


Chapter 15

Momentum Investing Across Different Asset Classes

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ABSTRACT

Instead of traditionally looking at investing in different types of asset classes in order to exploit diversification effects, investors are turning to the underlying performance drivers built-in in many asset classes – factors. The intuition is that assets earn risk premiums because they are exposed to underlying risk factors. Factor models were developed as a simplification and continuation of diversification principle and mean-variance efficiency introduced by Harry Markowitz. This chapter will focus on one of the standard investment and cross section factors called momentum. It became very popular since 1993 when Jegadeesh and Titman documented that strategies that buying stocks that have performed well in the past and selling stocks that have performed poorly generate significant positive returns. This chapter aims to provide an introduction to factor models development and momentum effects on stock and bond markets – description of methodology and detailed literature overview.

KEY CONCEPTS OF MODERN PORTFOLIO THEORY

Publishing a paper “Portfolio selection” back in 1952, Harry Markowitz opened a new chapter in finance – modern portfolio theory. Based on risk-return optimization, he developed efficient frontier of investment portfolios such that each of them had the greatest possible expected rate of return given their

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level of risk and such that each of them had the lowest level of risk given their expected return. Based on expected return – risk rule, investors will (or should) choose portfolios that are on the efficient frontier and which are in most cases diversified. Investor's utility is described with two measures: expected return and variance of the expected return, which is also a measure of the total risk of an investment. Markowitz emphasized that adequate diversification will be achieved if securities with high covariance between them will be avoided. He recommended investing in securities of different industries given the lower covariance compared to securities from the same industry (Markowitz, 1952, p. 89). Being aware of the problem of covariance estimation, in his first book from 1959 Markowitz suggested the development of a model for covariance estimation which opened the door for development of factor models (Markowitz, 1999, p. 8). The work of Markowitz was supplemented with Tobin's separation theorem and the inclusion of risk-free assets in portfolio analysis.

As mentioned previously, factor models were developed as an answer how to simplify the process of Markowitz's portfolio in a way that requirements for the number of inputs needed for the analysis and choice of the portfolio were decreased (Orsag, 2015, p. 325). Factor models were developed together by Markowitz and Sharpe, but Sharpe drew more attention to factor models in his doctoral thesis in 1963. He described how factor models can simplify portfolio analysis. With further work of Sharpe (1964), the most known single-factor model was formulated – the Capital Asset Pricing Model (hereinafter CAPM). Further development of the model was contributed by John Lintner (1965) and Jan Mossin (1966). The CAPM is a special formulation of the single-factor model which states that there is only one factor that matters, the market portfolio. This means that the model depends only on one factor which is considered as one of the shortcomings of the model. Also, it is based on many strong, more theoretically grounded assumptions. One of the assumptions states that investors have mean-variance utility. However, research on developed markets has shown that given the fact that investors are more concerned about losses than contended with gains, utility function often has an asymmetric treatment of risk. Kraus and Litzenberger (1976), Friend and Westerfield (1980) and Harvey and Siddique (2000) are some of the researchers who examined and showed that higher order moments (skewness and kurtosis) carry risk premiums. Ang et al. (2006) showed that stock with greater downside risk has higher returns. In his initial phase of research, Markowitz also favored semivariance of returns as more appropriate measure of risk since investors are more concerned about losses and poor performance of the portfolio (Markowitz et al., 1993, p. 307).

Another CAPM assumption states that investors have homogeneous expectations. Also, that all investors are focused on one holding period in which they are trying to maximize the utility of their wealth selecting portfolios based on expected returns and standard deviations. Then perfect liquidity and divisibility of investments, investors as price takers and the assumption that there are no taxes or transaction costs. With reference to the latter, Ang (2014) explained that taxes affect expected returns and can be regarded as a systematic factor. Mentioned assumptions are valid only in the perfect market, which in reality doesn't exist so CAPM was demolished by many researchers. However, basic intuition is still valid: the underlying factors of assets determine risk premiums and these risk premiums are compensation for investors' losses during bad times (Ang, 2014). Given such intuition and to prevail shortcomings of the CAPM, multifactor models were introduced according to which the returns on security are affected by several factors. The most famous multifactor model which includes the traditional CAPM market portfolio and the additional two factors which explain the stock returns is Fama–French model (1993). Two factors they simply called size (small minus big) and value (high minus low). Given the fact that investors attribute to small-capitalization companies better profitability results, the higher return was expected which could be also explained with the higher risk profile of such companies compared to

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