	18	7	1	2	28
1997	11	6	0	8	25
1998	0	1	0	3	4
1999	0	1	0	1	2
2000	3	10	0	2	15
2001	1	12	0	4	17
2002	10	17	0	4	31
2003	11	26	0	3	40
2004	12	32	1	17	62
Total	90	119	2	49	260
% of total	34.62	45.77	0.77	18.85	100.00

Panel B: Characteristics of Resources IPOs in Australia - Continuous Variables

	Gold (n=90)		Other Metals (n=119)		Diversified Resources (n=2)		Energy (n=49)		Total (n=260)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Underpricing Return (%)	0.1380	0.0500	0.2141	0.0500	0.0735	0.0735	0.0795	0.0250	0.1613	0.0500
Money Left to Subscribers ($'000)	1,980.77	200.00	-1,822.96	218.75	31,276.16	31,276.16	1,508.48	300.00	376.17	226.28
Amount Sought ($mil)	17.62	5.00	18.34	4.00	141.00	141.00	19.84	7.50	19.31	5.00
Issue Price	0.309444	0.2	0.293361	0.2	1.35	1.35	0.45102	0.2	0.336769	0.2
Time to listing (days)	68.63333	58	67.14286	60	53	53	61.30612	54	66.45	58

Panel C: Characteristics of Resources IPOs in Australia - Dummy Variables

	Gold (n=90)		Other Metals (n=119)		Diversified Resources (n=2)		Energy (n=49)		Total (n=260)	
	Number	%	Number	%	Number	%	Number	%	Number	%
Proposed Risk Management	12	13.33	10	8.40	0	0.00	9	18.37	31	11.92
Actual Risk Management	5	5.56	5	4.20	0	0.00	5	10.20	15	5.77
Underwritten	57	63.33	49	41.18	0	0.00	30	61.22	136	52.31
Underwriters' options	12	13.33	15	12.61	0	0.00	9	18.37	36	13.85
Share options	40	44.44	35	29.41	0	0.00	17	34.69	92	35.38
Limited Liability	37	41.11	80	67.23	2	100.00	29	59.18	148	56.92
Independent Accounting	38	42.22	37	31.09	2	100.00	26	53.06	103	39.62

Table 3 - Pearson Correlation Matrix Between Explanatory Variables

	INDEPACC	ISSUEPRI	LNTOT	MKTSENTI	NL0LTD1	RISKMAN	RT_HP	RT_TEL	RTMINING	SOPTIONS	TIMETOLIST	UOPTIONS	UWRITTEN
INDEPACC	1.0000												
ISSUEPRI	0.3062	1.0000											
LNTOT	0.0102	-0.0476	1.0000										
MKTSENTI	-0.1725	0.1338	0.1377	1.0000									
NL0LTD1	0.0640	0.1626	0.0389	-0.0942	1.0000								
RISKMAN	0.1533	0.5620	-0.0079	0.0876	0.0674	1.0000							
RTBIOTECH	-0.0910	-0.0386	0.1595	0.2021	0.0573	0.0409	1.0000						
RTDOTCOM	-0.0607	0.1324	0.2107	0.2758	0.1288	0.1150	0.6548	1.0000					
RTMINING	-0.0260	0.0529	0.1956	0.0886	-0.1165	-0.0392	-0.1095	0.1812	1.0000				
SOPTIONS	-0.1428	-0.2289	-0.0267	-0.1470	-0.0289	-0.1949	0.0541	0.0096	-0.1100	1.0000			
TIMETOLIST	-0.2140	-0.1993	-0.1169	-0.0467	-0.2340	-0.1672	-0.1587	-0.2776	0.0094	0.1138	1.0000		
UOPTIONS	0.0550	-0.0947	0.1857	0.0506	-0.2284	-0.1741	0.2853	0.2415	0.0100	0.0187	0.0347	1.0000	
UWRITTEN	0.1256	0.0476	-0.0538	-0.2251	-0.1606	-0.0800	0.1310	0.2281	0.0634	-0.0399	-0.1712	0.3877	1.0000

	INDEPACC	ISSUEPRI	LNTOT	RESSENT	NL0LTD1	RISKMAN	RTBIOTECH	RTDOTCOM	RTMINING	SHOPTIONS	TIMETOLIST	UOPTIONS	UWRITTEN
INDEPACC	1.0000												
ISSUEPRI	0.3062	1.0000											
LNTOT	0.0102	-0.0476	1.0000										
RESSENT	-0.0372	0.0032	-0.0060	1.0000									
NL0LTD1	0.0640	0.1626	0.0389	0.0448	1.0000								
RISKMAN	0.1533	0.5620	-0.0079	0.0392	0.0674	1.0000							
RTBIOTECH	-0.0910	-0.0386	0.1595	0.0215	0.0573	0.0409	1.0000						
RTDOTCOM	-0.0607	0.1324	0.2107	-0.0189	0.1288	0.1150	0.6548	1.0000					
RTMINING	-0.0260	0.0529	0.1956	0.0648	-0.1165	-0.0392	-0.1095	0.1812	1.0000				
SHOPTIONS	-0.1428	-0.2289	-0.0267	0.0656	-0.0289	-0.1949	0.0541	0.0096	-0.1100	1.0000			
TIMETOLIST	-0.2140	-0.1993	-0.1169	-0.0570	-0.2340	-0.1672	-0.1587	-0.2776	0.0094	0.1138	1.0000		
UOPTIONS	0.0550	-0.0947	0.1857	-0.1064	-0.2284	-0.1741	0.2853	0.2415	0.0100	0.0187	0.0347	1.0000	
UWRITTEN	0.1256	0.0476	-0.0538	-0.0581	-0.1606	-0.0800	0.1310	0.2281	0.0634	-0.0399	-0.1712	0.3877	1.0000

Table 4 - Underpricing and Risk Management

This table reports the result of the following equation

$$RETURN_i = \alpha_0 + \alpha_1 RISKMAN_i + \alpha_J \sum_{j=1}^{n} X_i + \omega_i \qquad [1]$$

where *RETURN* is the underpricing return or first day initial return, *RISKMAN* is a dummy variable equaling to unity if the firm proposes to employ a risk management program in its prospectus or actually employ financial derivatives in the year following listing. *X*i is a vector of the control variables. The description of these variables is provided in Table 1. *t*-stats are in parentheses.

	(1)	(2)	(3)	(4)
C	0.6623	0.7038*	0.6823	0.6326
	(1.6824)	(1.7937)	(1.6016)	(1.3584)
PROPOSED RISKMAN	0.0358	0.0477		
	(0.4780)	(0.6356)		
ACTUAL RISKMAN			0.0511	0.0184
			(0.4398)	(0.2325)
LNTOT	-0.0231	-0.0216	-0.0229	-0.0191
	(-1.0497)	(-1.0042)	(-0.9420)	(-0.6805)
ISSUEPRI	-0.1597**	-0.1485**	-0.2731**	-0.2422**
	(-2.148)	(-1.9265)	(-2.358)	(-2.0984)
SOPTIONS	-0.0534	-0.0730	-0.0526	-0.0677
	(-0.7895)	(-1.1199)	(-0.6917)	(-0.9677)
UWRITTEN	0.1116	0.0859	0.1093	0.0962
	(1.4886)	(1.0397)	(0.9972)	(0.8306)
TIMETOLIST	-0.0017**	-0.0016*	-0.0012	-0.0011
	(-2.1064)	(-1.75)	(-1.1619)	(-0.8121)
MKTSENT	2.1224***		1.7373**	
	(3.9121)		(2.3532)	
RESSENT		0.8322***		0.5223
		(3.1930)		(1.355)
UOPTIONS	-0.1805**	-0.1395	-0.1406	-0.1213
	(-2.0809)	(-1.4920)	(-1.0181)	(-0.7105)
NL0LTD1	-0.0633	-0.0782	-0.1147	-0.1294
	(-0.9038)	(-1.0497)	(-0.822)	(-1.0346)
INDEPACC	0.0506	0.0571	0.1833	0.1856
	(0.5681)	(0.5354)	(1.4145)	(1.3802)
Adjusted R-squared	0.0187	0.0030	0.0212	0.0239

* significant at the 10% level
** significant at the 5% level
*** significant at the 1% level

Table 5 - Hot Issue vs. Crowding Out Effects

This table reports the results of the following equations:

$$RETURN_i = \beta_0 + \beta_1 R_{HPi} + \beta_2 R_{TELi} + \beta_3 R_{MINi} + \beta_j \sum_{j=1}^{n} X_i + \varepsilon_i \quad [2]$$

$$RETURN_i = \chi_0 + \chi_1 MKTRET_i + \chi_j \sum_{j=1}^{n} X_i + \varepsilon_i \quad [3]$$

where *RETURN* is underpricing return or first day initial return, *RISKMAN* is a dummy variable proxying for the firm proposed or actual risk management program, R_{HPi} is an index measuring the average underpricing in the Health and Pharmaceuticals IPOs in the 12 months period prior to the listing date of a particular resources IPO. R_{TELi} is an index measuring the average underpricing in the 12 months period prior to the listing date of a particular resources IPO. R_{MINi} is an index measuring the average underpricing in the resources IPOs in the 12 months period prior to the listing date of a particular resources IPO. *ALLORDS* is the return of the All Ordinaries Index for the 3 months preceding the listing date. *ASXRES* is the return of the ASX All Resources Index for the 3 months preceding the listing date. *X*i is a vector of the control variables. The description of these variables is provided in Table 1. *t*-stats are in parentheses.

	(1)	(2)	(3)	(4)
C	0.6758*	0.6606*	0.8138*	0.8885**
	(1.7321)	(1.7011)	(1.8804)	(2.0589)
ALLORDS - 3	1.7328***			
	(3.6784)			
ASXRES - 3		0.8139***		
		(2.6101)		
RTMINING			0.5882**	0.8932***
			(2.4074)	(3.0004)
RTDOTCOM			-0.2375	-0.2187
			(-1.4033)	(-0.3888)
RTBIOTECH			0.0572	0.0688
			(0.6426)	(0.5610)
LNTOT	-0.0268	-0.0247	-0.0467	-0.0517*
	(-1.2181)	(-1.1662)	(-1.6535)	(-1.8461)
ISSUEPRI	-0.1352*	-0.1247*	-0.0458	-0.0316
	(-1.8158)	(-1.7021)	(-0.8510)	(0.0429)
SHOPTIONS	-0.0605	-0.0736	0.0523	0.0265
	(-0.8957)	(-1.0668)	(0.9479)	(0.3419)
UWRITTEN	0.0999	0.0835	0.0017	-0.0363
	(1.3804)	(1.1874)	(0.0237)	(-0.9351)
TIMETOLIST	-0.0013*	-0.0013*	-0.0014**	-0.0015**
	(-1.6901)	(-1.7463)	(-2.0819)	(-2.1888)
MKTSENTI/RESSENT			1.9159***	0.8446**
			(3.0831)	(2.2023)
UOPTIONS	-0.1677**	-0.1325	0.0057	0.0346
	(-1.9993)	(-1.6785)	(0.0731)	(0.4277)
NL0LTD1	-0.0609	-0.0839	0.0564	0.0368
	(-0.8684)	(-1.1994)	(0.9177)	(0.2059)
INDEPACC	0.0604	0.0657	-0.0011	-0.0125
	(0.6843)	(0.7624)	(-0.0211)	(-0.5938)
Adjusted R-squared	0.0527	0.0441	0.0577	0.0046

* significant at the 10% level
** significant at the 5% level
*** significant at the 1% level