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The trend is our friend: Risk parity, momentum and trend following in global asset allocation

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ABSTRACT

We examine applying a trend following methodology to global asset allocation between equities, bonds, commodities and real estate. This strategy offers substantial improvement in risk-adjusted performance compared to buy-and-hold portfolios and a superior method of asset allocation than risk parity. We believe the discipline of trend following overcomes many of the behavioural biases investors succumb to, such as regret and herding, and offers a solution to the inappropriate *sequence* of returns which can be problematic for decumulation portfolios. The other side of behavioural biases is that they may be exploited by investors: an example is momentum investing where herding leads to continuation of returns and has been identified across many assets. Momentum and trend following differ as the former is a relative concept and the latter absolute. Combining both can achieve the higher return levels associated with momentum portfolios with much reduced volatility and drawdowns due to trend following. Measures based on utility of a representative investor reinforce the superiority of combining trend following with momentum strategies. These techniques help address the sequencing of returns issue which can be a serious issue for financial planning.

1. Introduction

In 2014 the S&P rose 13.7% yet the average investor in US equity mutual funds made only 5.5%; similarly the Barclays US Aggregate Bond Index returned just short of 6%, while the average investor in fixed income funds gained 1.16%. Investors in diversified 'asset allocation' funds made 2.24% on average.[1] Over the longer period of the last 30 years, the S&P has returned an annualized 11.6% against 3.8% for the average equity investor and 2.7% for inflation. Why is there such a discrepancy? Why have investors fared so badly? After adjusting for active managers' underperformance and fees, Dalbar find that the overwhelming driver of the discrepancy is bad timing by investors, particularly during extreme events; for instance, in October 2008, following the Lehman collapse, the S&P500 dropped 16.8% but the average investor lost over 24% as they bailed out before the recovery towards the end of the month. Similarly huge underperformance occurred around the Black Monday crash of October, 1987, the Asia crisis of November 1997, the Russian crisis of 1998 while there was large underperformance in March 2000 when the market did well: investors are most likely to panic at big market turning points. In addition, they give up on market rallies too early as in 2014.

The above examples and performance data are striking examples of poor decision-making by investors and have

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[1] Source: Dalbar's 21st edition of the Quantitative Analysis of Investor Behaviour, quoted by John Authers, *Financial Times*, 23rd April, 2015, p. 30.

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their foundations in the tenets of behavioural finance. We can see elements of the causes of behavioural biases such as herding, regret and conservatism which are reviewed in the survey of prospect theory by Barberis (2013). So how could investors overcome such biases which destroy investment returns? One way is use rigid quantitative investment rules which take discretion away from investors and reflect what we know about investor preferences for risk and return. The Dalbar study (again, as quoted by Authers) estimates that only about 15% of investors want to 'beat the market' but twice that percentage show *extreme* loss aversion: so how can we design investments (and investment strategies) that will avoid such emotional responses as 'bailing out' too early?

Investors today are faced with the task of choosing from a wide variety of asset classes when seeking to invest their money. With electronic trading and the rapid expansion of the Exchange Traded Funds (ETFs) universe, the ability to invest in a vast array of asset classes and instruments both domestically, and overseas, has never been easier. The traditional method of asset allocation of 60% in domestic equities and 40% in domestic bonds and, apart from a little rebalancing, holding these positions indefinitely increasingly appears archaic. Aside from the diversification benefits lost by failing to explore alternative asset classes, Asness et al. (2011) argue that this is a highly inefficient strategy since the volatility of equities dominates the risk in a 60/40 portfolio. Instead they suggest that investors should allocate an equal amount of risk to stocks and bonds, to achieve 'risk parity', and show that this has delivered a superior risk-adjusted performance compared to the traditional 60/40 approach to asset allocation. Although, nominal returns have historically been quite low to this strategy, proponents argue that this drawback of constructing a portfolio comprised of risk parity weights can be overcome by employing leverage. Inker (2010), however, argues that the last three decades have been especially favourable to government bonds and that this has generated flattering results for risk parity portfolio construction techniques. For example, in the early 1940s US Treasury yields were very low and in the following four decades delivered cumulative negative returns. Furthermore, critics have also pointed out that when applying risk parity rules investors are effectively taking no account of the future expected returns of an asset class.

There exist other possible rules-based approaches to asset allocation, including those based upon financial market 'momentum' and 'trends', support for both of which can be found in the academic literature, particularly in the case of the former.[2]

There now exists quite a substantial literature that finds support for the idea that financial market momentum offers significant explanatory power with regard to future financial market returns. Many studies, such as Jegadeesh and Titman (1993, 2001) and Grinblatt and Moskowitz (2004) have focused on momentum at the individual stock level, while others such as Miffre and Rallis (2007) and Erb and Harvey (2006) have observed the effect in commodities. Asness et al. (2013) find momentum effects within a wide variety of asset classes, while King et al. (2002) use momentum rules as a means of allocating capital across asset groups. Typical momentum strategies involve ranking assets based on their past return (often the previous twelve months) and then buying the 'winners' and selling the 'losers'. Ilmanen (2011) argues that this is not an ideal approach to investing and that investors would be better served by ranking financial instruments or markets according to rankings based upon their past volatility. Ilmanen suggests that failing to do this leads to the situation where the most volatile assets spend a disproportionate amount of time in the highest and lowest momentum portfolios.

Trend following has been widely used in futures markets, particularly commodities, for many decades (see Ostgaard, 2008). Trading signals can be generated by a variety of methods such as moving average crossovers and breakouts with the aim to determine the trend in the prices of either individual securities or broad market indices. Long positions are adopted when the trend is positive and short positions, or cash, are taken when the trend is negative. Because trend following is generally rules-based it can aid investors since losses are mechanically cut short and winners are left to run. This is frequently the reverse of investors' natural instincts. The return on cash is also an important factor either as the collateral in futures trades or as the 'risk-off' asset for long-only methods. Examples of the effectiveness of trend following are, amongst others, Szakmary et al. (2010) and Hurst et al. (2010) for commodities, and Wilcox and Crittenden (2005) and ap Gwilym et al. (2010) for equities. Faber (2010) uses trend following as a means of informing tactical asset allocation decisions and demonstrates that it is possible to form a portfolio that has equity-level returns with bond-level volatility. Ilmanen (2011) and Friesen et al. (2009) offer a variety of explanations as to why trend following may have been successful historically, including the tendency for investors to underreact to news and their tendency to exhibit herding behaviour. Shynkevich (2012) questions the more recent effectiveness of similar rules in the US equity market.

A few studies have sought to combine some of the strategies previously discussed. Faber (2010) uses momentum and trend following in equity sector investing in the United States, while Antonacci (2012) uses momentum for trading between pairs of investments and then applies a quasi-trend following filter to ensure that the winners have exhibited positive returns. The risk-adjusted performance of these approaches has been a significant improvement on benchmark buy-and-hold portfolios.

One of the key properties of our rule-based approach using trend-following techniques is the much reduced maximum drawdown experienced by investors using such strategies. Given the focus on capacity for loss by financial regulators such as the European Securities and Markets Authority (ESMA) and the UK's Financial Conduct Authority (FCA), and its link with maximum drawdown, there is a clear advantage in providing reduced sequence

[2] The importance of technical analysis for fund managers is assessed by Menkhoff (2010).