

Mums, dads and ugly sisters

*The recent Woolworths float, besides being Australia's largest, was unique in several other ways. First, the terms of the issue discriminated against large institutional applicants in favour of smaller investors — that is, the "Mums and Dads". Second, trading in the shares started on a deferred-delivery basis, enabling investors to trade allocated scrip from 2pm on 12 July, nine days before receipt of the scrip. Third, so great was the first day's action that the stock exchange remained open for trading until 7.30pm, enabling investors in England to trade the shares for the first two hours of business in that country. **Stewart Alison, Sam Nicolosi and Peter Pope** note that the issue also provided an opportunity to examine the market valuation of a call option written over an unseasoned share.*



Stewart Alison



Sam Nicolosi



Peter Hope

The terms of the Woolworths offer entitled existing shareholders in the so-called "Three Ugly Sisters" — Adelaide Steamship, David Jones and Tooth & Co. — to subscribe for Woolworths shares. This entitlement was non-renounceable. However, the ASX subsequently decided that, from 24 May 1993, it would run both a cum-entitlement and an ex-entitlement market in the shares of each company, in effect making the entitlement renounceable. This dual market was to run for as long as desired by the broking community. The market in fact ran until 25 June 1993.

About 48.82 per cent of the total number of shares in the offer were reserved for the shareholders in the "parent companies", Adsteam, Tooth and David Jones. Shareholders whose names appeared on the individual companies' share registers at 5pm on 1 June 1993 were entitled to acquire Woolworths shares on a pro-rata basis as shown in Table 1.

By subtracting the ex-entitlement price from the cum-entitlement price, and adjusting for the terms of entitlement, a guide to the market value of the entitlement to subscribe to the new shares in Woolworths was theoretically available. Further, by adding

the value of the entitlement to the subscription price of \$2.45, the predicted opening market price of a Woolworths share could be determined.

How good were the predictions?

Option valuation models, for example the Black-Scholes model, require, as one of their inputs, an estimate of the volatility of the share over which the option is written. Since, during the period the dual market was running, the Woolworths shares were not yet in existence, it was not possible to test the predictive power of such models. With hindsight, however, it is possible to compare Woolworths' opening market price with the predictions offered by the dual market in the shares of the "ugly sisters".

Figure 1 shows, for each of the companies in the Adsteam group, the values of the entitlement to subscribe for one Woolworths share at a price of \$2.45. These values are based on the daily closing prices in each market. On the horizontal axis, Day 1 refers to 24 May 1993, and Day 22 to 23 June. As noted, the entitlement values are calculated by subtracting the ex-entitlement price from the cum-entitlement price, after adjusting for the en-

Stewart Alison, senior lecturer, Sam Nicolosi, associate lecturer, and Peter Pope, senior lecturer, are with the Department of Accounting & Finance, James Cook University of North Queensland. The authors thank Alan Hanson of Finpac Financial Advisors, Townsville, for providing supporting data for this article.

Table 1: Pro-rata share entitlement

Parent Coy	Basis	Total entitlement to the offer	
		Number	%
Adsteam	.83 Shares for every Adsteam share held	192,846,973	19.28
Tooth	2.68 Shares for every Tooth share held	124,082,585	12.41
David Jones	01.87 Shares for every David Jones share held	171,293,376	17.13
		488,222,934	48.82

titlement terms as stated in the Woolworths prospectus. While the day-to-day changes were generally (but not exclusively) in the same direction, the three values never actually coincided; ie, the value of an entitlement to subscribe to a Woolworths share varied according to the company from which the entitlement stemmed.

Figure 2 shows, for each of the three companies, the daily predictions of the market value of a Woolworths share. Each of these predictions is calculated by adding the entitlement values shown in Figure 1 to the subscription price of \$2.45. On their first day of trading, 12 July, Woolworths shares opened at 2pm at \$2.84 and closed at 7.30pm at \$2.81. Both of these prices were consistently under-predicted by the entitlement values for each of the three Adsteam group companies. The extent of these under-predictions is shown in Figure 3.

If the entitlement value had been an unbiased predictor of the opening market value of a Woolworths share it would have overestimated and underestimated the opening share price with relatively equal frequency and amount. Since each of the three entitlement values consistently under-predicted the Woolworths share price, they were clearly *biased* predictors. In each case the mean predicted share prices and the mean underpredictions are shown in Table 2. What could have accounted for this consistent under-prediction and the apparently profitable opportunities it provided?

The window of opportunity was certainly not lost on AMP and Pacific Dunlop. Through its holding of shares in Tooth and Co., Pacific Dunlop had an entitlement to subscribe for 95 million Woolworths shares. In early June it sold the entitlements to 65 million of these to AMP at a value of 17.1 cents each. This resulted in AMP ef-

fectively paying just over \$2.62 for each Woolworths share. As noted, these shares were worth \$2.81 each at the close of trade on 12 July.

However, as part of the deal, AMP agreed that if the Woolworths shares reached \$2.94 within 10 days of listing, it would pay 50 per cent of the difference to Pacific Dunlop. Since this price was exceeded on the first day

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of trading, the effective cost to AMP of its Woolworths shares was \$2.78. This reduced the net profit to three cents per share, substantially less than the difference between the entry price of \$2.62 and the opening price of \$2.84.

But when the dust had settled, AMP emerged as the biggest shareholder in Woolworths, and this is the real measure of its success. Some other institutions such as Equitilink are also believed to have gained access to Wool-

worths shares by buying in the cum-entitlement market, as did some individual investors. Many institutions, however, did not take this route, preferring to bid for the shares directly at \$2.45. Because of the substantial scaling down of applications which took place, these institutions found themselves without an index-weighting in Woolworths.

Explaining the under-prediction

The under-predictions shown in Figure 3 and Table 2 do not, of course, tell the whole story. By acquiring Woolworths shares through the cum-entitlement market, instead of by direct subscription, investors had three additional factors to consider:

- the additional transactions costs
- the opportunity cost of funds expended on the cum-entitlement shares
- the risk premium arising from buying and subsequently selling the shares in the Adsteam Group companies.

The effect of each of these factors would be to reduce the entitlement value, so part of the apparent profit opportunities available would in fact be compensation for the factors.

Regarding the persistent size differential of the entitlement value among the three Adsteam Group companies, the relationship between the entitlement value and the current market expectation of the value of a Woolworths share is pertinent.

If it were possible to adjust for differentials in risk premia, transaction costs and financing costs, how would the three sets of entitlement values have behaved through time? Would they have coincided? Would they have followed random walks? Would any overpredictions or underpredictions have trended closer to zero as the offer date approached?

The answers to these questions would throw some light on the informational efficiency of the market.

Another question is whether the entitlement values were driven

Table 2: Average forecast opening prices

	Average predicted opening price \$	Average under-prediction \$
Adsteam	2.56	0.28
David Jones	2.54	0.30
Tooths	2.54	0.30

exclusively by expectations about the opening price of Woolworths shares or were related to the current entitlement prices of the shares of the respective Adsteam group companies. Results of regressing the entitlement values on the relevant ex-entitlement prices are shown in Table 3.

It would appear that, in the case of Adelaide Steamship and David Jones, the entitlement value was very responsive to changes in the current ex-entitlement share price of these two companies.

In each case the regression of the entitlement value on the ex-entitlement share price produced a statistically significant relationship as measured by the respective slope coefficients; ie, the "b" values, and a reasonably strong fit as measured by the values of the R² and the correlation coefficient r.

These slope coefficient values would indicate that a one-cent change in the share price produced on average a two-cent change in the relevant entitlement value.

On the other hand, the value of the Tooth's entitlement would appear to be independent of Tooth's ex-entitlement share price movements, as the slope coefficient is small and statistically insignificant (t = 0.53). It could be conjectured that expectations as to the opening price of Woolworths shares may have played a larger part. This, in turn, may have been related to the market's knowledge of the Pacific Dunlop-AMP deal.

Finally, with the exception of AMP, Equitilink and possibly a few others, the institutions did not appear to think a play in the cum-entitlement market was an advantageous means of acquiring Woolworths stock. True, an earlier attempt by IEL to float off Woolworths was aborted because of a lack of institutional support, but, fairly early in the piece, financial commentators were predicting an over-subscription of the second offer.

Why, then, the reluctance to take this route? Perhaps the reasons lie in the structure of the share registers of the group companies at 1 June or an unwillingness to accept the terms of deals such as the one struck between AMP and Pacific Dunlop.

In any event the dual market, an interesting innovation in itself, added an extra piquancy to the biggest float in our sharemarket history. ■

Table 3: Regression of Entitlement value on Ex-entitlement Price.

Where Y = Entitlement value, and X = Ex-entitlement Share Price (Y = a + bX)

	b	t	R2	r
Adsteam	2.0111	3.72	0.4087	0.6393
David Jones	2.0436	4.65	0.5195	0.7208
Tooths	0.018581	0.53	0.0138	0.1175

Figure 1

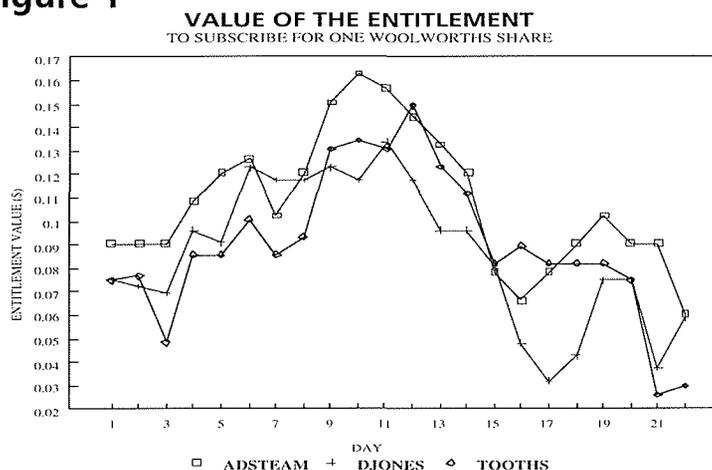


Figure 2

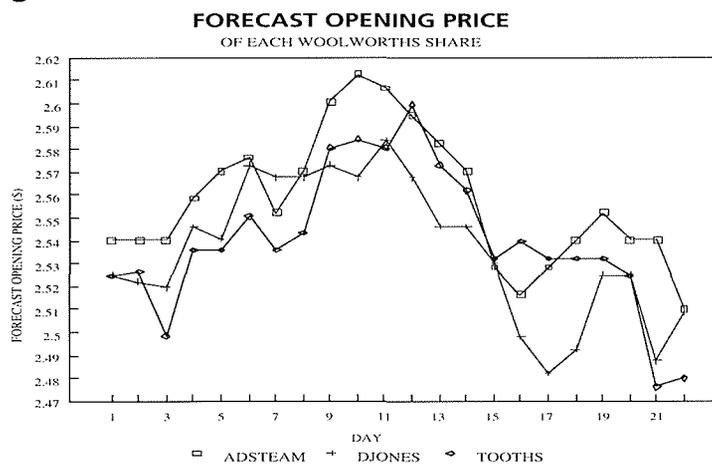


Figure 3

