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Master Thesis Report

- Relevance of Value Investing in
Developed Financial Markets -

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1. Introduction to the research question

The goal of every active investor that decides to invest in the equity markets is to outperform the average, risk-adjusted, market return over a long period of time, even if they use short-term, sometimes even as short as a fraction of second long techniques. By the long period I mean over several years (three or more, preferably five or more years), as in the short term, any asset can outperform another asset, so comparing the performance over the short horizon is not the most comprehensive. Investors try to outperform the market using different methods that have essentially the same goal and that is to buy securities when they are undervalued, and later sell them when they are overvalued when they take a long position in them, or short sell them when they are overvalued and buy them back when the price falls and are undervalued. The main distinction among the different investing approaches (how to determine whether a security is undervalued or overvalued) is between the technical analysis and the fundamental analysis.

Technical analysts (often referred as “chartists”) use different techniques that look mainly at the past price movements, their patterns or volumes traded and based on that try to outperform the market. Technical analysis is an estimating system to decide the future value developments in sight of the previously recorded information (Pushpe, Sumithra, & Madhuri, 2007, p. 24).

Fundamental analysts do not look at the price movements and patterns, but rather analyse the basic characteristics of the underlying security. For example, they look at some fundamental ratios and/or incorporate their additional “views” and then compare that to the stock market price to see whether the stock is undervalued or overvalued. The fundamental analysis, therefore, examines the company’s stock price movements by their historical financial and accounting data, their earnings expenses, management, and other balance sheet items (Shakeel & Gohar, 2018, p. 84).

Stock picking is a technique where an analyst analyses an individual stock and its’ performance, while market timing investors try to determine where the market is “going”. Investment decision based on market timing can either be technical analysis (again looking at some charts or statistical analysis of the price

movements themselves) or fundamental analysis (e.g. looking at some reported macroeconomic data).

Value investors are fundamental analysts that rely on stock picking and occasionally on the one-off opportunities where they time the market, despite that the second option is less common, as it is believed that it is much more complicated to perform successful market timing. The key for a successful investment is to find the intrinsic value of the business. This essentially means trying to predict all the future cash flows discounted with an applicable discount rate to today and then comparing that present value with the market capitalization of the business.

Another important thing that value investing tries to define is the difference between the investment and speculation approach. There is not a single distinctive factor when we are considering speculation versus investment, but from the value perspective, speculation is defined as looking at the price and the price movements of a security. An investment approach is on the other hand considered when we look at the fundamental indicators of the business itself and try to identify whether it has a better earnings potential measured as a present value of the expected future earnings. It is important to note that some investors could consider investment as something completely different, for example looking at the trends using statistical analysis, looking at patterns of price movements, looking at the macroeconomic trends and trying to figure out the performance of a certain company, an industry, stock market as a whole etc. Therefore, we can see that investment definition differs regarding the aspect we are looking from and our objectives. For some buying art is considered an investment and for others pure speculation, as its' value is based only on how much a counterparty is prepared to pay for it at a point in time in the future - in other words, how much more popular it is going to get.

The research question is not to try and distinguish the fundamental and technical analysis, but rather to find out how relevant value investing in today's financial markets actually is. There is a trend of going from active to passive investment management as the Efficient Market Hypothesis has gained popularity. According to it, nobody should be able to consistently outperform the market over a long period of time. However, it is relevant to question whether the markets with

increased passive investments have become more inefficient if there are fewer investors (measured as a percentage of the total assets invested) that monitor their assets. Another possibility is that the active investors also became more sophisticated with the growth of financial markets and can better analyse the financial markets, so the efficiency could even be improved. The shift to passive investing is especially evident in the U.S., which is considered as the most developed financial market. The main tools for the passive investments are Exchange Traded Funds (ETFs) and passively managed mutual funds. In December 2017 the passive part of the Mutual Funds and ETF-s was 37%, compared to 14% in 2005 and as low as 3% in 1995. Out of 37 % of the passive funds they make as much as 45% of the assets under management in the equity funds and 26% of the bond funds are passively managed (Anadu, Kruttli, McCabe, Osambela, & Hee Shin, 2018, pp. 1-2). The shift from active to passive investment strategy is also presented in a graph (see Appendix 1), extracted from the same study by the Federal Reserve Bank of Boston (Anadu, Kruttli, McCabe, Osambela, & Hee Shin, 2018, p. 2), sourced from Morningstar (Morningstar, 2018). There is a clear paradox present where it is possible that in the future, on average, *ceteris paribus*, the markets could actually become less efficient with the additional shift and accepting the efficiency, and consequently generate more opportunity for active investors. Grossman and Stiglitz (1980, p. 405) argued that obtaining information is costly. Therefore, if we assume the market efficiency, nobody would be willing to obtain that information if there was no compensation for obtaining costly information, so there is a fundamental discrepancy between the efficiency and the incentives to obtain information. Furthermore, it is important to note that changes in the efficiency (either towards more efficiency or less efficiency) in the financial markets can also be caused due to other reasons, such as due to the shift from “traditional” to the algorithmic trading, integration of capital markets (e.g. in the European Union compared to separated countries) and on the other hand the disintegration of the markets (e.g. planned exit of the United Kingdom from the European Union), the amount of different information that comes in in a certain period of time, number of participants in the market, sophistication of the market participants etc.

2. Literature review

Eugene Fama in 1970 posted an article about the Efficiency of Capital Markets and stated: “*A market in which prices always “fully reflect” available information is called “efficient”.*” (Fama, 1970, p. 383).

There are three forms of efficiency that we consider in the financial markets: weak, semi-strong and strong form efficiency.

As the name suggests, with the weak form efficiency the financial markets are the least efficient according to that classification measures. The stock price reflects all the past information, such as past price movements and volume. Therefore, technical analysts should not be able to generate alpha in the financial market that is weak form efficient. Semi-strong form efficiency suggests that all the past and current public data are priced in. Therefore, neither technical analysts nor fundamental analysts are able to make alpha on the financial markets. Buffett (1984, pp. 3-15) claims that the outperformance of fundamental value investors is not random, which implies that semi-strong form efficiency does not hold. It is supposed to be impossible (not random) that so many investors that outperformed the market came from the same investing strategies. This is happening due to the discrepancy between price and value in the financial markets (Buffett, 1984, pp. 3-15). Strong form efficiency suggests that no information, public and/or inside information can help and is already priced in and therefore even those participants with inside information in the financial markets cannot achieve risk-adjusted excess returns in the long run. This one is harder to test as using insider information is illegal anyhow, so the data is harder to obtain. However, there probably is a good reason for that being illegal, and that is the possibility of the exploitation of the data for private gain.

The first authors that recognized and described the concept of value investing were Benjamin Graham and Dave Dodd in *Security Analysis*, in the original edition published in 1934. In it, they conclude that there is no automatic relationship between Value and Price. According to the authors in the financial markets, there can be huge discrepancies between value and price during the economic cycle and it is the task of the analyst to figure out when to, and especially to which securities, to invest. The relationship between the value and

price is also strongly affected by human nature, mainly over-optimism and pessimism (Graham & Dodd, 1934).

The concept of Margin of Safety is one of the most important concepts that value investors ought to think about when they are making an investment decision. Essentially the concept states that an investor should look around for securities that are worth intrinsically way more than the market price today, but their current price might not increase to the “viewed” price very fast or maybe even never. But if an investor buys such kind of securities in a diversified enough way, then there is on average large upside potential with limited risk.

Graham (2003, p. 515) describes that in the long run stocks have provided a very real margin of safety over the bonds, especially if we hold a sufficiently diversified portfolio and the common stocks are selling at reasonably low multipliers. The price that we pay is obviously essential as at a low price the margin of safety can be large, but when the price goes up logically the margin of safety goes down, *ceteris paribus*.

Klarman states that the primary goal of the margin of safety is the preservation of capital. The margin of safety allows room for imprecision, bad luck, or analytical error and helps to avoid sizable losses over time (Klarman, 1991, p. xix). What carries special importance is the power of the margin of safety in the declining markets.

Shakeel and Ali (2018, p. 91) found that there is a significant relationship between Return on Assets, coefficient of Price/Earnings ratio and stock returns in the Karachi Stock exchange. Current ratio, leverage and earnings per share showed insignificant coefficient values.

Schwert (2003, p. 968) on the other hand found that many of the well-known anomalies in financial markets seem to have lost their predictive power after the papers which became famous were published. For example, Basu (1977, cited in Schwert, 2003, p. 945-946) found out that firms with high Earnings/Price ratios (or more widely used low Price/Earnings ratios) tend to earn positive abnormal returns relative to the CAPM. As a piece of evidence from practice there is a mutual fund from Dimensional Fund Advisors mentioned, where the fund was based on high Book/Market ratios. The fund outperformed relative to the CAPM in the period 1963-1991 by 0,5% per month and underperformed by -0,2% per

month in the period from 1994-2002 (Schwert, 2003, p. 946). Schwert (2003, p. 947) also suggests that in samples that pre-date the original 1993 Fama-French publication the evidence supports the existence of the value effect.

It is important to note, that in the literature investment based on the value approach is not purely based on the ratios and fundamental factors but also tries to exploit behavioral biases, for example, investor sentiment. Kahneman and Tversky (1979, p. 279) in the Prospect Theory showed the loss aversion concept where they demonstrated that the losses hurt more than the gain satisfy (see appendix 2). Compared to the utility function there is a difference as it is the steepest in the reference point.

Bikhchandani and Sharma (2000, p. 27) gathered the empirical evidence of the herding in the developed financial markets. The evidence suggests that investment managers do not exhibit significant herd behaviour. However, the tendency to herd is highly correlated with pursuing momentum trading strategies (Bichandani & Sharma, 2000, p. 27).

3. Research methodology and design

The first proposed part of the research is to assess the mutual funds that invest based on the value approach. Those are specifically created mutual funds invested in equities that are undervalued based on the fundamental characteristics. Furthermore, it is possible to separate those mutual funds on two parts, one is those that invest in companies with large market capitalization and the other in those with small market capitalization. The goal is to find out whether those funds can outperform the relevant benchmark on a risk-adjusted basis. To assess whether the investment is worth it or not there are several measures that are useful to figure out the risk-adjusted performance. The most widely used measure is the Sharpe ratio that measures excess return over the risk-free rate per unit of risk, which is measured as the standard deviation. Treynor ratio measures the same excess return over the risk-free rate, but over the beta of the portfolio. Jensen's Alpha measures the excess return of a fund or portfolio, given the portfolio's systematic risk. Modigliani-Modigliani M^2 measure is essentially the difference of

the adjusted portfolio to the risk of the benchmark from which we subtract the excess return of the market portfolio.

Another planned part of the research is the analysis of Value Investing applied in practice, mainly Berkshire Hathaway, which is a known example of a company that primarily uses value principles. There is a question whether there are positive benefits of holding the stock operated by the Value Investing principle. An additional important question is whether those returns are even a part of the classic Value Investing techniques introduced by Benjamin Graham and David Dodd in the Security Analysis. This will be analysed both at looking at the performance of the BRK stock, but the innovation compared to the other analysis will be analysing also their portfolio of marketable securities. They publish the data about their largest holdings of marketable securities on yearly basis in their annual report and alternatively, the Securities and Exchange Commission (SEC) requires and publishes data in the EDGAR database. The proposed plan is to create a portfolio with their largest holdings of marketable securities, weighted by the market value of the same holdings (not the overall market capitalization, but rather adjusted to their views). Furthermore, the portfolio will be rebalanced yearly, and the holdings adjusted either in the beginning or in the middle of the year. This should provide insight and relevant comparison to other “value” portfolios that ought to be analysed in the first point. For now, Berkshire is the only example for such analysis, but if other opportunities or access to relevant data are found, they might be added. This research should also answer the question whether the shareholders would be better off with the money in the marketable securities paid out to the investors as those securities could be bought by the investors themselves. An argument is that they do not want to pay out cash as they are looking for large acquisitions, but the question that still arises is whether they would be better off holding that cash invested passively (the holding company itself), and investors could theoretically adjust the desired risk with homemade leverage. It is important to note that in practice it is often impossible for certain individual investors to adjust the investment to their risk preferences due to the inability to borrow or the high borrowing costs.

The question that also arises is whether there is any outperformance in those stocks and whether the outperformance or potential underperformance against the benchmark is due to their private holdings (those companies that are either fully owned or controlled by them) or due to the investment in the listed companies that they hold in the portfolio.

An important thing to note here is that Value Investing approach is a broader term, often connected to the contrarian investing and searching for unique investing opportunities. Michael Burry, who became known by buying Credit Default Swaps (CDS) on subordinated tranches of subprime residential mortgage-backed securities before the nationwide fall in the real estate prices in the USA during the financial crisis, defined himself as a value investor following in his core analysis the basic value principles. Before recognizing the biggest housing crash in the history of the USA he was a stock picker and he defined the strategy of his hedge fund Scion Capital as buying unpopular shares and selling them when they regain popularity. The main point is to understand the value of the company before deciding about an investment. The strategy Burry suggests is to hold between 12 and 18 stocks and to be fully invested (Burry, 2000). Tax implications, diversification as proposed by Markowitz Modern Portfolio Theory (1952, p. 82) when choosing an efficient portfolio and focusing on one group of stocks (e.g. small cap) or one industry (e.g. pharmaceutical) is for him of secondary concern. Beyond stock picking, he also looks for rare opportunities (Burry, 2000).

On the other hand, Baupost Group, a hedge fund which is also known as a Value Investing fund and comes from the same intellectual base of thinking. However, they use a different approach. Baupost Group usually has large cash holdings waiting for one-off opportunities and market crashes/anomalies. At the end of the third quarter (Q3) in 2018, the portfolio value was 13,01B\$ and roughly 40% of the money is in the top three positions (Vincent, 2018). Klarman is also known for holding a large part of the portfolio in cash when they consider the market as overpriced, the cash holdings can even get over 40%.

Possible hypothesis:

Hypothesis 1: *The Value Investing approach is an efficient approach for generating of risk-adjusted excess returns in developed financial markets. Therefore, it makes financial sense to participate actively in the markets with the proposed strategy.*

With the first hypothesis, the goal is to test whether investments based on Value approach can really generate the excess return in the long run, as described during the first part of the methodology. With the long run, I mean in the period of over several years, as in that time or preferably sooner the dollar bill that investors are trying to buy for sixty cents should appreciate in the value at least close to the (true) dollar value, on average, assuming our views are correct.

With the active participation, I mean not taking the passive approach with investing. Therefore, it has to make financial sense and the difference/gain with the active approach should be economically significant enough, net of fees and other costs associated with the investment strategy (such as the research costs and/or time devoted over the passive approach). Again, as mentioned, this ought to hold in the long run, as in the short run any asset can outperform another asset. Therefore, outperformance in the short run is unreliable.

Hypothesis 2: *Management ability and not only valuations play an important role in the successful generation of excess returns.*

The second hypothesis relates to the second part described in the methodology, where the plan is to test the hypothesis with the creating the portfolio of Berkshire Hathaway marketable securities and comparing it both to a benchmark and to the performance of the value funds proposed under the first part of the methodology. The proposed method of comparison is to compare different performance measures (e.g. Sharpe ratio, M^2 etc.), already mentioned in the methodology. On the other hand, it is important to note that the strategy is relatively risky and that with few holdings there is also a lot of diversifiable risks involved.

Therefore, under the assumption that Modern Portfolio Theory roughly holds the generated fund should generate significant negative Alpha.

With that hypothesis, the goal is to test whether we can attribute a large part of investing success not only to some mathematical rules but also to the investment manager's ability to recognize the stocks that are really undervalued. As Buffett (2018) stated not only intelligence and mathematical abilities make great investors, but also his character and especially emotional stability. This part is important especially in the last part of the business cycle (in the second half of expansion) and then during the bull market, which is often followed by a recession, as we consider the stock market as a leading indicator of the economy. In that time the average investor usually gets either too optimistic when the market is going up or too pessimistic when the market is falling.

Furthermore, it is important to compare whether pure calculations are sufficient for a successful investment, or if a large chunk of success could be attributed to the management ability of the investor. It is important to notice that with management ability I mean both the ability to think rationally during the boom and bust era and the ability to recognize individual stocks that are really undervalued because of market biases and not because either the company or the industry does not have the same prospects anymore. Later, during the investment process, there are also differences in how different investors pick stocks. Some prefer the original »Value« way, and others prefer different investing principles, such as the Black-Litterman investment approach. With the testing of this the goal is also to figure out how important are other, not so straightforward and less tangible elements when selecting securities.

4. Data

In order to conduct the empirical analysis, I plan to use several datasets. To gather the data for the prices of individual stocks or mutual funds I will use a reputable provider, such as Bloomberg (terminal) and/or Thompson Reuters Eikon and/or Yahoo Finance. All the data have either open access or are accessible at BI Norwegian Business School. An additional source of information is also the

annual report of the companies that might help with additional fundamental data and holdings of certain companies.

Additional useful used sources might also be the Securities and Exchange Commission's (SEC) EDGAR (Electronic Data Gathering, Analysis, and Retrieval) database. Listed companies have to report various things, such as holdings and certain accounting numbers.

With the legal and ethical questions about the data collection, in general, there are no problems, as most of the data are widely available public figures and essentially anyone with the access to the internet has the access to the same data. The main focus of the paper is on the data from the developed financial markets, mainly the US equities market.

5. Plan for the thesis progression

- 15th January: Submission of the Preliminary Thesis Report
- The second part of January and February: Expand the theory, the first part of collecting the data
- March: Financial Modelling and quantitative analysis of the relevant data, gathering of the additional data as needed
- April: Finishing of the analysis and the first part of interpreting the data
- May: Second part of interpreting the data, at the end of May internal deadline for the first draft of the thesis
- June: working on the concluding parts, adjustments (as needed) and submission of the thesis on or before the 1st of July

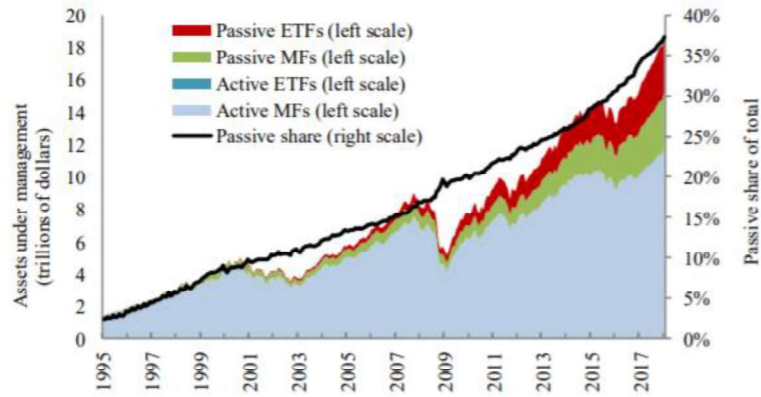
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Appendix

Appendix 1: Total assets in active and passive MFs and ETFs and passive share of total



Source: Monrningstar, Inc. 2018, presented in Anadu, Kruttli, McCabe, Osambela, & Hee Shin, 2018

Appendix 2: S-shaped value function

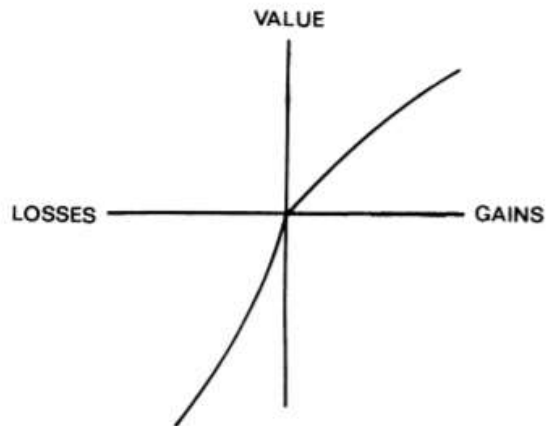


FIGURE 3.—A hypothetical value function.

Source: Kahneman, Tversky, 1979, p.279