Outline of the Owen Fundamental Multi-Time frame Multi-Factor process – December 2015

For the Australian and US equity markets I have models that focus on different time frames (holding periods):

- Long term (7+ years) – based on long term fundamental pricing and valuation measures that transcend intervening economic cycles
- Medium term (3 year models) - focus on the market moving through different phases of the business cycle.
- Short term (1 year & 1 quarter models) – focus on market movements within prevailing business cycle phase

Long term models

Ie do not believe in the theory that long term returns are some static or fixed number because returns from all asset classes can and do go backwards in real terms for decades a time (including shares, cash, bonds, gold, etc).

In setting return outlooks and allocations in long term multi-asset portfolios I start with the long term return outlooks (7-10+ years) to determine whether the market is fundamentally over-priced or under-priced, and generate long term return outlooks from current levels. The long term factors include: long term cyclically adjusted real dividend yield (similar to the Bogle dividend measure), long term cyclically adjusted real price/earnings (similar to the Shiller 'CAPE' ratio), mean reversion, real earnings growth. (These are much more reliable than simple dividend yields or price / earnings ratios).

The outlook from the factors in the long term model sets the overall bias or stance for asset allocation (subject of course to return outlooks for other asset classes). For example if the market is significantly over-priced on several reliable and robust long term fundamental measures then our initial overall stance would be biased toward under-weighting.

However, while the long term models are highly reliable in predicting long term returns they have little to say about what might happen along the path to the long term. For example most long term models said that stock markets were cheap from mid-2008 and many investors and funds that used only long term models increased equity weightings in portfolios. Although the market was cheap at that point it was the worst time to buy shares as the market fall accelerated during the Lehman crisis in September and kept falling through to early March 2009. Likewise following long term models as the only input would also under-weight equities in the middle of booms, they miss out on the last half of bull runs.

For this reason, the long term models are only a starting point to set the overall stance. I then use medium term and short term models to indicate the likely short & medium term path along the way to the long term return.

Medium term models

The medium term factors (a3 years) measure cyclical swings between business cycle phases. The medium term factors include: dividends, exchange rates, mean reversion/momentum, credit growth, credit spreads and unemployment rates.

Short term models

We then look for warning signs in the short term (the up-coming year) by using the 1 year and 1 quarter models. The short term factors include: dividends, exchange rates, money supply, commodities prices and interest rates. It is notable that most of the short term factors don't relate to price or valuation of the market because whether the market is cheap or expensive on pricing/valuation measures (eg price relative to dividends, earnings, book value, etc) has no statistically reliable relationship to subsequent returns.

Principles

This process is very fact-based. It is based on published data, not vague assumptions or opinion.

- The factor much have worked over a minimum of 50 years because I need them to have worked through a wide variety of economic, market, political, military, geo-political, social, inflationary, regulatory, tax, demographic, etc conditions that investors are likely to face over their investment horizon in the future. Most people regard 10 years as 'long term' but I require at least 50 years because that is the investment time horizon of most investors, including retirees. Looking at only 10 or 20 years is dangerous because macro structural shifts often last longer periods. For example the current phase of falling inflation and falling interest rates started in the early 1980s and is still going 30 years later. Studying factors like inflation or bond yields over short periods like 10 or 20 or even 30 years is not likely to be representative of the next 20 or so years.
- Data availability – because I need each factor to have worked for at least 50 years, I can only use data that has much longer published history. Many of the factors use data going back more than 100 years – in both the Australian and US market.
- Statistical reliability - I only use measures that have 99% or higher statistical significance in their correlations with subsequent returns from shares.

- Consistency – there is no point using a factor that only worked in say the 1980s, or only in low inflation environments, etc. it has to have worked consistently in many types of market conditions over many decades.
- Must be a logical and fundamental link to equity returns.
- Does not assume markets follow text-book theories – ie does not rely on the assumption of normal distributions, randomness; does not rely on the assumption of static, constant or stable relationships – because nothing in the real world is static, constant or stable. The process allows for relationships to change over time; does not rely on the assumption of constant stable never-ending growth; does not rely on the assumption of linear relations – the process allows for non-linear relationships between factors and subsequent returns; does not assume symmetrical risk – the process allows for asymmetric treatment of risk, generally gives more weight to downside protection than to seeking excess returns on the upside.
- Doesn't rely on hindsight - Most forecast models test the relationship between a factor (say interest rates) and subsequent equity returns over the past say 10 years, and then use the regression statistics in a model over the same 10 year history to show that the factor "worked" to forecast returns over that period. In reality this merely amounts to "forecasting the past", because it relies on knowing what the relationship was in advance. Our process is very different. Each forecast is made only using data available at the time the forecast is made. This means the forecast return for say 1960 is based only on data available, and on the relationships observable, prior to 1960. As time passes, the new data is added to the historical database as it becomes available, and the relationships between the factors and equity returns are re-assessed. So, data for 1960 is only added to the database at the end of 1960 and is then used to forecast returns for 1961, etc. Because data changes all the time, the relationships between the factors and subsequent equity returns are constantly changing as new information becomes available over time. The process is thus self-learning and self-adjusting as new data becomes available.
- Must be financial exploitable - the relationship must be able to be translated into a portfolio weighting decision rule that results in superior portfolio results, after transaction costs and taxes.
- Multiple factors - no one factor works all of the time through all types of conditions. Some measures work best in expanding economies, other measures might work best with rising inflation or falling inflation, etc. I use to up to 20 different factors across the different time frames. The process automatically adjusts the weighting of each factor over time as conditions change and as factor relationships change.
- Risk reduction – it must lead to higher returns AND lower risk. The factor must generate a decision rule that not only results in higher returns (after transaction costs and taxes) but also results in lower portfolio risks – ie lower volatility, better downside protection, fewer & less frequent losses, more consistency in returns.
- Focus on risk management - The process is designed to generate returns the over long term, but limit risks over the shorter term – because most investors have long term "investment horizons" (financial goals) but short term "risk horizons" – ie they can lose faith and abandon the strategy after a year or two of poor performance. The process treats consistency of excess returns (above the passive benchmark) as being just as important as the total overall level of excess returns. If a factor generates high excess returns but doesn't reduce downside risk it is not included in the model.

Types of factors used

There are several types of factors utilised - long & short term, fundamental & technical, economic & behavioural, cyclical & secular. Some of the main types of data are:

- Economic data: - eg. economic growth, industrial production, current account, capital account, trade, employment, credit growth, etc. Note that financial asset prices (especially stock prices) generally lead economic activity, so most measures of economic activity generally lag stock returns, and are generally not useful for predicting stock market returns
- Market data: - eg, interest rates, bond yields, currencies, commodity prices, credit spreads, etc,
- Fundamental factors aggregated across stock markets – eg dividends, div yields, earnings, P/E ratios, book value, Price/Book ratios, cash flows, ROE, ROA, debt levels, etc
- Technical / Behavioural / Sentiment indicators: – eg price movements, momentum, mean reversion, price volatility, movements in other markets

This process has been developed over the past 20 years and has been used successfully in making asset allocation settings in actual portfolios worth several billion dollars for many years.

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