Chapter 1
Investment Decision Making: Where Do We Stand?

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ABSTRACT

This chapter is a review of different approaches academics take to find right answers on the question how investors' community makes decisions on optimal portfolio of securities and how this process converges toward capital market equilibrium. Authors will try to reconcile the approaches that come from different intellectual traditions. The authors start with the Capital Assets Pricing Model (hereafter CAPM). For decades long the model has been a cornerstone of modern finance literature and a guide for investment decision making. The model assumes that the choice of investment portfolio is directed toward optimization between statistically defined risk and observable return of a universe of available investments, in the setting of rational and homogeneous agents where information is common knowledge. The rigidity of CAPM assumptions led to a plethora of studies where some of those assumptions are relaxed. An important breakthrough to the extant body of knowledge has been made by the introduction of the asymmetric information in the decision-making process.

INTRODUCTION

In the process or investment decision-making agents are imbued with beliefs about potential returns, but until mid-1960s it was rather difficult to find a comprehensive story that would link returns to the evaluation of risk. Markowitz (1952) examines the so-called second stage of portfolio construction in an attempt to link the beliefs to the final asset selection and refers to the relevance of both anticipated return and variance in the process, with a specific focus being paid to diversification. Depending on the level of risk averseness investors would choose to invest in cash, or a combination of cash and risky assets (Tobin, 1958). Following these studies an additional step seemed inevitable in an attempt to provide a more stylized theory on the selection of assets in a two-dimensional risk-return space.

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Sharpe (1964) uses the utility theory to create a market equilibrium theory for asset prices and risks involved in asset allocation, and creates the early version of the Capital Asset Pricing Model. Investors select the universe of potential investment choices and then choose the most efficient portfolios, i.e. those that secure the highest return for the given level of risk or the lowest risk for the assumed expected return. By paying special attention to varying levels of risk aversion and probability assessments, including the cases of limited short sales and unavailability of riskless assets, Lintner (1965) further improves the model. Black (1972) examines the assumption that an investor can take a long or short position in any asset, which may not be readily confirmed in the investment process. Therefore, a more restrictive environment without riskless assets, borrowing or lending has been analyzed, just to conclude that the CAPM model is still valid with statistically significant beta coefficients in explaining individual returns.[1] In the CAPM modelling efficient portfolios could comprise short sales, since the expected value of the individual asset return could be smaller than the risk-free interest rate or the asset could be shorted so as to achieve diversification goals even though its expected value could be higher than the risk-free rate of return. In certain cases, shorted assets could account for as much as 50 percent or more of the entire efficient portfolio (Levy, 1983; Sharpe, 1991; Levy, 2010).

Merton (1973) extends the model to multiple periods, while Breeden (1979) applies this approach to a multi-good Consumption CAPM. Following attempts to find a comprehensive model in the international settings Stulz (1981) manages to evaluate the expected return without reference to the exchange rate risk. In addition, int order to assuage differences between *ex-ante* assumptions and *ex-post* testability a Conditional CAPM has been suggested. Fama and French (1992, 1993, 1996, 2013) suggest the introduction of a range of variables to examine the validity of beta coefficient estimates.

In this chapter we first examine the studies leading to the creation of the basic CAPM model. Then we'll discuss issues faced by empiricists in testing CAPM caused by the rigidity of *ex-ante* assumptions that cannot be easily confirmed *ex-post* due to the lack of stable betas and market proxies that do not represent all tradeable risky assets in respective markets. Then we shall discuss variations in CAPM, which have evolved over more than half a century of persistent research to find the best fit for markets and investors. Afterwards, our attention will turn to challenges faced by advocates of CAPM.

CAPM

The CAPM is a market equilibrium theory with very strict requirements such as:

- Investors maximize the expected utility of their wealth at the end of the period
- Investors are risk averse and act as price takers. Normality of distribution has been assumed in addition to homogenous expectations across the investment universe
- Frictionless markets without imperfections are associated with costless information available to all investors.
- A risk-free rate is available and investors may borrow and lend without restrictions
- Assets are marketable, divisible and available in fixed quantities.

Following these requirements, it is possible to create an efficient set of investments in the two-dimensional risk-return space. Less risk-averse investors will opt for higher return and a commensurate increase in risk, while cautious agents will be more inclined to achieve lower returns with a proportion-