MODULE 1 UNIT 1
Classic finance theory

IN COLLABORATION WITH getsmarter™

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Learning outcomes:

LO1: Define the efficient market hypothesis and other concepts related to classic finance theory.

LO2: Review the fundamental principles of the efficient frontier.

1. Introduction

Think about what you expect to gain from performing an analysis when deciding how to invest. Why perform one at all? Why do you not simply choose stocks at random? There is an old argument that a portfolio of randomly selected stocks is just as effective as any other portfolio of stocks. This is based on the idea that stock market fluctuations occur inevitably, and that it is impossible to maximise the benefit that may be derived from one particular set. The "random walk" theory states that stock prices move at random, and historical prices or market movements cannot be used to predict future stock prices. This theory is consistent with the efficient market hypothesis (EMH), which states that share prices always fully and accurately reflect all available information, and that future share prices are therefore unpredictable.

However, there has been growing evidence suggesting that the EMH does not always hold true, which would mean that all public information is not perfectly reflected in the share price. If this is true, it follows that studying company information, from a fundamental point of view, would lead to more intelligent investment decisions, while neglecting to do so would result in making bad investment decisions and ultimately losing capital (Thomsett, 1998).

This lesson examines the two primary forms of analysis relating to company and stock valuation: fundamental and technical analysis. Fundamental analysis is the process of evaluating securities by determining the intrinsic values underlying them, while technical analysis values securities by assessing statistics calculated from market activity. Most traders incorporate a combination of the two when making investment decisions.

The lesson begins by examining the EMH and the efficient frontier in more detail. By understanding these underlying economic theories, you will gain an understanding of the basis for the two primary forms of analysis and, subsequently, the foundations of stock evaluation and selection.

2. The efficient market hypothesis

Market efficiency refers to the situation where the current price of a security reflects all available information about it. The term "efficient market" was first used in a 1965 paper by American economist and Nobel Prize winner Eugene Francis Fama. In the paper, an efficient market is one where "on the average the full effects of new information on intrinsic values will be reflected nearly instantaneously in actual prices" (Fama, 1965). This means that, if you see information about Company X that could impact its earnings or business health, in general, that information is already priced into the company's stock. It is from this

base assumption that the EMH states that it is impossible to consistently “beat the market”, as all relevant and publicly available information will be efficiently accounted for in the price. In other words, if stocks are always traded at fair value, it is impossible to consistently buy stocks that are undervalued or sell stocks that are overvalued. Another way to think about it is that any advantage gained through stock selection is negated by the transaction and research costs associated with it (Degutis & Novickytė, 2014).

What does this mean for analysts and others working in fund allocation? What is the point if they cannot consistently beat the market? The fact is that these professionals are actually the ones doing the work of incorporating the available information into the prices, so they are essential to the existence of an efficient market.

If you were able to identify over- and undervalued stocks, you would be able to make a profit with very little risk. This would be extremely valuable and desirable – many people and companies expend a significant amount of time and capital attempting to detect mispriced stocks. It stands to reason that, as more people start participating in the market, the possibility of finding mispriced stocks diminishes significantly. Ultimately, any profit resulting from identifying mispriced securities would occur by chance (Clarke, Jandik & Mandelker, 2001). The EMH implies that an investor should trust market prices (Clarke, Jandik & Mandelker, 2001); you can only achieve a positive return by chance or by increasing the level of risk.

While the EMH states that prices reflect all available information, it is important to realise that there are various types of information: public, private, current, and historical. With this in mind, the EMH is typically presented in one of three forms: strong, semi-strong, or weak. Each form reflects the type of information assumed to be incorporated into the stock price.

2.1 Strong-form efficiency

The primary stipulation of strong-form efficiency is that all information – public and private – is quickly incorporated into the pricing of securities. Hence, since all information is already reflected in the price, no long-terms gains (above market growth) can be achieved, even by those with access to insider information.

For example, this would imply that a company’s management cannot profit from insider information on a merger minutes after it has been decided, and before it is made public. The underlying thinking is that the market is able to anticipate and incorporate future events, in a completely unbiased manner, into its pricing of securities. This can also be seen as implying that the market can value securities in a more objective and informed way than those with insider information.

Empirical research on the topic has typically produced findings that contradict this form of market efficiency (Clarke, Jandik & Mandelker, 2001).

2.2 Semi-strong-form efficiency

The semi-strong-form EMH claims that security pricing incorporates all publicly available information, but not private information. Therefore, share prices reflect historical stock-price data and current data included in the company's financial statements, as well as any economic factors (such as inflation and unemployment), company announcements (such as earnings and dividend announcements or merger plans), and any other form of relevant public information. This information is not necessarily financial. For example, newly published work on the use of AI in machine learning could be extremely relevant to emerging tech companies making use of the technology.

The implication of the semi-strong version of the EMH is that you are not able to profit from public information that everyone else has access to. From a practical point of view, semi-strong efficiency requires the presence of analysts who can assess and evaluate large amounts of financial and economic data. For a company to obtain these skill sets, it would need to expend large amounts of capital and time.

Furthermore, information that is considered public can actually be difficult to obtain. For example, you may not be able to get all the relevant information on a particular stock or organisation by using only large newspapers and company-issued publications. Instead, this research could involve searching professional publications, smaller newspapers, journal publications, and other niche resources. This process can be costly and very time-consuming. That said, the empirical evidence strongly supports this form of market efficiency (Clarke, Jandik & Mandelker, 2001).

2.3 Weak-form efficiency

Weak-form efficiency states that current stock prices only fully reflect information taken from historical stock-price data, not any new public or private information. This form of EMH implies that it is impossible to find mispriced securities and beat the market by looking only at historical price data. It is considered to be "weak form", as stock-price data is one of the easiest (and most public) forms of financial data to obtain. In other words, you cannot profit from information everyone has access to. Interestingly, this is exactly what many analysts attempt to do: they look at historical stock-price data and make decisions based on that analysis. This is also known as technical analysis (Degutis & Novickytė, 2014), a process explored in Section 5 of this lesson.

Many empirical studies have found substantial evidence to support this form of market efficiency (Clarke, Jandik & Mandelker, 2001).

Further reading:

Are markets efficient or irrational? The popular debate about predicting stock market trends continues. The validity of the EMH is at the mercy of investor behaviour, as seen in the rally of the GameStop stock price in 2021.

Available research suggests that markets are generally highly efficient, and there is a large amount of empirical evidence that supports the EMH. As a result, many consider it to be the best available theory for describing the markets. However, no theory is perfect, and

there are a number of empirical studies that contradict the EMH. One key challenge to it surrounds investor rationality – if investors do not behave rationally, and fail to incorporate all information correctly into the share price, markets are unlikely to be efficient. This is discussed in more detail in Unit 2 of this module.

It is hard to measure the impact of single events on a company's stock price, as there can be multiple factors involved. Bad news being released immediately before a company's stock price goes up does not contradict the EMH, as there could be multiple pieces of information at play.

Pause and reflect:

What are your thoughts on the EMH at this stage? Can markets be truly efficient?

Note:

At this point in the lesson, you have the opportunity to engage with a practice quiz to test your understanding of the content. Access this lesson on the Online Campus to engage with this quiz.

3. The efficient frontier

The efficient frontier theory was initially put forward by Harry Markowitz in 1952. It states that there is a "set of optimal portfolios that offer the highest expected return for a defined level of risk or the lowest risk for a given level of expected return" (Ganti, 2021). These portfolios therefore form the efficient frontier – the most efficient investments for any given level of risk. Hence, investors should make investment decisions with the goal of staying on the efficient frontier and moving along it based on their or their clients' risk appetites (Corporate Finance Institute, n.d.; Ganti, 2021).

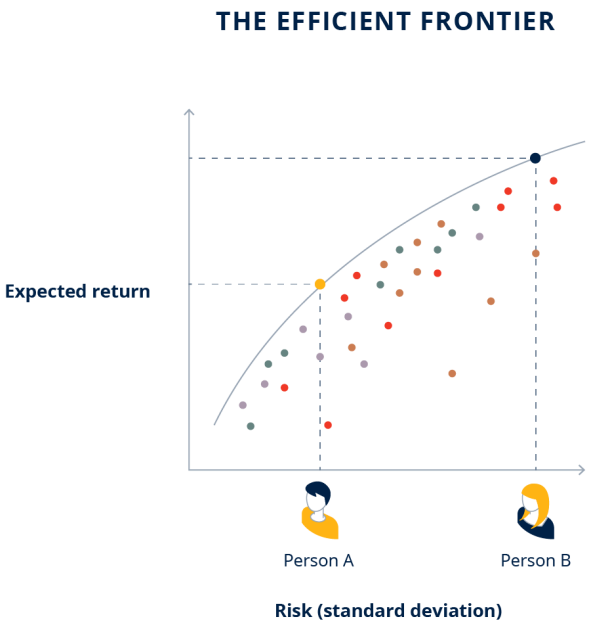

Figure 1: The efficient frontier.

In this figure, the efficient frontier, depicted as a curved line, represents the portfolios with the optimal return levels for the various levels of risk. In this context, risk is measured by standard deviation – the higher the standard deviation, the higher the risk. The efficient frontier eventually flattens out, as there is a theoretical cap on the level of return a portfolio can produce. All portfolios below and to the right of the efficient frontier are considered suboptimal, as they have a lower level of return for any given level of risk or a higher level of risk for any given level of return.

It is important to note that the efficient frontier does not represent individual securities, but rather portfolios of securities. An individual security's price movement should be looked at relative to the price change of every other security in the same portfolio. With this information, the whole portfolio can then be compiled or adjusted in a way that ensures optimal return for risk.

The two people depicted in this figure have different risk appetites and would therefore position themselves differently on the curve. How important is the underlying risk to you when considering an investment? This is a primary concept that will be covered in Module 3 of this programme, and is something you should keep in mind as you work through this module's content.

Note:

At this point in the lesson, you have the opportunity to engage with a practice quiz to test your understanding of the content. Access this lesson on the Online Campus to engage with this quiz.

4. Fundamental analysis

As mentioned in the introduction to this lesson, there are two primary forms of market analysis: fundamental and technical analysis.

Fundamental analysis utilises both financial and economic analysis to calculate the "intrinsic value" or "fair price" of a stock. This type of analysis typically analyses data at three levels: the economy as a whole (economic growth estimates, government stability), the relevant industry (supply-and-demand factors, competition), and the company itself (financial data, managerial competence). The types of data that would be used in the analysis include – but are not limited to – a company's financial information, non-financial information (such as demand for the company's products), growth estimates, comparisons to other companies in the industry, and changes in the economy or government regulations.

In line with these three main levels, there are several generally accepted steps that should be followed when applying fundamental analysis:

- **Macroeconomic analysis:** This analysis will focus on the broad context in which an organisation is operating. It seeks to answer questions such as, "What is the overall economic environment in which the company will be operating?" and "Does the economic environment foster or obstruct growth of the company and the industry in which it operates?" For example, the environments of emerging economies are largely considered to be growth-orientated, which is reflected in growing incomes and increased business confidence. Alternatively, if the company is operating in a highly developed nation with a saturated market and stagnant incomes, it might face high competition and lower relative expectations of incremental growth.

  Another key question to ask is, "How stable is the political environment in which the company is based?" A stable political environment is key for company operations, as it avoids threats such as constant amendments to laws, political disturbances, terrorism, nationalisation, and so on. A stable political environment further allows a country to implement progressive policies facilitating increased ease of doing business.

- **Industry analysis:** An analysis at this level focuses on the factors that affect the industry in which a company is operating. There are several factors to consider when performing an industry analysis, including whether the company has any "core competencies" that give it a strategic advantage. Certain companies may have a patent from which they significantly benefit, or they might maintain a leadership role in their industry allowing them a certain comparative advantage.

  The analysis examines the supply-and-demand forces of the company's product. A company may have several key advantages over its competitors, including brand power, assured access to raw materials, government subsidies, or anything else that the company could leverage to gain a competitive advantage. The analysis will focus on questions such as, "What is the company's market presence and market share?" and "Do they need to spend a large percentage of their profits on

advertising to keep the competition at bay?" Any aspects that could influence a company's competitive advantage should be considered here.

- **Situational analysis:** This kind of analysis focuses specifically on the organisation's current state. It looks at influencing factors around the company. This analysis should take the company's capabilities, current and potential clients, and business environment into consideration (Lake, 2017).

- **Financial analysis:** Arguably the most important stage of fundamental analysis, this step involves examining a company's financial information. The primary source of this information is the financial statements (including the balance sheet, income statement, cash flow statement, and statement of shareholders' equity). This data is used to create ratios and trend lines, and is employed when conducting comparisons against similar information for comparable firms (Bragg, 2017).

- **Qualitative analysis:** It is also important to look at internal factors that cannot necessarily be given a strict numerical value. This includes aspects such as the quality of the company's management, the CEO's previous performance, the state and form of the corporate governance, and the company's compliance with its corporate policies and government regulations (Suresh, 2013).

Fundamental analysis is a strong long-term analysis tool. Investors can significantly benefit from the ability to identify and predict long-term trends relating to the economic, demographic, or technological factors that impact a company's value (Suresh, 2013).

5. Technical analysis

This section contains a brief introduction to technical analysis. In short, technical analysis is the science of predicting stock-price movements based on historical market data. Fundamental analysis examines financial statements, industry developments, new products, research, macroeconomic factors, and other data. Technical analysis looks at how concepts such as investor fear or overconfidence can manifest in stock market data, typically focusing on price patterns or market trends to take advantage of them.

Technical analysis uses various types of market indicators, calculated from historical price data, to know if a security is trending. If it is trending, then what is the nature of the trend and for how long can it be expected to continue? Technical analysis considers how sentiment can be displayed through market data. By considering many technical indicators it attempts to makes sense of the behavioural traits in the market. It presents a model through which analysts can understand how personality bias manifests in stock market data.

The ways these traits manifest in the market are varied, but the most commonly targeted ones are momentum trends and mean reversion. The concepts themselves are simple: when people see a price movement over a period of time, those targeting momentum trends expect it to continue, while those targeting mean reversion expect it to not continue, but rather revert back to a pre-established mean. These two strategies are implemented in vastly different ways, but they are both based on understanding market sentiment. How patterns are identified is explored further in Unit 3's set of notes.

Note:

At this point in the lesson, you have the opportunity to engage with a practice quiz to test your understanding of the content. Access this lesson on the Online Campus to engage with this quiz.

6. Conclusion

Understanding market efficiency is key to understanding how markets operate, how information is incorporated into prices, and what types of information are incorporated. This core understanding is important at every stage of the analysis process. The efficient frontier complements this by establishing a framework to understand the relationship between risk and return, and gives insight into how different investors will naturally have different risk profiles.

Both methods of analysis are important and should be used in conjunction with each other. Each looks at a different aspect of the value of a company's stock price. Risk and return are the primary aspects to consider when looking at the characteristics of an investment, and using a combination of fundamental and technical analysis is key to correctly identifying the level of each. Finding these levels is essential, because each investor – whether institutional or individual – has a different risk appetite and needs the most correct information to make good investment decisions.

7. Bibliography

Bragg, S. 2017. *Financial analysis.* Available: https://www.accountingtools.com/articles/what-is-financial-analysis.html [2018, February 21].

Clarke, J., Jandik, T. & Mandelker, G. 2001. The efficient markets hypothesis. In *Expert financial planning: investment strategies from industry leaders*. R.C. Arffa, Ed. New York, NY: John Wiley & Sons.

Corporate Finance Institute. n.d. *Efficient frontier*. Available: https://corporatefinanceinstitute.com/resources/knowledge/trading-investing/efficient-frontier/ [2021, June 21].

Degutis, A. & Novickytė, L. 2014. The efficient market hypothesis: a critical review of literature and methodology. *Ekonomika*. 93(2):7-23.

Fama, E.F. 1965. The behavior of stock-market prices. *The Journal of Business*. 38(1):34-105.

Ganti, A. 2021. *Efficient frontier*. Available: https://www.investopedia.com/terms/e/efficientfrontier.asp [2021, June 21].

Lake, L. 2017. *Situational analysis.* Available: https://www.thebalance.com/purpose-and-elements-of-a-situational-analysis-2295754 [2018, February 20]

Suresh, A.S. 2013. A study on fundamental and technical analysis. *International Journal of Marketing, Financial Services & Management Research.* 2(5):44-59.

Thomsett, M. 1998. *Mastering fundamental analysis*. New York, NY: Kaplan Publishing.