Risky business

There's more to picking value than forecasting EPS

Expected earnings per share as a measure of value has both supporters and critics. BRIAN ELEY and STEVE SULESKI describe a practical approach that attempts to identify value by combining risk, return and stock valuation in the same framework.

We believe that the Australian market places a heavy emphasis on expected returns, without objectively matching this to the associated risks. This is because risk is often subjective and is hard to measure, while earnings forecasts are abundantly available.

This article describes a methodology to quantify and measure risk, which is then matched to expected returns and current stock valuations to provide a complete framework for identifying value in the market.

We are looking for stocks that have a favourable risk/return profile, but do not have full value for that profile reflected in the share price. As a corollary, we are also looking for stocks that appear overvalued, given their risk/return profiles.

WHAT DO WE MEAN BY RISK?
The major factor determining risk is the forecasting error relating to a company's earnings performance.

If we knew with absolute certainty what all companies' earnings would be into the future then valuation would be a relatively simple process. There would be no earnings surprises and all valuations could be determined by simple rules. Relative valuations between equities would not change, and absolute valuations would vary only in response to interest rates.

As we do not know with absolute certainty companies' earnings outlook, we do our best to forecast and base our valuations on these forecasts. Therefore, it is error or uncertainty in these forecasts that is the major determinant of risk.

WHAT DETERMINES RISK AND FORECASTING ERROR?
In our view, two drivers determine forecasting error:
• the inherent error associated with a company, given the type of business and market it is in – for instance Star City (a casino) would naturally have a higher forecasting error than Coles Myer (a retailer and food wholesaler); and
• the level of skill and knowledge possessed by the forecaster.

The first factor is by far the more important and, fortunately, is more easily measurable.

Analysts' forecasts are based on financial models that are built up using a series of assumptions, such as sales growth, product margins or interest rates. When estimating these variables, it is usual for the analyst to use a best guess, or central assumption. For instance, if an analyst believes that a product margin will fall in the range 8% to 12%, then it is usual to enter the mid-range guess of 10% into the spreadsheet. Therefore the end forecast is a single number that is built up
using a series of central assumptions, and information as to the range of likely outcomes is lost.

While some analysts attempt to include a sensitivity analysis in their forecasts, there is generally no standardisation across different stocks or sectors of the market. We have attempted to standardise the process of identifying risk and forecasting error associated with individual stocks.

This method has two main plus points:

- it eliminates individual analyst bias;
- it indicates the profit ranges the market is actually expecting, and gives valid results. For instance, the forecasting error on Crown Casino is well in excess of that for Westpac.

Dividing the standard deviation of outcomes by the mean gives us a number that we call the forecasting error. It is expressed as a percentage of the mean.

Approximately 70% of all outcomes fall within +/- one standard deviation of the mean. Therefore if analysts are forecasting a future net profit result consensus of $20m with a forecasting error of 10%, this means that roughly 70% of expected outcomes lie within $18m and $22m. Roughly 97% of outcomes lie within +/- two standard deviations.

It is this forecasting error, expressed as a percentage of the mean or expected outcome, which is our measure of risk associated with any stock.

**RISK AND RETURN**

Having a high forecasting error (high risk) is not necessarily a bad thing if the investor is compensated by a high return.

Obviously the best combination is low risk/high return, and high risk/low return is unfavourable.

The question of what is a high return is a relative one, and return needs to be defined. Our definition of return is earnings-per-share growth plus dividend yield, which takes into account both capital growth and income. We have averaged return for the next two years as this is the time frame on which the market judges most companies. We have presented the results for ASX100 stocks (Figure 1).

It can be seen that there are a number of distinct groupings in our universe. These range from low risk/high return to high risk/low return. We have arbitrarily rated the stocks in our universe on a

Continued on page 40

**PROXY FOR FORECASTING ERROR**

It is now possible to receive on-line various brokers’ forecasts on most ASX100 industrials and many mid-cap industrials.

The analysts at these brokers all use differing assumptions in their forecasts of company profitability. The resulting range of expected profit outcomes forms a good proxy for the variability inherent in the profit outcomes of these stocks.
models and smooth-transition autoregressive models.

The extent of any improvement in the accuracy of stockmarket analysis and forecasts as a result of employing non-linear models, rather than the standard linear models, needs to be evaluated. However, the trade-off between improved accuracy and model complexity will also have to be considered.

**NOTES**

1. The property focus of the series selected reflects the specialist research of Graeme Newell; the study results are considered to be generally representative and applicable to all stockmarket sectors.
2. A full technical description of these econometric techniques is given in Peters (1991, 1994).

**REFERENCES**


Continued from page 30

scale of zero to ten, depending on where they fall relative to their peers.

**VALUATION WITH RESPECT TO RISK AND RETURN**

It should be noted that risk and return are not determined by the market; they are factors intrinsic to the companies themselves. However, valuation is determined by the market.

A company that has a very favourable risk/return profile is not necessarily a “buy” if that company’s stock carries a huge valuation. Similarly, a very unfavourable risk/return profile can be bought if the discount is large enough.

However, we have noted that less-favourable profiles are generally so because of a higher forecasting error and therefore are generally not appropriate for risk-averse investors.

The objective is to identify stocks whose risk/return profile is not appropriately valued by the market at any given time. Once again, valuation is a relative thing and therefore we have plotted the universe of stocks for illustration (Figure 2).

The closer the stock is to the bottom right-hand corner of the graph, the more attractive its valuation relative to its risk/return profile. The stocks below the line would comprise our “buy” list, with the strength of the recommendation increasing as we move towards the bottom right-hand corner. The corollary is true and stocks become less attractive as we move to the top left-hand corner.

For the purposes of our analysis, we believe that a 50% discount to the market average is appropriate for stocks with a very unfavourable risk/return profile, and a 50% premium is appropriate for a very favourable profile. Investors may substitute their own rules with regard to valuation.

Theoretically, over time stocks should move to a fair valuation. We believe companies that offer low risk and high return will be re-rated as they have a high probability of demonstrating a strong and consistent operating performance.

Continued from page 35

average price of tea auctioned in London leads the quarterly change in US bond prices (and to a lesser extent Australian bond prices), by approximately five months. This implies that a rise in tea prices will be followed five months later by a fall in bond prices.

The table indicates that since January 1990 there has been a statistically significant relationship between the quarterly percentage change in the price of tea auctioned in London and the quarterly change in US and Australian bond prices (lagged by five months). However, the relationship is by no means perfect. The low Durban Watson statistic indicates serial correlation in the residuals and hence exaggerated t-statistics. Still, a strong directional relationship is evident in the charts (particularly with US bonds), even if the correlation in magnitude is not as well defined.

The determination of the London tea price is outside the scope of this exercise; however, while there is a justifiable economic rationale for using commodity prices in an indicator of inflation and or bond prices, it is highly unlikely that the price of tea in London should indicate future trends in US and Australian inflation.

**Footnote:**

*The London Tea Auctions, where the data is sourced, closed in June 1998 after operating for nearly 320 years.*

Unfortunately, this prevents further testing of the relationship.

**NOTES**

Australian bond prices = the SBC Composite All Maturities Index (inception October 1989).

US bond prices = the US All Maturities Salomon World Government Bond Index, local currency.


The quarterly percentage changes in bond and tea prices have been standardised and normalised. The change in the tea price has then been inverted and smoothed by a three-month weighted moving average and given a five-month lead.