The Importance of Intangible Assets in Initial Public Offerings

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Abstract
This paper follows Beatty and Ritter (1986), who argue that lower uncertainty about the value of an initial public offering (IPO) reduces the "need" for the underpricing of an IPO. Australian IPOs often identify the existence of intangible assets such as goodwill, licenses, brand names, trademarks, patents and capitalized research and development costs in the prospectus. This paper analyses if IPOs identifying the existence of such intangible assets in the prospectus might reduce uncertainty about their valuation and hence allow a lower underpricing return. While the reporting of intangible assets such as goodwill and license costs in the prospectus are not significant ingredients in the level of underpricing, the identification and valuation of intangible assets such as brand names, trademarks, patents and capitalized research and development costs is significant in reducing the level of underpricing return. Our findings are also consistent with previous studies concluding that both the size of the new issue and the use of an underwriter are important in the level of underpricing return.

Keywords: IPOs, Intangibles, ASX

Introduction
Studies into initial public offerings (IPOs) discussing the phenomenon of "underpricing" have been documented in the literature for around thirty years (see for example Loughran and Ritter (2004)). Underpricing occurs when the offer price of the shares of a new company listing on a public stock exchange is below than the closing price of the shares on the first day of that listing. The literature in this area has consistently documented significant (on average) first day returns for investors who had subscribed for the shares of IPOs. Loughran, Ritter and Rydqvist (1994) identify some of the international evidence.

Equity capital of over A$24.4 billion was raised by 358 IPO companies listing on the Australian Stock Exchange during the 1994 to 1999 period. The mean underpricing return for this sample of IPOs was 25.6%. This can be reinterpreted as subscribers to the shares of these IPOs making a 25.6% first day return if they had been successfully able to buy the same dollar value of every IPO over this period and had sold at the closing price of the first day's trading.

One of the most influential papers in the IPO literature has been Beatty and Ritter's (1986) study that suggested the lower ex ante uncertainty about the value of an IPO, the lower the underpricing return "needed" to be offered to subscribers. Since this paper, researchers have been looking to find proxy variables that help explain this uncertainty.

This study is motivated by the Beatty and Ritter (1986) paper. To our knowledge, no paper has investigated the influence of intangible assets on underpricing returns. Some common intangible assets which are recorded in a company's balance sheet include goodwill, licenses, brand names, trademarks, patents and capitalized research and development costs. Goodwill represents the excess of the purchase price paid for a business over the value of the tangible assets of that business. License costs are payments made for licences required by statutory authorities to operate in a particular line of business such as radio, gaming or telecommunications. Brand name, trademark and patent intangible asset valuations are often sought by directors to better reflect the ability of a new listing to generate future cash flows. Such valuations are most often provided by independent accountants, investment banks or other similar financial organizations. Capitalized research and development costs are also intangible assets assessed by the directors as reflecting the ability of the company to generate future cash flows. This paper analyses if IPOs identifying the existence of these intangible assets in their prospectuses have a lower underpricing return.

The plan of this paper is as follows. In section 2 we briefly summarise some of the underpricing literature. Section 3 presents the regression model. Section 4 reports our results. Section 5 records some concluding remarks.

IPOs and Underpricing
Various theories have been purported to try to explain underpricing. Baron (1982) argues that underwriters have better information regarding the demand for the IPOs shares. For the underwriter to raise the necessary equity capital for the IPO firm,
the firm allows the underwriter to determine the issue price, which includes some amount of underpricing. Rock (1986) argued that some investors have superior information. He suggests these investors demand more (and receive more) of the underpriced issues than the "less informed" investors. Rock (1986) hence suggests that only by having shares which are on average underpriced, do less informed investors continue subscribing to new IPO issues.

Tinic (1988) suggests that underpricing is like an insurance policy and makes for happy investors protecting the underwriters and the issuing firm from lawsuits. Allan and Faulhaber (1989) and Welch (1989) argue that the initial underpricing allows subsequent issues to be priced higher after the subscribers see the quality of the company. Chalk and Peavy (1987) argue that underwriters might issue to preferred clients but then recoup this favour by charging higher fees for later services to these clients. Benveniste and Spindt (1989) suggest that issues need to be underpriced to encourage investors to subscribe to the IPO and fill the issue, rather than wait until after listing.

The Ruud (1993) study, however, was the first to argue that underpricing may not be a deliberate before the issue decision. She suggests that underwriters price support after the issue is listed. (This is unlikely in Australia because price support activities by underwriters are illegal under the Corporations Law of Australia.)

Some early Australian IPO research includes Finn and Higham (1988) who find an underpricing return of 29.2% for 93 IPOs during 1966 to 1978 that listed on the then Sydney Stock Exchange. They argued that at that time, underwriters underpriced issues to favoured clients. Later Australian work by How, Izan and Monroe (1995) with their sample of 340 IPOs during 1980 to 1990 find that Main Board IPOs allowed a 16.5% underpricing return to subscribers. They suggest that larger IPOs and those that were underwritten by high reputation underwriters were less underpriced. Lee, Taylor and Walter (1996) with 266 IPOs over 1976 to 1989 find that Australian industrial IPOs, like U.S. industrial IPOs underperform the market in the longer term. Dimovski and Brooks (2003) confirm this longer term underpricing on a more recent sample of 358 industrial and mining IPOs during 1994 to 1999. Dimovski and Brooks (2004) also find that the amount of money left on the table by IPO firms is higher when firms are underwritten. Money left on the table is the number of issued shares multiplied by the difference between the issue price and the first day of listing closing price and is broadly underpricing from the viewpoint of the issuer.

Since Beatty and Ritter's (1986) paper suggesting that reducing the uncertainty about an IPOs valuation reduces the need for underpricing, researchers have found underpricing is lower in:

- Larger IPO issues [Beatty and Ritter (1986)]
- Older firms [Ritter (1984)]
- IPOs that employ higher quality underwriters [Carter and Manaster (1990)]
- IPOs that employ higher quality auditors [Beatty (1989)]
- Firms that have existing borrowing relationships [James and Weir (1990)]

Data and Methods

There were 358 Australian industrial and resource IPOs from January 1994 to December 1999. Property and equity trust IPOs were excluded (consistent with How and Low (1993)), as were those that involved convertible preference share or debt issues. The data was from the Connect 4 Company Prospectuses database.

This study uses variables from previous studies found to be statistically significant in explaining the level of underpricing and hence likely to influence the underpricing return. Two intangible asset variables are also tested. The goodwill/license variable (where a payment is made for the intangible asset) and other intangible asset variable (brand name, trademark, patent or capitalized research and development; where a valuation is made) are chosen to see if they are relevant to underpricing returns. The variables to be tested are defined as follows:

- the total capital sought (LNTOTAL) [Michaely and Shaw (1994), Ibbotson, Sindelar and Ritter (1994)];
- the underwritten (UWRITTEN) variable is a (0 or 1) dummy variable reflecting no underwriter (0) or an underwriter (1) was used in the IPO [Dimovski and Brooks (forthcoming) and adapted from the underwriter reputation variables in Carter and Manaster (1990)];
- the goodwill/license (GOODWILL) variable is a (0 or 1) dummy variable reflecting no goodwill/license (0) or a goodwill/license fee (1) was previously paid by the IPO;
- the other intangible (OTHINTAN) variable is a (0 or 1) dummy variable reflecting no valuation on a brand name, trademark, patent or capitalized r&d (0) or a valuation has been made (1) on any of these other intangible assets.

An ordinary least squares regression model is performed on the data. The dependent variable, underpricing return (RETURN) is the difference in the closing price of the shares (plus the options if any (Howard and Howe (2001)) on the first day of listing less the public issue price, divided by the public issue price. The closing prices were obtained from the IRESS database.

The regression model with underpricing return as the dependent variable is:

\[
\text{RETURN} = \beta_0 + \beta_1 \text{LNTOTAL} + \beta_2 \text{UWRITTEN} + \beta_3 \text{GOODWILL} + \beta_4 \text{OTHINTAN} + \epsilon
\]  

(1)
where all the variables are as defined previously, the β's are unknown parameters to be estimated and ε is assumed ~N(0, σ²).

The (LNTOTAL) variable has been found to be significant in previous empirical underpricing studies and is expected to relate positively to underpricing return. The UWRITTEN variable identifies whether the issue is underwritten or not. From Dimovski and Brooks (2004) it is expected that if underwriters are involved in an IPO issue then this may allow a higher underpricing return to subscribers.

The GOODWILL and OTHINTAN variables test the hypothesis that the identification of intangible assets created either by payment or by valuation in the prospectus reduce the uncertainty about the new issue and hence allow for lower underpricing. Of the 358 IPOs, 76 had identified the existence of a goodwill and/or license intangible asset while 39 had reported a brand name, trademark, patent and/or capitalized r&d intangible asset.

Results
Table 1 (please see appendix for table) reports the ordinary least squares regression results for the underpricing return and the explanatory variables for the overall six year period. Table 1 also reports the results when the data is partitioned into resource / industrial categorizations. There are five individual observations whose underpricing returns are over 3.5 standard deviations from the mean return and may be exerting undue influence on the partial coefficients. These observations are excluded from the model and modified regression results reported. This identification of outliers over 3.5 standard deviations is consistent with How (2000). A variety of standard regression diagnostics were calculated and applied to the data. In testing for non-normal errors, a Jarque-Bera statistic is reported. In testing for heteroscedasticity, a White test is applied and White (1980) heteroscedasticity-consistent coefficients and p-values are reported. In testing for omitted variables or model misspecification, a Ramsey Reset test is reported.

For the overall six year period and for the industrials categorization, the results of the regression analysis suggest that the LNTOTAL, UWRITTEN and OTHINTAN variables all have explanatory power with regard to the amount of underpricing return, particularly the OTHINTAN variable. When the outliers are removed, again all three variables have some explanatory power in regard to the amount of underpricing return. When the data is partitioned by Industrial IPO, the LNTOTAL and OTHINTAN variables have explanatory power. When the outliers are removed in the Industrials model, LNTOTAL, UWRITTEN and OTHINTAN variables all have explanatory power. The model is not useful for the resource categorization but this is likely because only 2 of our sample of 96 Resource IPOs had identified intangible assets in the prospectus.

Conclusion
The overall six year and industrials models are particularly useful. Our findings are consistent with prior studies suggesting that both the size of the new issue and the use of an underwriter are important ingredients in the level of underpricing. Interestingly, this study finds the reporting of valuations for brand name, trademark, patent and capitalized r&d intangibles as a highly significant variable in its relation to underpricing returns. It appears the capital market views the inclusion of such valuations in the prospectus as reducing uncertainty about the valuation of the IPO itself. This is an important implication for firms seeking to raise capital from the public. As higher underpricing means that subscribers to the new issue have a higher wealth transferred to them (if they were to sell on the first day of listing) so too it means that these IPO firms have lost wealth that could have been utilized by the firm itself. As such, IPO firms that have and report these intangible assets clearly retain more wealth than would otherwise occur.

References


Appendix

Table 1

This table reports on the results for underpricing across a number of regression model specifications. The specifications include all of the data, the data categorised by industry characteristics and the data excluding outliers.

The table reports OLS parameter estimates (Coef.) and p-values (Pr.) as well standard regression diagnostics. White (1980) heteroscedasticity-consistent coefficients and p-values are reported where HCC is identified.

<table>
<thead>
<tr>
<th>Categorization/No. of IPOs</th>
<th>C</th>
<th>LNTOTAL</th>
<th>UWRITEN</th>
<th>GOODWILL and/or LICENSE</th>
<th>OTHER INTANGIBLES</th>
<th>Adjusted R-sq</th>
<th>Jarque-Bera</th>
<th>White test</th>
<th>Reset test</th>
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<tr>
<td>1994-99 Coef.</td>
<td>0.934</td>
<td>-0.047</td>
<td>0.127</td>
<td>0.024</td>
<td>-0.171</td>
<td>0.014</td>
<td>15015.760</td>
<td>9.652</td>
<td>4.300</td>
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<td>1994-99 Pr. HCC 358</td>
<td>0.023</td>
<td>0.045</td>
<td>0.082</td>
<td>0.655</td>
<td>0.000</td>
<td>0.000</td>
<td>0.086</td>
<td>0.032</td>
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<tr>
<td>1994-99 Coef. No outliers</td>
<td>0.477</td>
<td>-0.023</td>
<td>0.121</td>
<td>0.065</td>
<td>-0.138</td>
<td>0.021</td>
<td>646.610</td>
<td>9.629</td>
<td>6.805</td>
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<td>1994-99 Pr. HCC 353</td>
<td>0.018</td>
<td>0.058</td>
<td>0.003</td>
<td>0.178</td>
<td>0.002</td>
<td>0.000</td>
<td>0.086</td>
<td>0.006</td>
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<tr>
<td>RESOURCES Coef.</td>
<td>0.991</td>
<td>-0.062</td>
<td>0.248</td>
<td>-0.083</td>
<td>0.024</td>
<td>-0.024</td>
<td>4527.994</td>
<td>2.408</td>
<td>7.443</td>
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<td>RESOURCES Pr. 96</td>
<td>0.406</td>
<td>0.405</td>
<td>0.287</td>
<td>0.918</td>
<td>0.983</td>
<td>0.000</td>
<td>0.790</td>
<td>0.193</td>
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<tr>
<td>RESOURCES Coef. No outliers</td>
<td>0.112</td>
<td>-0.006</td>
<td>0.1112</td>
<td>0.072</td>
<td>-0.059</td>
<td>-0.023</td>
<td>454.507</td>
<td>2.993</td>
<td>54.316</td>
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<tr>
<td>RESOURCES Pr. 94</td>
<td>0.798</td>
<td>0.820</td>
<td>0.186</td>
<td>0.804</td>
<td>0.885</td>
<td>0.000</td>
<td>0.701</td>
<td>0.302</td>
<td></td>
</tr>
<tr>
<td>INDUSTRIALS Coef.</td>
<td>1.069</td>
<td>-0.052</td>
<td>0.106</td>
<td>0.006</td>
<td>-0.191</td>
<td>0.030</td>
<td>2699.568</td>
<td>12.901</td>
<td>3.723</td>
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<td>INDUSTRIALS Pr. 262 HCC</td>
<td>0.016</td>
<td>0.031</td>
<td>0.211</td>
<td>0.918</td>
<td>0.000</td>
<td>0.000</td>
<td>0.024</td>
<td>0.006</td>
<td></td>
</tr>
<tr>
<td>INDUSTRIALS Coef. No outliers</td>
<td>0.740</td>
<td>-0.036</td>
<td>0.140</td>
<td>0.027</td>
<td>-0.168</td>
<td>0.038</td>
<td>316.472</td>
<td>10.895</td>
<td>4.671</td>
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<td>INDUSTRIALS Pr. 259 HCC</td>
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<td>0.013</td>
<td>0.006</td>
<td>0.607</td>
<td>0.000</td>
<td>0.000</td>
<td>0.053</td>
<td>0.002</td>
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