Bargain buys

Why Australian government IPOs are not as cheap as some

Overseas research into the phenomenon of underpricing of initial public offerings attempts to explain why a greater degree of underpricing exists in floats of government entities than in private-sector offerings. ERIC BREDA, RICHARD COLLIS, BARBARA DEED and NICHOLAS PSEVDOS report on a study suggesting that the Australian market responds to different influences.

Studies on the pricing of initial public offerings (IPOs) show that, on average, they are underpriced. Smith (1985) found that the average underpricing appears to exceed 15%. Perotti and Guney (1993) reported that, on average, underpricing is greater in public-sector new issues than in private offerings, particularly in the UK and France.

This is supported by a UK study conducted by Menyah et al (1990) which also found that average excess returns for public-sector issues significantly exceeded those of the private sector, both in the economic and statistical sense, for the first seven weeks of trading. For the first day of trading in this UK study, the excess returns were 45.1% and 12% for the public and private sectors respectively. A large number of studies have shown the existence of underpricing, as can be seen in Table 1.

THEORIES OF UNDERPRICING

The research literature provides ample evidence of the underpricing of IPOs. This observed underpricing, largely from studies conducted outside Australia, records the level of underpricing ranging from 11.4% to as high as 52% (see Table 1).

A number of hypotheses have been offered as possible reasons for underpricing, particularly in relation to unseasoned common stock issues. The theories form two broad schools of thought: first, that underpricing may be a function of the operation of the market and the interplay between different types of investors, underwriters and firms wishing to raise capital; second, that it may be a deliberate strategy on the part of underwriters who play an extremely powerful role in new issues.

Asymmetric information hypothesis

Barron (1982) proposed a model whereby the investment bankers/underwriters have more information about investor demands for particular types of stocks than does the issuer. The model assumes that underwriters have incentives to recommend low stock prices, since this reduces the effort to sell and lowers the underwriters’ risk of having to take unsold shares.

The theory postulates that the issuer, by delegating the price decision, effectively compensates the investment banker for the use of his superior information by offering the shares at a discount to the price expected in the secondary market. The corollary to this argument is that one would expect to see greater underpricing for those shares...
which are subject to greater uncertainty about their market clearing price.

Muscarella and Vetsuypens (1989) conducted a test of Barron's model in which they investigated the self-marketed IPOs of 38 investment bankers. One would expect no asymmetry of information since the issuers and the investment bankers were one and the same. Their research showed that underpricing still occurred, but to a lesser degree than had been identified by Barron. However, Muscarella and Vetsuypens are not convinced that underpricing can be explained simply by banker/issuer asymmetry.

Rock (1985) proposed a variation to Barron's view of asymmetry in differentiating investors as being either informed or uninformed. He postulated that informed investors tend to purchase IPOs which their information suggests would be underpriced. Consequently, uninformed investors systematically receive more overpriced issues and fewer underpriced issues due to the greater competition from informed investors. The model suggests that the offer price is discounted to attract the uninformed investor who might not otherwise participate in the market.

Rock's theory is difficult to explain logically since it is hard to understand how an issuing firm benefits from uninformed investors.

**Implicit insurance hypothesis**

The US Securities Act of 1933 requires investment bankers to conduct due diligence investigations to avoid liability for false or misleading information about the prospects of the issuer and for material omissions in the IPO registration statement. The act also stipulates that the liability of the investment bankers and the issuers is limited to the difference between the offer price and the aftermarket share price.

It is therefore in the investment bankers' and issuers' interests to underprice IPOs, enabling investors to achieve above normal returns which may serve as a form of insurance against future liabilities.

This theory of deliberate underpricing was tested by Tinic (1988) who empirically showed a lower tendency towards underpricing prior to the 1933 Securities Act. More recent work by Wolfe et al (1994) concluded that prestigious underwriters will participate in new issues in stable market conditions and less volatile interest rates, thus reducing the possibility of failure and increasing their chances of extracting higher fees in subsequent underwritings.

The model sees underwriters as risk-averse, aiming to avoid holding large quantities of potentially unwanted stock. If the model holds, one would expect only those IPOs which are underwritten on a firm commitment basis would be underpriced. However, the empirical evidence as reported by Smith (1985) and Chalk and Peavey (1990) does not support this, finding instead that best-efforts underwriting may be even more underpriced than firm commitments.

**Power of the underwriter**

A number of theories propose that underpricing results from the influence of the underwriter in allocating stock. These theories, which suggest that the underwriter uses his reputation (Booth and Smith 1985), his relationship with favoured clients (Tinic 1988) or his role as investor (Rudd 1993) to influence the new-issue price, are not strongly supported by empirical evidence.

**Size of offering hypothesis**

A number of less complete alternatives have been put forward to try to explain the underpricing phenomenon, including the size of the IPO, what use the funds will be put to, the asset size of the company, etc. However, these tend to be simply proxies for the uncertainty about the market valuation once trading commences. Menyah et al (1990) and Finn and Higham (1987), for example, found no empirical evidence which would support firm size or the size of underwriter commissions having any noticeable effect on the level of underpricing.

**GOVERNMENT vs PRIVATE OFFERINGS**

There is very little research on the price behaviour of new issues of previously government-owned organisations. Langhor and Viallet (1986) examined the program of nationalisation of French

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**Table 1: Studies of IPO pricing**

<table>
<thead>
<tr>
<th>Type of offering</th>
<th>Study</th>
<th>Sample period</th>
<th>Sample size</th>
<th>Estimated underpricing</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPO</td>
<td>Ibbotson (1974)</td>
<td>1960-1969</td>
<td>120</td>
<td>11.4%</td>
</tr>
<tr>
<td>IPO</td>
<td>Ibbotson &amp; Jaffo (1975)</td>
<td>1960-1970</td>
<td>2650</td>
<td>16.8%</td>
</tr>
<tr>
<td>IPO</td>
<td>Ritter (1985)</td>
<td>1974-1982</td>
<td>664</td>
<td>14.8%</td>
</tr>
<tr>
<td>Firm commitment</td>
<td>Chalk &amp; Peavey (1985)</td>
<td>1974-1982</td>
<td>440</td>
<td>13.8%</td>
</tr>
<tr>
<td>Best efforts</td>
<td>Chalk &amp; Peavey (1985)</td>
<td>1974-1982</td>
<td>415</td>
<td>10.6%</td>
</tr>
<tr>
<td>Best efforts</td>
<td>Chalk &amp; Peavey (1985)</td>
<td>1974-1982</td>
<td>82</td>
<td>52.0%</td>
</tr>
</tbody>
</table>

Source: Adapted from Smith (1985), p. 20.
firms and the compensation paid to previous private shareholders of those firms. The results can be used to examine privatisation, since the question at issue in both cases is the market’s valuation of publicly owned stock. The most important findings of this study are:

- holders of nationalised firms received a premium of 20% for “selling” their shares to the French government, equivalent to that paid for a normal takeover;

- there were obvious market responses in anticipation of the nationalisation program. For example, the portfolio of 12 stocks fell after the election of the Mitterand regime, presumably in anticipation of poor compensation. At subsequent periods in the lead-up to presentation of the Nationalisation Bill, the portfolio response fluctuated according to the details that emerged about how the compensation would be measured.

<table>
<thead>
<tr>
<th>Table 2: IPO summary</th>
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<tbody>
<tr>
<td><strong>Company name</strong></td>
</tr>
<tr>
<td><strong>Date issue opened</strong></td>
</tr>
<tr>
<td><strong>Amount raised ($M)</strong></td>
</tr>
<tr>
<td><strong>Issue price ($)</strong></td>
</tr>
<tr>
<td><strong>Day 1 return (%) (adjusted)</strong></td>
</tr>
<tr>
<td><strong>Process of IPO</strong></td>
</tr>
<tr>
<td><strong>P/E multiple at issue price</strong></td>
</tr>
<tr>
<td><strong>Prospective dividend yield at issue price (%)</strong></td>
</tr>
</tbody>
</table>

| **Company name** | **JNA** | **Simmsmetal** | **Qld Cotton** | **Toll** | **FAI Life** | **Rock B.S** | **St.George** | **N Foods** | **Players** | **SPC Aust** | **W'worths** |
| **Date issue opened** | **Jun-92** | **Oct-91** | **Jun-92** | **Sep-93** | **Jun-92** | **Nov-92** | **Jun-92** | **Jul-91** | **Oct-92** | **Aug-93** | **Jun-93** |
| **Amount raised ($M)** | 14.4 | 140 | 35 | 29 | 102 | 8 | 1,274 | 235 | 18 | 48.4 | 2.511 |
| **Issue price ($)** | 1.20 | 2.00 | 1.90 | 2.10 | 1.00 | 1.00 | 6.40 | 1.00 | 1.00 | 0.75 | 2.45 |
| **Day 1 return (%) (adjusted)** | 14.01 | 32.34 | 23.88 | 29.43 | -12.89 | 66.71 | -4.60 | 17.96 | 13.71 | 3.24 | 13.63 |
| **Process of IPO** | Fixed | Fixed | Fixed | Fixed | Fixed/Existing holders | Fixed | Fixed | Fixed/Existing holders | Fixed | Fixed | Fixed/staff |
| **P/E multiple at issue price** | 8.76 | 10.80 | 5.75 | 9.20 | 8.50 | 7.02 | 15.50 | 8.30 | 8.20 | 13.34 | 13.10 |
| **Prospective dividend yield at issue price (%)** | 4.00 | 5.00 | 7.20 | 5.70 | 7.25 | 6.00 | 5.40 | 6.00 | 5.30 | 4.80 | 4.90 |

Note: Investment sector offerings are not included in this summary due to abnormal returns. Also the technique used to value this sector differs from the above offerings (NTA valuation).

Langhor and Viallet attributed the differential return first to the compensation package and second to the sheltering of the stock from normal market movements, given its transformation, in the perception of the market, from a stock to a bond.

More recent work on the London Exchange (Menyah et al 1990) confirmed a greater degree of underpricing for public-sector firms than for the private sector (45% and 12% respec-
Figure 1: Cumulative 10 day average % return
Government sector vs private sector relative to the All Ordinaries Accumulation Index

Note: We computed the initial return for each IPO as the percentage return from the subscription price to the closing market price for each of the 10 days of trading, whilst adjusting for the sharemarket percentage return for each of the 10 days.

Figure 2: Cumulative 10 day weighted average % return
Government sector vs private sector relative to the All Ordinaries Accumulation Index

Note: We computed the initial return for each IPO as the percentage return from the subscription price to the closing market price for each of the 10 days. The weight average is then applied to reflect float size.

Figure 3: Cumulative 10 day average % return by sector relative to the All Ordinaries Accumulation Index

Note: We computed the initial return for each IPO (by industry sector) as the percentage return from the subscription price to the closing market price for each of the 10 days of trading, whilst adjusting for the sharemarket percentage return.

METHODOLOGY

The price performance of six public-sector and 20 private-sector IPOs was examined over their first 10 trading days. For each IPO, the listing date, subscription price, closing prices for each of the first 10 trading days, and daily closing values of the All-Ordinaries accumulation index from January 1990 to December 1994, and from 25 July 1995 to 14 August 1995 were provided.

Given that only 26 floats have been considered in this study, there is insufficient data to permit any empirical conclusions to be drawn. Nevertheless, the results are indicative and can be compared with other investigations of price performance of new issues.

The private offerings are a semi-random sample of floats between 1991 and 1995, and have been divided into five groups (financial, food and retail, investment, media and miscellaneous) in order to permit industry comparisons which might indicate relatively on the first trading day). The greater underpricing observed for public-sector offerings was confirmed by Perotti and Guney (1993) in research on the French, British, Spanish, Chilean, Nigerian, Turkish, Polish, Czechoslovakian and Hungarian privatisations.

The models developed to explain the general phenomenon of underpricing would not explain this difference between public-sector and private-sector underpricing and it appears that it must result from something inherent in the characteristics of privatisations. In particular:

- they are part of a program of floats;
- there is much more information available both in the lead-up to listing and in the prospectus itself; and
- the underpricing could be a deliberate strategy to build confidence in the program.

The research so far would predict that our study in Australia should indicate underpricing of both government and non-government entities and that the government organisations would be relatively more underpriced.
whether the degree of underpricing was directly attributable to the riskiness of the industry.

Our study shows that a number of factors exist which may indicate the existence of a “real” underpricing difference between government and private IPOs. Our results are based on the analysis of:
- cumulative 10-day average % return, adjusted for market (All-Ords accumulation);
- cumulative 10-day weighted % return, adjusted for market (All-Ords accumulation);
- cumulative 10-day average % return by industry sector, adjusted for market;
- float size (liquidity and risk); and
- listing process (fixed price or tender).

RESULTS
The data are summarised in Table 2.

Figure 1, the cumulative 10 day average % return adjusted for the All-Ordinaries accumulation index, shows that IPOs are, on average, underpriced by 13.46% on the first day of trading. Further, in contrast to many prior studies (eg, Perotti and Guney 1993, Menyah et al 1990), our research indicates the average percentage returns for private IPOs exceeded those of the government sector. For the first day of trading the premium was 17.17% and 9.76% for private and government sectors respectively. The next nine days showed that both sectors traded in a consistent band from listing.

These calculations are based on each IPO having the same percentage weighting, irrespective of float size. We extended the analysis by calculating the cumulative 10-day weighted average % return adjusted for the All-Ordinaries accumulation index (Figure 2) and found that private-sector IPOs (excluding investment) were more underpriced than government-sector IPOs. The average return on the first day of trading is shown in Table 3. We subsequently excluded the investment sector from analysis because of abnormal returns.

This indicates that some industries have higher risk than others; higher risk may result in higher returns and greater underpricing. A comparison may be made between the privatised government sector and the miscellaneous sector, since both sectors represent a cross-section of diverse IPOs. Even so, the miscellaneous sector achieved an average return of 22.21% compared with the privatised government sector’s 9.76%. This pattern is broadly consistent with what one might expect by examination of industry beta coefficients (for example, see Bishop et al, p. 494).

To make our analysis more meaningful, all IPOs were categorised into three float sizes – small, medium and large (Table 4). Contrary to Menyah et al (1990) and Finn and Higham (1987) findings that no empirical evidence existed of firm size having a noticeable effect on the level of underpricing; we observed an inverse relationship. We calculated first-day percentage returns for each category and found that on average small floats returned 23.07%, medium 21.88% and large 11.85%. It would appear that the higher return in small floats is compensation for bearing risk. Large IPOs are generally perceived by investors as “blue chips” with lower risk and lower returns. It would be expected that underpricing is less than with smaller IPOs. Finally, most govern-

<table>
<thead>
<tr>
<th>Industry</th>
<th>Excess return (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media</td>
<td>40.35</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>22.21</td>
</tr>
<tr>
<td>Financial services</td>
<td>16.40</td>
</tr>
<tr>
<td>Food and retail</td>
<td>12.13</td>
</tr>
<tr>
<td>Privatised government</td>
<td>9.76</td>
</tr>
</tbody>
</table>

A number of factors exist which may indicate the existence of a “real” underpricing difference between government and private IPOs.
ment IPOs are in the large category (more than $500 million), returning on average 11.55%, which is consistent with the above reasoning.

Another factor which may explain underpricing differences between government and private sectors is the choice of tender or fixed-pricing method. The tender method of price determination is recognised as reducing the degree of underpricing. The high usage of the tender method in government IPOs (almost 70%) may explain why the average excess returns experienced by this sector are lower than those for private IPOs.

One statistical method in evaluating floats is the price-earnings multiple at issue price (see Table 4). Our analysis has shown that P/E multiples for the small (-8.46X), medium (-10.02X) and large (-11.06X) floats indicates that small floats (less than $100 million) are more competitively priced. Some 70% of government IPOs are in the large category and the balance in the medium category, on a P/E multiple of between 10 and 11. The lower P/E multiple may reflect that a smaller float is riskier, because of less liquidity, and in turn is more underpriced than a larger float.

Finally, the average yield at issue price (see Table 4) shows that smaller floats offer a higher yield (6.03%) than medium (5.59%) and large (5.72%). Again, this may be reflect the adage “smaller float size, higher expected risk” and therefore underwriters may offer a higher yield to promote interest among prospective shareholders.

The above methods are only a guide when comparing underpricing between government IPOs and private IPOs. However we believe that there are strong signs to suggest that government floats in Australia are, on average, less underpriced than private IPOs.

**CONCLUSION**

Our study of 20 private-sector and six government IPOs provides clear evidence of the presence of underpricing in Australian public floats. The underpricing observed is on average 17.17% for the private sector and 9.76% for the government sector, placing these results within the range observed for other studies.

While we would have predicted underpricing to occur, the reduced underpricing observed for the government sample is not consistent with overseas experience.

We advance several explanations for this. We believe the main reason is that the process adopted by the government (tender) is successful in achieving a higher price. The “price tension” resulting from competing bids creates the best possible outcome for the government. This view is supported by discussions with an official of the Commonwealth Government Asset Sales Task Force who emphasised that the UK experience has little relevance to the Australian situation. He said that here, the objective was to create “price tension and maximise the value from each float so as to meet the Australian government’s budget forecasts”. In the UK, the government had as an ideological objective a greater role for the private sector in the provision of essential services (water, power, etc).

We also suggest that the lesser underpricing of government organisations is consistent with the asymmetry of information hypothesis. In the case of government floats in Australia, the marketing to the financial and investment community has been intense and the information generated as a result was substantial. In addition, because the governments were determined to ensure maximum return, and therefore optimum market conditions, the time between intention to float and listing date was considerable (18 months in the case of the Qantas float). We suggest that the information generated diminished the

### Table 4: IPO statistics

<table>
<thead>
<tr>
<th>Float size band</th>
<th>Number of floats</th>
<th>Type of IPO (Fixed/Tender)</th>
<th>First day return (Market adjusted) (%)</th>
<th>First day return (Weighted average) (%)</th>
<th>Average P/E at issue price (X)</th>
<th>Average yield at issue price (%)</th>
<th>Float band value ($'000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small $5-$99 million</td>
<td>8</td>
<td>Fixed 8 Tender 0</td>
<td>23.07</td>
<td>17.92</td>
<td>8.46</td>
<td>6.03</td>
<td>176,060</td>
</tr>
<tr>
<td>Medium $100-$499 million</td>
<td>6</td>
<td>Fixed 5 Tender 1</td>
<td>21.88</td>
<td>22.28</td>
<td>10.02</td>
<td>5.59</td>
<td>1,126,000</td>
</tr>
<tr>
<td>Large &gt; $500 million</td>
<td>8</td>
<td>Fixed 4 Tender 4</td>
<td>11.85</td>
<td>11.56</td>
<td>11.06</td>
<td>5.72</td>
<td>9,796,000</td>
</tr>
</tbody>
</table>

Note: 22 offerings were used in this analysis. Investment sector offerings were excluded due to abnormal returns.
asymmetry of information between informed and uninformed investors, creating a situation in which all were provided with more information than is normally the case.

More detailed analysis of our sample reveals some interesting features. It appears that contrary to the literature there may be a relationship—in this case an inverse one—between size of the float (as measured by amount raised) and underpricing. The smaller companies (Rock Building Society, Peter Lehman Wines) may represent greater risk and be more difficult to price accurately. The greater first-day return represents a reward for that risk. The government organisations in our sample were mostly large, four out of six falling into the more-than-$500 million category. While the pattern is not entirely consistent (note the large return for CBA), it may explain why on average the government sample is less underpriced. (We believe the fact that CBA was the first government float and the government was eager to establish credibility may explain its large underpricing.)

A further observation is the apparent relationship between prospective P/E and underpricing: the lower the average P/E ratio the greater the underpricing. A low P/E points towards strong earnings and profits. It seems that the “rule” that shares selling at a P/E of less than 10 are worth investigating has some predictive value in our sample as a whole. However, this is not a particularly useful indicator for the government portfolio, whose average prospective P/E is 10.66.

Finally, our analysis suggests that the degree of underpricing differs for discrete industry sectors. We have observed the greatest degree of underpricing in the media sector, followed by finance and food and retail. The investment sector is overpriced. This is broadly consistent with beta coefficients for these industries which rate the media sector as higher risk than banks which are higher than retail. Interestingly, if one viewed the government as a discrete industry sector with low risk, it is conceivable that its underpricing would be comparatively low.

REFERENCES


Organisations in the study

Initial public offerings by the following organisations were analysed for this study:

Private sector
John Fairfax
Seven Network
WA Newspapers
Peter Lehmann Wines
Delfin Property
JNA Telecom
Simsmetal
Queensland Cotton
Toil Holdings
FAI Life
Rock Building Society
St George Bank
BT Resources
Cambooya
Emerging Markets
J Flemming Asia
National Foods
Players
SPC Australia
Woolworths

Public sector
Commonwealth Bank
CSL
GIO
Qantas
SGIO
TAB