CONCLUSIONS

5.1 Summary of Findings

Our study assessed the feasibility of using tactical asset allocation on hedge fund strategy portfolios by using principal components analysis to eliminate redundancy.

The principal components analysis suggested five factors explain 74% of the variation in 25 hedge fund indices from CSFB and Evaluation Associates. We label the factors, in order of significance, as the Market, Convergent/Divergent, Risk Premium Inconsistency , Value, and Volatility. For the purposes of developing a tactical asset allocation, we focus on the top three factors, which have proven stable over the 1996-2005 period.

The first factor is highly correlated with the S & P Small Cap Stock Index, the second factor appears to captures particularly strong or weak equity and fixed income markets, and the third factor relates credit spreads with implied equity market volatility and seems fully consistent with Merton (1974), who first recognized the connection between equity volatility and the probability of default.

We find the principal components analysis is useful in grouping strategies into categories with similar loadings on the first two factors. Specifically, we find that twenty-one of the twenty-five indices can be grouped into five categories: Event Driven, Equity, Global, Relative Value, and Managed Futures. Four indices do not fall neatly into this classification scheme.

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Of the three factors studied, we find the second and third factors may be more predictable than the first factor using financial variables over the three and six month prediction horizon. Although the market is only minimally predictable with valuation indicators like dividend yield and smoothed earnings yield, a strong equity and bond market (as exemplified by high equity returns and tight spreads on corporate debt) may revert in the short run, while high equity market volatility with tight bond spreads might suggest a risk premium inconsistency, which may lead to a correction.

Although our chief concern was comparing the differences between a tactical approach and a strategic one, our study suggests that several strategies shift allocations considerably when the risk budget is altered. We find in the CSFB data, that Dedicated Short Bias and Risk Arbitrage indices figure more prominently in lower factor exposure portfolios, with Dedicated Short Bias as a hedge to Long Short Equity, while Risk Arbitrage is useful as a standalone strategy in low risk portfolios because of its relatively low factor exposure. However, higher return strategies (Global Macro and Managed Futures) replace Risk Arbitrage at higher factor exposures. The Evaluation Associates data proved some fund strategies play a similar "risk shifter" role, though the fund strategies in this role differ.

Finally, our study suggests that tactical asset allocation based on prediction of a few factors and not relying on frequent allocation may be of limited value. We find a pick-up of only five to eight basis points a month (corresponding to an information

ratio of 0.10 to 0.16) at three and six month prediction windows. However, the information ratios are mostly not significant, at least against a strategic allocation based on only historical information.

The value of TAA found in this study is below the level suggested by practitioners and Amenc(2002), though our study relies neither on the serial correlation of strategies, which may be difficult to capture given significant liquidity constraints on hedge funds, or a naïve, equally weighted benchmark..

5.2 Limitations and Opportunities for Further Research

This research is subject to a number of limitations. First, we rely on the classification scheme of the index providers. As we suggested in the section on hedge fund classification, it is possible that the hedge fund providers aggregate hedge funds from different sub-styles together; the sub-styles may have varying factor exposures. Such a combination of sub-styles might serve to limit the utility of a TAA scheme. However, it suggests that application of a TAA approach using individual hedge funds or more narrowly defined styles may be of greater potential, although individual hedge funds may have short track records, which would render more difficult proper classification.

Secondly, hedge fund indices are subject to a number of biases, including survivorship and backfill bias. Although some researchers (Fung and Hsieh (2000) and Brown, Goetzman, and Ibbotson (1999) have estimated these biases on different time periods of at as much as 3-4% per annum, Ibbotson (2005) indicates that the bias for the CSFB and HFRI indices (the latter index family not a part of this study) may be smaller than calculated and more important in the earlier years of the indices, when the data

was less accurate. Since we estimated annualized alpha (based on a three factor model) of approximately 4.2%, a bias of 3-4% per annum could lead investors to question the utility of hedge funds in their portfolios. However, since our study is concerned with finding the best combination of hedge fund strategies, our results would be most impacted if these biases impacted strategies returns to differing degrees.

Thirdly, the consideration of transaction costs was beyond the scope of this study. Although the returns used in this study are net returns to investors, Fung and Hsieh (2005) note that hedge funds usually require 10-180 days notice and limit redemption to certain periods (monthly, quarterly, and yearly). Additionally, there may be a delay of one month or more on receipt of funds from redeemed investments. A credit line would be necessary to avoid having funds not invested in hedge funds while waiting for the proceeds of redeemed investments. These institutional features make difficult the task of employing tactical asset allocation strategies successfully in a hedge fund portfolio, particularly if reallocations are conducted at shorter intervals..

Finally, because dynamic exposures are a critical element of hedge fund strategies, the utility of an APT approach could be questioned. If managers in individual strategies vary their exposure to the factors dynamically, any attempt to shift assets to strategies based on the assumptions of factor stability may be compromised. Although some strategies may have more static exposures than others, we leave resolution of this issue for future researchers.