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Summary of "Value and Momentum Everywhere"[1]

Two of the most studied capital market phenomena are the relation between an asset's return and the ratio of its "long-run" (or book) value relative to its current market value, termed as "value" effect, and the relation between an asset's return and its recent relative performance history, termed as "momentum" effect. In this paper, the authors examine jointly "value" and "momentum" in eight different markets and asset classes: individual stocks in the United States, in the United Kingdom, in the continental Europe, and in Japan, country equity index futures, government bond indices, currencies, and commodity futures.

From 1972 to 2011, a value strategy that longs high book-to-market stocks and shorts low book-to-market stocks generates average annualized monthly return of 3.9% in the U.S. (Sharpe ratio = 0.26), 5.5% in the U.K. (Sharpe ratio = 0.38), 5.2% in the continental Europe (Sharpe ratio = 0.54), and 10.2% in Japan (Sharpe ratio = 0.77). In the same period, they rank stocks into winners and losers based on the cumulative return from twelve months ago up to the previous month, and find a momentum strategy that buys winners and sells losers generates average annualized monthly return of 7.7% in the U.S. (Sharpe ratio = 0.45), 7.2% in the U.K. (Sharpe ratio = 0.48), 9.8% in the continental Europe (Sharpe ratio = 0.75), and 2.2% in Japan (Sharpe ratio = 0.13). Except for the government bond indices, statistically and economically significant value and momentum premia exist in commodities, currencies, and equity country indices, with average returns and Sharpe ratios in line with individual stocks.[2]

Interestingly, they also find that the returns to value strategies are significantly correlated across the eight markets and asset classes, so are the returns to momentum strategies. This suggests the presence of common global factors behind the premia. Except for marginally significant evidence in the stock markets suggesting momentum's exposure to default premium and value's exposure to long-run consumption growth, term premium, and default premium, the value and momentum returns seem to be unrelated to the standard macro factors. Neither do they load on market liquidity factors, such as one-the-run-off-the-run Treasury spread, the Pastor-Stambaugh measure, or the Acharya-Pedersen measure.[3] However, value exhibits significant negative exposure to funding liquidity risk, while momentum shows significant positive loading.[4] Indeed, adding liquidity factor to CAPM improves the fitting of the cross-section of average returns of value-sorted and momentum-sorted portfolios across markets and asset classes.

Throughout their sample, the authors find intriguing negative correlations between value and momentum among all the assets. While funding liquidity risk may partly explain the positive risk premium associated with momentum, because value loads negatively on liquidity risk, the positive premium associated with value becomes an even deeper puzzle. The authors show a naive 50/50 combination of value and momentum in each market and asset class outperforms either value or momentum alone. A combination of volatility-weighted value and momentum strategies of all assets classes delivers a Sharpe ratio equal to 1.59. The math behind is simple: Combining two negatively correlated strategies with positive average returns moves us closer to the efficient frontier. The

fundamental source of the negative correlation between value and momentum, and the profitability of their combination remain unexplained.

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[1] Asness, Clifford S., Tobias J. Moskowitz, and Lasse Heje Pedersen, 2013, *Journal of Finance* 68, 929-985.

[2] While we can find well defined monthly book-to-market ratio for the MSCI index of the 18 developed equity markets, the definitions of "value" in government bond indices, commodities, and currencies are less obvious. In this paper, they define bond "value" signal as the 5-year change in the yields of 10-year bonds, commodity "value" signal as average spot price from 4.5 to 5.5 years ago divided by the most recent spot price, currency "value" signal as the average spot exchange ratio from 4.5 to 5.5 years ago divided by the spot exchange rate today minus the difference in the change in CPI in the foreign country relative to the U.S. over the same period (therefore the 5-year change in purchasing power parity). The "value" strategies in these markets essentially capture the long-run reversal effect, which in the stock market has been well documented and shown to be highly correlated with the value effect. For more details, please refer to the paper's section I.

[3] Market liquidity measures try to capture the ease at which assets can be transacted. Larger price impact or transact costs indicate markets are illiquid. For details of the market liquidity measures, please refer to: Krishnamurthy, Arvind, 2002, The bond/old-bond Spread, *Journal of Financial Economics* 66, 463-506; Pástor, Luboš, and Robert F. Stambaugh, 2003, Liquidity risk and expected stock returns, *Journal of Political Economy* 111, 642-685; Acharya, Viral, and Lasse Heje Pedersen, 2005, Asset pricing with liquidity risk, *Journal of Financial Economics* 77, 375-410.

[4] Funding liquidity risks are measured by Treasury-Eurodollar spread (TED), LIBOR-term repo spread, and Swap-T-bill spread. Higher spreads indicate tighter funding constraints for financial institutions who usually are the marginal investors or the market makers in the asset markets.