Options are not always what or where they seem. That has always been the challenge for investors trying to evaluate new issues. The use of equity options in corporate finance has highlighted the evaluation dilemma because options are being used in less traditional ways. William Hopkins presents a guide to the recognition of different types of option.

Convertible bonds have been a feature of traditional corporate financing for many years. Over the years, however, different methods of valuing convertibles have emerged. Today most market participants would agree on one valuation technique—value the debt and equity components separately and watch out for the issuer's call and any currency play.

There is nothing complex about that, since to value the debt component all you need to know is the issuer's borrow rate. The embedded call value is merely a function of the issuer's stock price volatility, strike and maturity, not forgetting interest rates and forecast dividends.

Often, however, securities are issued with a twist. Roche, the large Swiss drug company, is a frequent issuer of innovative financings. In 1993 Roche issued through Swiss Bank a seven-year US bond with "knock-out" warrants relating to the underlying shares.

In essence, the package offers an equity participation in the upside potential of Roche with the bond offering a high-quality fixed-income investment. Added protection against downside moves in the shares is provided by the conditional put. It ensures a minimum rate of return provided the closing price of the share during the life of the warrant does not exceed the knock-out price (SFR5000). This is represented diagrammatically in Figure 1.

When an investor buys this warrant he or she is effectively buying the share, selling the dividend flow, buying a conditional put option at the low strike and selling a call at the high strike.

The attraction for the investor is that the package results in the purchase of a share (with limited upside and "conditional" downside) at a discount.

The "conditional" put is effectively a barrier option which, while more common in foreign exchange than equity derivatives, is relatively easily valued. As a rule of thumb, a barrier option will always be worth less than a standard option and how much less will be a factor of how close the "out" strike is to the current spot price.

In these financings, the options in the structure are easily identified. We know what they are and how to value them. But other examples may be "icebergs" (mainly invisible) or, like a chameleon, deceptive in their appearance.

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The embedded put

Many organisations do not sell puts because it is perceived as dangerous. In fact, many of the same organisations sell puts unwittingly every day — the "covered call writers" are a common example. If organisations sell puts they should at least realise what they are doing and receive value.

The most obvious example of unconscious put selling is underwriting new issues or placements. Many will remember the Foster’s rights issue of late 1992 — if one went back and looked at activity in the Australian Options Market over the issue period it is clear that some failed to see the connection. Hedging an underwriting commitment by buying Foster’s put options during that period was the obvious transaction.

In a similar fashion, equity option technology is changing the landscape for predators and prey. In late 1992 Trafalgar House PLC, a UK conglomerate which owned businesses as diverse as John Brown Engineering and the Ritz Hotel, was under threat from Hong Kong Land PLC, which had acquired a small stake. Hong Kong Land was a willing acquirer of shares and sold Trafalgar put options to Swiss Bank.

Trafalgar, in turn, wished to shore up its defences and raise cash to cover mounting losses from a subsidiary involved in oil-drilling platforms. After discussions with its advisers, Trafalgar sought underwriters for a rights issue. Because of the poor performance of Trafalgar, the group was difficult to form. After a false start to the issue, Swiss Bank was one of those invited for the second round.

The result is obvious: an attempt to dilute an unwelcome invader had created the opposite effect. The equity derivative trade was not apparent to Trafalgar or its advisers.

Underwriting is a fee-based activity that should bear a close relationship with the value of the corresponding put series. In the two examples mentioned, Foster’s and Trafalgar, “put sellers” will have taken into account some of the value of the put because they received an underwriting fee. There is another example in Australia where many did not.

In late 1993, a subsidiary of Solomon Lew’s Premier Investments Limited (PMV) sold 57 million Coles Myer Limited (CML) shares to a unit trust. The income which unitholders in the trust were entitled to receive was a streamed franked dividend flow from the CML shares. The capital units were retained by the PMV group.

At the time of issue, CML was trading at $4.89. The income units were offered to investors at $3.46 — the present value of the franked dividend stream. What was also material from the income unitholders’ point of view was that at maturity of the trust, in December 1998, they would be repaid by PMV exercising the repurchase option that it held.

To income unitholders the units seem to be a fixed-interest type investment with some dividend risk. In fact, there is more to it than that, because PMV has no obligation to repurchase the units if the shares are below $3.46; the income unitholders had sold a five-year $3.46 put at issue and on the face of it had not received full value.

While some other factors influenced the price of the Cap Guard units, market forces quickly repriced the issue in the secondary market. So long as CML keeps paying franked dividends it is likely the transaction will remain satisfactory for PMV. Some investors, however, may have done better by waiting for trading in the secondary market.

“Puts” may take many other forms. If they do, they must be identified and adequately priced.

Discount securities

Many instruments are described as options but cannot be properly valued if one views every option in terms of volatility. There may be elements of “optionality” in the payoff but it could be that discounted cashflows will be the more appropriate valuation method.

In Australia there have been issues such as the ANZ Bank convertible preference shares where, on maturity, the investor will receive shares at a discount. This is usually described as an option to receive a number (as yet undetermined) of shares at a discount to the then market price.

From the investor’s perspective it is not easy to value, except that — intuitively — it seems to be a good deal. If it is a good deal for the investor then logically it should be expensive for the issuer. If the discount is established as a market price over five business days, how does the investor ensure he or she receives the full value of the discount? Selling, or “shorting”, shares on those dates is the most obvious method.

While some issuers focused on this danger to the share price during this period, some were oblivious to the potential risk. That was because they did not properly understand the options they were selling. By and large they were discounted cashflows rather than the traditional options with which they were most used to dealing.

So options have many different...
forms. And in many areas, such as the valuation of “variable purchase options” in capital reduction, it is fair to say that they are poorly understood.

**Options in capital reduction**

Internationally, options have been a feature of strategies to reorganise capital for many years. Share buy-back schemes are used by companies such as IBM and Microsoft. In many cases the programs are opportunistic and are no more complicated than the sale of put options by the company or the company’s ESOP (employee share ownership plan).

In Australia the situation is not so simple. Legal impediments (primarily the ability of Australian companies to retain Treasury stock) and the reluctance of many large institutions to support share-repurchase schemes have meant more creative solutions are required.

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**Reduction of capital is perceived to have more certainty of outcome than share repurchase schemes.**

Schemes involving the reduction of capital are not new in Australia. Reduction of capital is perceived to have more certainty of outcome — to provide more certainty about the future gearing level of the company and more certainty about the capital-gains tax position of the investor — than share-repurchase schemes.

Recently shareholders approved a capital reduction for West Australian Newspapers Holdings Limited (WAN). WAN was a company that had very low gearing against its benchmarks, a strong cashflow and a willingness to use its tax losses so it could pay franked dividends to investors.

A capital reduction would defer the crystallisation of a CGT liability for investors (because there had been no “sale”) and the employment of extra debt in the business would achieve better leverage. The transaction would be approximately neutral for EPS, but how was the company going to reward loyal shareholders?

Variable purchase options (VPOs) would provide the bonus element for shareholders. In addition, they would give investors flexibility in their investment choice and underpin repayment of the debt facility in five years.

The structure was:

- a court-approved reduction of capital of 68 cents per share from paid-up capital and share-premium reserve;
- a five-year bank facility;
- a one-for-seven rights issue of 29.2 million options entitling the shareholder to purchase shares at a fixed discount with the exercise terms being

\[
\text{shares} = \frac{(S \times E)}{(V_0 \times 0.9)}
\]

where

- \( S \) = exercise price of $5.00;
- \( E \) = number of options exercised;
- \( V_0 \) = weighted average of share price during the exercise period;
- subject to the minimum shares per option being one and the maximum three.

From the shareholder’s perspective the VPO was probably an equity investment. But how should it be valued?

**VPO terms**

<table>
<thead>
<tr>
<th>No issued</th>
<th>29.24 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entitlement</td>
<td>1-for-7 renounceable</td>
</tr>
<tr>
<td>Exercise price</td>
<td>$5.00</td>
</tr>
<tr>
<td>Early expiry</td>
<td>30 April 1999 (4.84 yrs)</td>
</tr>
<tr>
<td>Final expiry</td>
<td>30 June 1999</td>
</tr>
<tr>
<td>Issue date</td>
<td>30 June 1994</td>
</tr>
<tr>
<td>Conversion discount</td>
<td>10%</td>
</tr>
<tr>
<td>Min. conversion</td>
<td>1</td>
</tr>
<tr>
<td>Max. conversion</td>
<td>3</td>
</tr>
</tbody>
</table>

The conversion terms were set so that if the price on maturity exceeded the exercise premium price of $5.56 ($5.00 \times 10/9) the investor would always receive one share. Conversely, if the price on maturity were lower than the maximum conversion price of $1.85 ($5.00/3 \times 10/9), then the investor could never receive more than three shares.

**The valuation**

| Share price | $4.37 |
| Theoretical “ex” price | $3.69 |
| Call strike | $5.56 |
| Put strike | $1.85 |
| Volatility | 19% |
| Investor’s borrow rate | 12.7% |
| Dividend yield | 8.6% |

The investor knows that the “discount” has value but we do not know how many shares will be involved. The best way to look at that value today is to present-value that cashflow:

\[
\text{Future value} = (\frac{5.00}{1 \times 10/9}) - 5.00 = 56 \text{ cents per share.}
\]

If we discount that amount to the early expiry date at the investor’s borrow rate, then present-value = 31 cents per share.

This present value has calculated the value of the “discount” but has not given the value of the VPO. There are two more options in the structure — one of which, especially, has considerable value.

In entering into this transaction the investor has set certain parameters ($5.56 to $1.85) between which he or she receives a “floating” number of shares. Outside those parameters the number of shares is fixed. Intuitively, there is both a “bought” and a “sold” option.

By agreeing to provide the investor with one share no matter how high the price, WAN has provided a call at $5.56 to the investor. The “call” has value and is worth approximately 11 cents. In turn, WAN has restricted the maximum number of shares to three, irrespective of how much below $1.85 the price goes. That “put” position, which caps WAN’s maximum dilution, has a value of approximately two cents per share.

After identifying these two other options we can now value the VPO as discount plus call option minus put option (31 + 11 - 2) = 40 cents per share.

While the utility function of the investor will be the final determinant of value, boundary conditions (in this case the minimum and maximum shares per option) will alter the shape of the iceberg. By not taking into account the additional options an investor may have undervalued the package.

**Options inherent in employee share schemes**

Employee share schemes, more often than not, have been provided to employees at a relatively high cost to existing shareholders and the company. In addition, in many cases the company has sold “free” options to the employee without a realisation that the method of financing had introduced options to the structure.
The recent introduction of a share plan for employees of Coles Myer (CML) appears equitable for employees and existing shareholders, since the parcel underpinning the plan was purchased on-market. What may be less equitable is the fact that a subsidiary of CML will finance the shares ("interest free") for the employees until the dividend stream allows "repayment" of the principal. In addition, the employee is not under any obligation to take up the shares if the market falls. By not taking them up, the employee has exercised the put the company sold the employee on entry to the scheme.

While existing shareholders may be delighted to have employees as stakeholders in the business, they may be less delighted with CML effectively selling puts on its own shares. After all, these shares were not shares issued especially for the plan but, rather, existing shares bought through the market. The point is not that company share plans in Australia need fundamental restructuring but that the hidden options and the way they are financed may not be optimal, especially for existing shareholders.

The privatisation process in Europe has provided new thinking on the construction of staff share plans. New structures were necessary because European workers were not renowned for holding shares in their employers.

When the French government decided to privatise some of its large industrial companies it wished to encourage employee share ownership not only to ensure some stability in the share register but also to improve industrial relations. Rhone-Poulenc and Elf Aquitaine instigated employee ownership schemes while being privatised.

Because employee plans were not a part of traditional French business culture, neither of these companies wished to provide financing to its employees or carry the plan in any form on the balance sheet. Bank finance was arranged from outside. Under the scheme proposed, employees were to be able to participate in the business and decide in five years whether they wished to purchase the shares outright.

Naturally, the financier of the scheme did not wish to take additional price risk on shares of the equivalent of $A100 million (in Rhone-Poulenc's case). The financier therefore required a put provider to take the equity risk. A workable structure was designed (see Figure 2).

What is interesting about this structure is the relationship between the French bank financier and the option house. A simple solution may have been to do an equity swap — the French bank would pay the upside in the shares and dividends to the option house and in turn the option house would pay PIBOR (Paris inter-bank offered rate) interest flows to the French bank financier.

In fact, this was not possible since the employee would not receive any upside in the share price. Instead an "out-of-the-money" call strike was agreed which still allowed the employee to participate in share upside and the French bank financier to be cash-flow neutral.

The option house therefore had a long call position and a short put position. The hedge for both these transactions is to sell shares — something that was hardly desirable, from the French government's point of view, on the opening day of the Rhone-Poulenc privatisation. Instead, the option house constructed a "synthetic" Rhone-Poulenc share by selling investors a call and buying from investors a put.

In the Rhone-Poulenc example the float was oversubscribed so the hedging process was made easier. Synthetic shares are often attractive, first, to investors who are impartial to the tax credits attached to dividend flows or, second, to foreign investors who are prohibited from holding ordinary shares in an entity beyond a threshold level. Examples of this second class of investments would be defence stocks such as British Aerospace PLC and the media stocks in Australia.

Like the underwater mass of the iceberg, options lurk inconspicuously in many employee share plans. They are often ignored — or, if identified, rarely priced. In many cases the commercial reality of constructing an employee-friendly scheme may overwhelm the position of existing shareholders.

What is important is that the options are identified and the hedging consequences of those options well understood. Commercial reality will dictate where the value lies to company, shareholder and employee.