Alternatives to sector selection

JOHN OKUNEV and **LINDSAY TAYLOR** argue that fund managers who develop an independent source of sector selection should be able to access an untapped source of alpha.

Sector selection can be an important strategy in generating portfolio returns. Typically, there are three approaches to sector selection. In the first approach, sector positions are merely the residual effect of bottom-up stock positions. That is, there is no specific sector selection methodology, but rather, the outcome of sector bets are (essentially) an aggregation of stock views.

Many fund managers seem to use this approach. The second approach is usually based on a top-down model that tilts the portfolio towards (away from) attractive (unattractive) sectors. This approach usually represents an independent source of alpha to bottom-up stock views and can reduce the risk of the portfolio due to low correlations with bottom-up stock views. From our experience many large global core managers use this approach.

The third approach is an integrated model that seamlessly combines top-down and bottom-up stock research. We are aware of only one manager who uses this approach.

Seeing that the majority of domestic equity managers do not utilise specific sector selection strategies, it seems reasonable to expect that a manager, who can successfully develop an independent sector selection model should be able to access an as yet largely untapped source of alpha.

The initial motivation for the development of a quantitative sector selection model was to produce a consistent and repeatable strategy that could compliment a bottom-up equity portfolio, whether it be domestic or global.

As the results show, however, this model not only provides an independent source of alpha and enhances the risk-adjusted performance of existing equity portfolios, but is also capable of being used as a stand-alone product.

To illustrate this point we take the example of a typical balanced fund, which has a core index component complimented with a number of active managers. We show that a portfolio consisting of active managers and a core sector strategy outperforms a portfolio of active managers and a core index strategy, on a risk-adjusted basis.

SECTOR SELECTION MODEL

In the early stages of model development, it is important to review the available literature regarding sector-based strategies, and the approaches currently used by practitioners.

We tested numerous styles, factors and strategies, and determined that the following approaches were able to consistently produce alpha;
- The Business Cycle (macro factors)
- Price Momentum
- Value
- Market Implied Growth

These models are discussed in greater detail below.

The Business Cycle

Research has shown that the yield curve, expected inflation, the cash rate, industrial production and the equity-market risk premium all have some degree of predictive power.

The Business Cycle model uses a combination of various macroeconomic factors, to determine the current phase (stance) of the business cycle.[1] Once the phase is established, the model then seeks out those sectors that have traditionally performed well during that phase of the business cycle (over weight), and those that have historically

DR. JOHN OKUNEV & LINDSAY TAYLOR
BT Funds Management Chifley Plaza, Sydney

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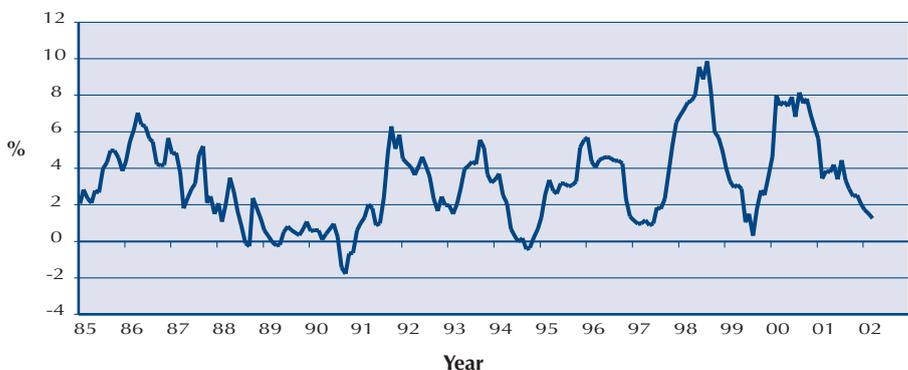## CHART 1 BUSINESS CYCLE MODEL: LONG/SHORT PERFORMANCE

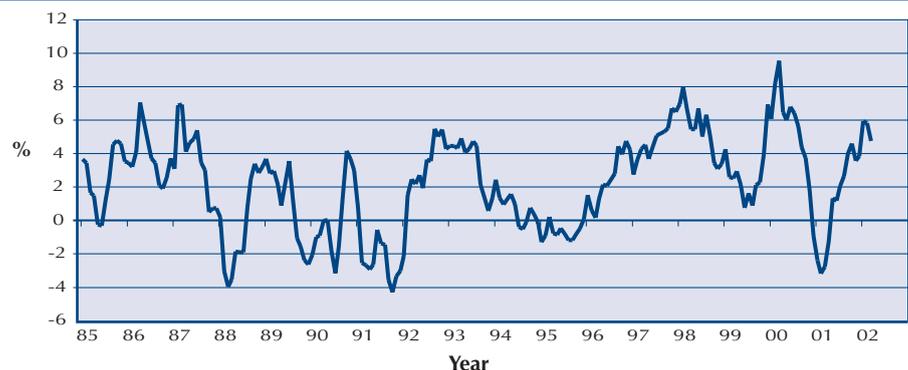## CHART 2 MOMENTUM MODEL: LONG/SHORT PERFORMANCE

CHART 3 VALUE MODEL: LONG/SHORT PERFORMANCE

CHART 4 MARKET-IMPLIED GROWTH MODEL: LONG/SHORT PERFORMANCE

under-performed (under weight).

Apart from being intuitively appealing, an obvious advantage of this methodology is the distinct absence of any forecasting errors of the dependant variable(s), as is the case with regression-based modelling.

Back testing of this model has shown it to be robust, delivering consistent excess returns over the past 20 years. Chart 1 displays the rolling 12 month excess return of the business cycle model.

Momentum

Momentum strategies have been shown to work across many asset classes over the past 20-30 years. Academic research indicates that momentum works better across sectors, rather than within sectors. While there are many forms of momentum, from our research prior-period-return momentum appears to have the most success in predicting sector returns.[2]

Chart 2 displays the rolling 12-month excess return of the Momentum Model. On average, the Momentum Model produces significant excess returns, but, as with all momentum style models, tends to underperform at major market turning points. This is evident from Chart 2, where momentum under performed in 1987, 1991 and 2000.

Value

The concept of applying value to an investment strategy is well entrenched in portfolio theory and practice. In fact, over the past 25 years, an Australian investing in domestic value stocks would have amassed more wealth than one who invested in growth stocks.

This is also true for global equity investments—the MSCI Value Index has outperformed the MSCI Growth Index by an average 2.7% p.a. over the past 25 years. Therefore, irrespective of one's preferred style of management, it is instructive to include a value element in any sector selection strategy.

While there is a broad range of valuation measures available, Earnings Yield (in both its standard format, and as a normalised score) is an effective and straightforward measure of relative value.

While the Value Model is successful at picking both winners and losers (in terms of sectors) over the longer term,

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it does suffer from extended periods of underperformance (see Chart 3).

It may not be advisable to use such a valuation strategy by itself, but, combined with other strategies, it does add value by acting as a diversifier in a combined sector selection strategy, adding to overall performance when other models tend to break down the most: during a bear market. Chart 3 displays the rolling 12 month excess return of the value model.

Market Implied Growth

The concept of earnings growth is widely accepted as a major factor in share price performance. It is, therefore, not surprising that changes in analysts estimates of earnings growth can have a significant impact on stock returns.

Our research indicates that the rate of earnings growth implied in a sector's current market price at any one point in time tends to move cyclically around its long-term mean. In other words, the market-implied growth rate exhibits a mean-reverting pattern. As a result, temporary deviations from long-term growth rates can influence sector (or stock) returns over the next 12-24 months.

Chart 4 displays the rolling 12-month excess return of the Market-Implied Growth model. As the results show, the Market-Implied Growth Model has performed reasonably well over the past 10 years.

AGGREGATE SECTOR SELECTION MODEL

The four models outlined above cover the major investing styles and are reasonably independent—thus producing relatively uncorrelated returns, as is evident from Table 1. It is

TABLE 1 **CORRELATION OF MODEL RETURNS**				
	Business Cycle	**Momentum**	**Value**	**Growth**
Business Cycle		0.1907	-0.0559	-0.0492
Momentum			-0.1191	0.0379
Value				-0.0971
Growth				

TABLE 2 **AGGREGATE SECTOR SELECTION MODEL: PERFORMANCE TABLE**			
	Return	**Standard Deviation**	**Info. Ratio**
01/85 – 04/02	3.59	2.20	1.63
01/85 – 12/90	2.16	2.05	1.06
01/91 – 04/02	4.34	2.25	1.93
01/95 – 04/02	5.45	2.35	2.31

TABLE 3 **PERFORMANCE DOMESTIC AUSTRALIAN EQUITY FUND MANAGERS 1/1997–12/2001 (SOURCE MERCER)**				
	AMP	**Colonial**	**Maple-Brown Abbot**	**Perpetual**
Excess Return	4.06	2.88	3.95	4.30
Tracking Error	2.90	4.03	4.53	4.81
Information Ratio	1.40	0.72	0.87	0.89

this lack of correlation that is important when it comes to combining strategies, as it enables us to create a diversified Aggregate Sector Selection Model.

It is generally accepted that different styles and factors do not perform consistently over time. Indeed, each one of the four models just described has posted negative absolute returns at one time or another over the past 20 years.

The fact that our models are unrelated and uncorrelated will go some way to avoiding large losses that are associated when focussing on just one factor or style. We have, however, taken a further step to reduce this possibility and developed a weighting scheme which places a greater weight on the models

that are currently producing high information ratios and a smaller weight on those with poor current information ratios.

In doing so, the Aggregate Sector Selection Model is not only diversified, but the probability of suffering the substantial losses due to the failure of one model is also significantly reduced (the probability of a negative rolling 12 month return is reduced to just 17%, from the 23% chance when the models are assigned equal weights). Table 2 and Chart 5 detail the performance of the Aggregate Sector Selection Model since 1985.

The primary reason for developing the sector-selection process was to combine with an existing stock-specific strategy. The effectiveness of adding sector selection depends on the stock selection process, but in general, the less correlated the stock-specific performance is to the Aggregate Sector Selection Model, the greater the diversification benefits and the higher the risk-adjusted return of the combined strategy.

Australian domestic equity managers tend to be predominantly bottom-up in style, and therefore, produce returns relatively uncorrelated with our macro-oriented sector strategy.

CHART 5 **AGGREGATE SECTOR SELECTION MODEL: LONG/SHORT PERFORMANCE**

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We have also developed a global sector selection model. The performance of the Global Sector Model is similar to the Australian sector strategy. The Global Sector Model provides an important cross check of how global themes can influence the domestic market.

We have tracked a paper portfolio of the Australian Sector Selection Model for the past 10 months. The strategy to date has generated an excess return of 3.2% with a tracking error of 1%.

An alternative application for investors

The Aggregate Sector Selection Model can also be used as a stand-alone product, and it is this avenue that leads us to the most exciting prospects. The sector selection style of investing is ideally suited to a low-tracking error core product. The scalability of returns implies that a smaller position will have no effect on the models risk-adjusted returns.

For illustrative purposes we demonstrate the diversification benefits of combining the sector strategy with other managers. We selected the following wholesale managers; AMP (SMP), Colonial First State, Maple Brown Abbott and Perpetual Funds Management.

These managers have been quite successful for a number of years as is evident in Table 3.

Table 4 illustrates an important point; there is little correlation between the sector strategy and the fund managers.

Table 5 highlights that combining managers with the sector strategy can substantially reduce risk. The table displays the proportion of funds invested with each manager (the first row of data shows the benchmark for comparison: an equal weighting assigned to each manager with no investment in the sector strategy).

The last column depicts the excess return, tracking error and information ratio of the portfolio. It is clear from this table that as the weight in the Sector Selection Model is increased, tracking error for the portfolio is steadily reduced. For example, an increase in exposure to the sector strategy from 0% to 30% reduces

TABLE 4 CORRELATIONS WITH DOMESTIC AUSTRALIAN EQUITY FUND MANAGERS AND THE SECTOR SELECTION MODEL				
	AMP	Colonial	Maple-Brown Abbot	Perpetual
Sector Selection Model	0.13	0.04	-0.29	-0.02

TABLE 5 COMBINATIONS OF ACTIVE MANAGERS AND THE SECTOR SELECTION MODEL					
AMP	Colonial	Maple-Brown Abbot	Perpetual	Sector Selection Model	ER/TE/IR
0.25	0.25	0.25	0.25	0.00	3.80/2.00/1.90
0.25	0.20	0.20	0.25	0.10	3.72/1.82/2.04
0.20	0.20	0.20	0.20	0.20	3.57/1.59/2.24
0.20	0.15	0.20	0.20	0.25	3.49/1.47/2.38
0.20	0.15	0.15	0.20	0.30	3.34/1.26/2.64
0.15	0.10	0.10	0.15	0.50	3.27/1.24/2.64

TABLE 6 COMBINATIONS OF ACTIVE MANAGERS AND AN INDEXED CORE COMPONENT					
AMP	Colonial	Maple-Brown Abbot	Perpetual	Core Index Component	ER/TE/IR
0.25	0.25	0.25	0.25	0.00	3.80/2.00/1.90
0.25	0.20	0.20	0.25	0.10	3.46/1.83/1.89
0.20	0.20	0.20	0.20	0.20	3.04/1.60/1.90
0.20	0.15	0.20	0.20	0.25	2.84/1.54/1.88
0.20	0.15	0.15	0.20	0.30	2.70/1.43/1.88
0.15	0.10	0.10	0.15	0.50	1.94/1.04/1.87

returns by 12%, but importantly, reduces the tracking error by 37%. The information ratio, therefore, rises from 1.90 to 2.64.

In a typical balanced fund, the Australian equity component of the portfolio is composed of an indexed component complimented with two to three active managers. We suggest that using a sector strategy instead of the core index will lead to higher levels of returns with similar levels of risk. For comparison purposes, Table 6 shows the performance of various combinations of the active managers with an indexed core component.

It is evident from Tables 5 and 6 that with a 20% weighting to the core sector fund or core index component, the core sector strategy outperforms the core index by 50 basis points with same level of risk (1.6%). Whereas, if the core component is increased to 50%, the core sector strategy outperforms the core indexed portfolio by 130 basis points with a marginal increase in tracking error. The core sector strategy has a superior information ratio of 2.64 compared to 1.87 for core index strategy.

CONCLUSION

Sector strategies are an under-utilised style on the Australian investing landscape, and as such offer fund managers and as yet largely untapped source of alpha. By combining independent, uncorrelated styles, we have been able to develop a sector-selection strategy that has produced excellent risk-adjusted returns over a 20-year period.

The strategy's low or negative correlation with the majority of the domestic equity fund managers makes it ideal to blend with existing bottom-up strategies, while its historical performance shows that it has the potential to be used as a stand-alone product.

NOTES

1 Chen N., R. Roll and S. Ross, 1986, Economic Forces and the Stock Market, *Journal of Business*, 386-403.

2 Jegadeesh and Titman, 1993, Returns to Buying Winners and Selling Losers, *Journal of Finance*, 65-91.

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