The Gladiators of the OMXSPI

What are the key drivers trailing the durable performance?

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Abstract

Title: The Gladiators of the OMXSPI – What are the key drivers trailing the durable performance?

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Background and problem: The impact on the stock market of macroeconomic factors have been analyzed in several earlier studies. These are forces constantly changing and thereby they contribute to changing the supply and demand of stocks. The fact that macroeconomic variables have affected the top performing stocks of the OMXSPI during 2004 – 2018, in terms of performance, plays an important part of the study. Different authors have recognized different factors to affect the stock price development and there has not yet been established an explanation of the determinants of stock prices.

Purpose: The purpose of the study was to identify the stocks that continuously have had a development superior to the OMXSPI, and therefore have contributed the most to the development of the OMXSPI during 2004 – 2018. Moreover, the study analyzes the drivers that have contributed to the performance of these stocks. Furthermore, the study clarifies which factors that have contributed to the development of the P/E and the EV/EBITDA of the top performers.

Methodology: The study followed a quantitative and deductive approach. The Swedish stock market was analyzed with a focus on the OMXSPI were the top performing stocks of this index were identified through a screening process. Moreover, the top performers were put against the OMXSPI in different time periods to compare the performance. Furthermore, multiples of these top performers and the sectors which they trade in were calculated in order to compare the multiples to each other, with the purpose of analyzing them relative to each other in different time periods.

Conclusion: From the findings it could be established very similar patterns between the top performers and the OMXSPI. The difference mainly being that the top performers in every sequence experienced a superior development than the OMXSPI, but also greater declines during short sequences. Moreover, the tables displayed remarkable returns of the top performers and the aggregated top performers traded at premium levels in all analyzed time periods.

Keywords: OMXSPI, top performers, stock price, drivers, P/E, EV/EBITDA, multiples
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**Abbreviations**

**Discounted Cash Flow** (henceforth DCF) - A valuation method used to estimate the value of an investment based on its future cash flows. DCF analysis finds the present value of expected future cash flows using a discount rate. A present value estimate is then used to evaluate a potential investment.

**Earnings per share** (henceforth EPS) - The EPS number is calculated by dividing a company’s total after-tax profits by the number of common shares outstanding.

**Excess return** - Investment returns from a security or portfolio that exceed the riskless rate on a security generally perceived to be risk free, such as a certificate of deposit or a government-issued bond.

**Global Industry Classification Standard** (henceforth GICS) - A standardized classification system for equities, used by the MSCI indices.

**M2** - The broadest form of money supply currently reported by the Federal Reserve and it was found that large changes in it, coincide with stock market volatility.

**Multiple** - A multiple measures some aspect of a company’s financial situation, determined by dividing one metric by another metric. The metric in the numerator is generally larger than the one in the denominator.

**OMXSPI** - Also known as Stockholm All-share. It is a stock market index of all stocks trading on the Stockholm stock exchange.

**Relative Valuation** - In relative valuation, financial multiples are used based on the value of the asset. The companies' multiples within, but also outside the same industry are put in relation to each other to provide disclosures to which assets that are under- or overvalued.

**Repo rate** – The key interest rate the Swedish central bank is using in order to influence the inflation and the economic development.

**Top performers** - The stocks that have outperformed the OMXSPI, both when the company’s market cap and its performance is weighted relative to the OMXSPI, and when it is non-weighted.
Introduction

“Price is what you pay; value is what you get”

(Buffet, W. Chairman’s Letter 2008. pp.5)

We live in a fantastic time of unlimited opportunity, an era of outstanding new ideas, emerging industries and new frontiers. Brilliant new technologies, new software and advances in engineering and financial services, along with innovative business models all create new opportunities to make money in the stock market (O’Neil, 2009).

1.1 Background

Collins’ (1957) study of stock determinants came out as a pioneer on determinants of stock prices. He argued that the general business activity and money market factors that in general establish the stock price drivers, do vary from period to period. Therefore, he argued that most probably the importance and reliability of each stock price determinant changes over time. However, he identified net margin, dividends and operating earnings as important stock price determinants.

One can define equity markets as the market in which the stocks of public companies are traded and issued. Stock prices serve as indicators on whether investors should invest in a certain stock, and they signal the financial wealth and strength of the company in question (Enow & Brijlal, 2016). The stock market is a dynamic environment, stock price movements are not independent and both extrinsic and intrinsic determinants have been established to have an impact on stock prices (Malhotra & Kamini, 2013).

The impact on the stock market of macroeconomic factors such as inflation rate, interest rates, risk premium and Gross Domestic Product (henceforth GDP) have been analyzed in several earlier studies. These are forces constantly changing and thereby they contribute to changing the supply and demand of stocks (De Bondt, 2008). The stock market environment experienced an abrupt change when the global financial crisis hit the world in 2008 – 2009 and many companies shrank to a small portion of its former value (Ball, 2009). When this study analyzes different macroeconomic factors
during the time before the global financial crisis there is seen an increasing willingness to invest and consume while at the same time central banks were increasing interest rates and an increasing inflation rate and high valuation multiples was also seen. The fact that macroeconomic variables have affected the top performing stocks of the OMXSPI during 2004 – 2018, in terms of performance, plays an important role in the study.

Harper (2018) argued that forces that move stock prices falls into three categories: fundamental factors, technical factors and market sentiment. He explained that in an efficient market, stock prices would be determined by fundamentals which primarily refers to a valuation multiple and an earnings base. When a stock is bought one are purchasing a proportional share of a future stream of earnings, and the valuation multiple is the price investors are willing to pay for the future stream of earnings. These future earnings are a function of both the current level of earnings and the expected growth in this earnings base. He stated that the valuation multiple expresses expectations about the future and is fundamentally based on the discounted present value of the future earnings stream. Therefore the two key factors are; an earnings base (such as EPS and free cash flow) and a valuation multiple (such as the P/E and EV/EBITDA ratio). The valuation multiple in turn is affected by the expected growth in the earnings base and the discount rate, which includes the perceived risk of the stock and the interest rate (Harper, 2018).

Determinants considered to affect stock prices are analyzed in this study, in order to clarify which has been the key drivers behind the strong performance of the top performing stocks listed on the OMXSPI, between 2004 and 2018. During this time, the OMXSPI experienced a strong growth, and the value of this index more than tripled (Ekonomifakta, 2019). This occurred even though our world experienced a financial meltdown in the same period. Since the global financial crisis in 2008 – 2009, the stock market has experienced a strong growth and we have seen new all times highs in stock markets around the world, even though last year (2018) turned out to be one of the worst years for the stock market since the abovementioned financial crisis (BBC News, 2018).

Nevertheless, what is it that actually has driven the stock prices, what are the factors behind their performance? This is being examined through analyses of the so called top performers. The members of the top performers are extracted by weighting a company’s performance against its market cap relative to the OMXSPI, and classify a top performer as a stock that over a 15 year period has outperformed the index both weighted and when non-weighted.
1.2 Problem statement

The determinants of stock prices are often a subject up for debate. Researchers, economists and financial market participants have not agreed to what actually affect stock prices. In an efficient market all information available should be reflected in the price of a stock (Fama, 1970). Consequently, stock prices would primarily be determined by the company’s fundamental factors such as EPS, dividends, size, management etc. Multiples such as P/E and EV/EBITDA are commonly used by fundamental analysts to estimate a stock’s fair value and forecast a future value, with the purpose of forecasting future stock prices. If the current stock price is not equal to the fair value, fundamental analysts believe that the market price will ultimately move towards the fair value (Damodaran, 2012).

De Bondt (2008) argued that the understanding of what determines stock prices is important when forecasting future movements. Even though, there is not an overwhelming number of studies that are examining the factors behind the stock price movements on firm levels in specific countries. Which variables have affected the stock prices over the years, which are the drivers? This is a question subject to constant research and analysis. Regardless, there is still disagreement and various studies contradicting one another on what actually causes the movements of a stock’s price, and what the factors behind the movements are. Damodaran (2012) argued that the value of an asset, and thus what decides the price you should pay when buying a stock, is the ability for a company to generate cash flow. On the other hand Malkiel (2005), among others, argued that new information develops randomly, and therefore the stock market price movements will be no more than a random walk. These ambiguities and the fact that there is a lack of studies examining stock price movements in specific countries opened up for this study to analyze the factors behind the development of stock prices in Sweden.

Vuolteenaho (2002) argued that whether stock prices move because of modifications of the discount rates or expected cash flows, and by how much of each, is a central issue in asset pricing. However, there is lack of with evidence of these components at firm level. De Bondt (2008) continued this line of thinking as he argued that earnings and a risk free interest rate are considered proxies for the varying risk premium and that these variables are fundamental determinants when it comes to the pricing of stocks. Among others, these factors were analyzed by Oyama (1997) and Abdulrahim (2011), where they examined the relationship between macroeconomic variables and stock market returns. Their studies suggested that there exists a negative relationship between macroeconomic variables such as the interest rate and the consumer price index with stock market returns, while there was a positive relationship between monetary policy and stock market returns.
De Gregorio and Guidotti (1995) examined the relationship between financial development and long-term growth by using the ratio of bank credit to the private sector to GDP, as the indicator of financial development. They argued that this indicator more accurately represents the actual volume of funds channeled to the private sector than what monetary aggregates such as M2 does, since it is more directly linked to investment and economic growth. Their study suggested that financial development lead to improved growth performance, i.e., if the economy performs well the stock market is likely to do so in terms of return, but it varies across countries and over time. Finally, their findings revealed that the efficiency of the investment is of importance, rather than its volume.

A way of measuring the financial success of a company is through multiple analysis. Multiples reveal important characteristics regarding the operational and financial situation of a company (Islam, Khan, Choudhury & Adnan, 2014). Their study presented results that the stock prices and the EPS did not move on the same track since the stock prices are affected by more aspects than what happens on firm level, such as micro- and macroeconomic events on the economy. Given the fact that multiples actually signal what investors are willing to pay (Harper, 2018), they tend to fluctuate with the economy’s cyclicality.

Since the global financial crisis in 2008 – 2009 Sweden has experienced a low interest rate environment, and in February 2015 the Swedish central bank established a repo rate below zero. Low interest rates are known to have an impact on the consuming and investing behavior of people and companies, they tend to become less risk averse (Sveriges Riksbank, 2016). This factor affects the stock market which is why it is interesting to analyze how the low repo rate have affected the development of the stocks trading on the OMXSPI. Moreover, the study examines how the multiples of the top performers have developed in comparison to the sector average of the sectors which they operate in. Evidence of studies from various researchers (Oyama 1997; Sunde & Sanderson 2009; Abdulrahim 2011) suggested that stock prices are mainly dependent on macroeconomic factors such as interest rates, inflation, money aggregates etc. Contrariwise, other researchers (Srinavasan 2012; Malhotra & Kamini, 2013; Enow & Brijlal, 2016) have recognized most of the stock price development to firm specific factors such as EPS, dividends, P/E etc.

Different authors have recognized different factors to affect the stock price development which creates room for discussion and more studies treating this subject. There has not yet been a fully established explanation of the determinants of stock price developments in different countries which makes room for this study. Macroeconomic variables that can have an impact on stock market returns are analyzed along with firm specific factors. Swedish macroeconomic variables such as; inflation rate, repo rate, risk premium and GDP are studied along with firm specific factors such as;
EPS, price, P/E and EV/EBITDA. The study analyzes the key drivers behind the durable performance of the top performers of the OMXSPI and what has contributed to the performance.

1.3 Purpose of the study

The purpose of the study was to identify the stocks that continuously have had a development superior to the OMXSPI, and therefore have contributed the most to the positive development of the OMXSPI during 2004 – 2018. Moreover, the study analyzed the drivers that have contributed to the performance of these stocks. Furthermore, the study clarifies which factors that have contributed to the development of the P/E and the EV/EBITDA of the top performers, and then this development is compared to the development of the sector multiples of the sectors which they operate in.

1.4 Research questions

Based on the purpose of the study, the following research questions were elaborated in order to clarify what the study had in focus and which findings it aimed for. In order to find the top performing stocks of the OMXSPI it was necessary to specify how these could be identified and categorized, in order to deepen the focus on these further on.

- Is it possible to identify the top performing stocks that has driven the OMXSPI during the last 15 years, i.e., those that performed better than the OMXSPI both when weighted and non-weighted in terms of total return including dividends?

There are many factors affecting the stock market and the stock price movements. These factors are found interesting to analyze, with the purpose of understanding them and how they change over time and affect the identified top performing stocks. By rebasing the data at the beginning of every time period it is possible to determine what has actually driven the development of the stock in that time period. Therefore, the data is rebased at 0 in every analyzed time period in order to determine what has driven the development of the top performers in that specific period.

- What are the key determinants trailing the development of the top performers, in time periods of 3, 5, 10 and 15 years?

Relative valuation, namely, multiples are widely used when evaluating companies trading on stock exchanges. In order to understand, not only how the stock price have developed but also the valuation level, the study aims to analyze the multiple development of the top performers. This factor is of interest in order to clarify how the perceived value of the top performers have developed compared to the sectors which they operate in.
• Compared to the sector average, how have the P/E and the EV/EBITDA and thereby the perceived value of the top performers developed between 2004 and 2018?

1.5 Delimitation

With the intention of developing a study with a detailed analysis of several aspects, some certain delimitations was required in order to clarify the outcome. Initially, a geographical delimitation was made by limiting the study to the stocks trading on the OMXSPI. This eliminated an adequate number of differences in terms of geographical and cultural behavior. Moreover, the study focuses on the years 2004 – 2018, for the purpose of including data from the years before the global financial crisis in 2008 – 2009 up until today. The purpose of the study is not to estimate the correct value of the stocks nor the risk, rather in a quantitative matter, analyze the drivers behind the durable performance of the top performers and their multiples.
Frame of reference

This chapter gives an account of the framework and theoretical concepts are introduced which is followed by earlier studies relevant for the study. The first part of the theories is describing financial theory of the stock market, while the latter part is describing valuation methods of stocks.

2.1 Efficient Market Hypothesis

The theory of the Efficient Market Hypotheses (henceforth EMH) constitutes a part of the study for the purpose of providing the reader with a basic knowledge of one of the most known and discussed economic theories. More importantly, the findings of the study are compared to what the EMH states regarding the stock market in order to strengthen the results deriving from the study and to contradict the EMH to some extent.

Sewell (2012) stated that since the early 1970s when Fama (1970) defined the efficient market as a market in which available information is fully reflected in the prices of securities, the EMH has played a central role in finance. Roberts (1967) divided the studies of the EMH into weak and strong form tests. Fama, Fisher, Jensen and Roll, (1969) continued researching this area and came to the conclusion, in their event study, that the stock market was efficient. There are three different forms of the EMH which Fama (1970) described in his study. He stated that the weak form has the strongest theoretical and empirical evidence. Later, Fama (1991) redefined the weak form to include more variables useful for testing of return predictability.

Despite the EMH being well studied and debated over the years, there is little consensus among researchers regarding the efficacy of the EMH (Sewell, 2011). In their study, Grossman & Stiglitz, (1980) presented evidence that a market cannot be perfectly informationally efficient. They argued that since information cost money, it is impossible for prices to perfectly reflect all available information. Because if it did, there would be no point for investors to spend resources on the process of collecting and analyzing information. Therefore, there must be left incentive for security analysis in a rational model of market equilibrium (Grossman & Stiglitz, 1980).
Further research questioning the EHM was seen when evidence of weak form market inefficiencies was presented in De Bondt and Thaler’s (1985) study where they revealed that stock prices overreact to new market information. In a more recent study of the global financial crisis in 2008 – 2009, Ball (2009) argued that the EMH cannot be responsible for asset bubbles since these happened before Fama (1970) defined the EMH. He claimed that the collapse of large financial institutions during the abovementioned crisis reflects one of many obvious limitations of the EMH. Defenders of the EMH on the other hand argue that professional investors and operators should be able to earn excess returns if the market is not effective, which rarely is the case (Malkiel, 2005). Furthermore, he stated that in ineffective markets there exists clear arbitrage opportunities to make money. This do not exist in today’s stock market which is an additional factor that supports the EMH, he claimed.

### 2.2 Capital Asset Pricing Model

Another well-known tool within finance is the Capital Asset Pricing Model (henceforth CAPM) that constitutes of beta, risk free rate and risk premium which is outlined in the sections below. These variables are of importance since they have an impact on the stock market, either when they change or when people change their expectations of how these variables are to develop (De Bondt, 2008). How the variables in the CAPM have affected the development of the top performers is of interest for the study in order to examine to what extent they have contributed to the positive development. To give the reader an understanding of one of the most important and popular models within finance (Berk & DeMarzo, 2007), the CAPM and its variables is outlined below.

Sharpe (1964) and Lintner (1965) continued the work of Markowitz portfolio theory and managed to establish the CAPM which is, as mentioned, an important tool in financial economics. The CAPM calculates the expected rate of return for an asset, given its risk (Sharpe, 1964). He stated that an investor may obtain a higher expected rate of return on his assets, only by taking on additional risk. Moreover, the model assumes just like the EMH that investors have access to the same information and therefore you cannot encounter under- or overvalued assets on the market (Bodie, Kane & Marcus, 2014). Furthermore Berk & DeMarzo (2007) explained that the model assumes that all investors hold efficient portfolios that are providing them with the full expected return, given its risk. The algebraic expression of the model is as follows:

\[
E(R_i) = R_f + \beta_i(R_m - R_f)
\]

*Calculation 1, Damodaran (2012).*

The result from calculation 1 give the investor a required return or discount rate they can use to estimate the value of an asset. Since it is not possible to observe expected cash flows nor the discount
rate investors traditionally try to predict them (Vuolteenaho, 2002). The CAPM states the expected risk premium of an asset is a product of the market risk premium and the beta value. The security market line (henceforth SML) creates the linear relationship between risk and return, which is the line any asset should lie on. If an investment falls out of the SML it appears more attractive for investors in terms of the ratio between systematic risk and expected risk. This in turn will cause the equilibrium price for the asset to rise, due to supply and demand, until it is considered equally valued as other assets accessible on the market (Brealey, Myers & Allen, 2010).

Bodie, Kane and Marcus (2014) clarified that various assumptions are made in the CAPM model: The investor is the price-taker, where they act as if the stock prices are not affected by their trading, there are no transaction costs and the investor pays no taxes, all stocks are traded, it is possible to buy the stock in any fraction and investors can borrow or lend any amount at a fixed risk free interest rate. Despite the fact that the CAPM makes unrealistic assumptions, operators within finance argue that assumptions has to be made and therefore the CAPM stays on of the most popular risk models in the financial industry (Berk & DeMarzo, 2007).

2.2.1 Risk free interest rate

Damodaran (2012) argued that the risk free interest rate is the rate of return an investor can obtain by investing in assets that are considered as risk free. Therefore, the risk free rate of return is included in the CAPM somewhat like an opportunity cost. The most used instruments within finance considered as risk free, are government bonds and treasury bills. This study considered the repo rate to be the risk free rate in Sweden and this study analyzes how the low repo rate have affected the Swedish stock market.

2.2.2 Beta value

The beta is a value that symbolizes the systematic risk, which explains how much an asset is affected by market events such as the interest rate environment and the state of the market (Brealey, Myers & Allen, 2003). They explained that the market portfolio has a beta of one. Therefore, assets or portfolios with a beta value superior than one should have a higher expected rate of return. A portfolio or an asset with a beta value lower than one ought to have a lower expected rate of return. Positive beta values implies that the asset follows the market both in rise and in decline, while a zero beta asset does not move in line with the market at all (Brealey, Myers & Allen, 2010).
2.2.3 Risk premium

Risk is a variable that is inevitable is a part of the discussion when it comes to finance (Damodaran, 2012). The risk premium is the return in excess of the risk free rate of return an instrument is expected to yield. An asset’s risk premium is a form of compensation for the investors that tolerate the extra risk compared to an investment in risk free assets (Damodaran, 2012).

The yearly study of the risk sentiment on the Swedish market performed by PwC is considered a reliable source when measuring the risk premium level in Sweden. This risk premium is measured as the expected excess return above the risk free rate. The results, from PwC’s (2018) yearly survey have been used in the study to determine the risk premium in Sweden during the sample period. PwC explained that it was measured as arithmetic mean value of implicitly calculated market risk premium given the, for the period, current interest rate on a 10-year Swedish government bond.

2.3 Low interest rate environment

Now when it in the previous section has been explained that interest rates are of importance it is time to deepen the knowledge regarding this variable and why it is of importance for the study. There has been a low interest rate environment in Sweden for the past few years (Sveriges Riksbank, 2019). Wiesen (2015) explained that low interest rates is a factor known to affect stock markets which implies that the low interest rates in Sweden has had an impact on the top performers and the overall OMXSPI. Therefore, this macroeconomic variable is of importance in order to understand and estimate how much of an impact it has had on the Swedish stock market. It is of interest to examine to what extent the repo rate levels have contributed to the development of the OMXSPI during 2004 – 2018.

Carletti and Ferrero (2017) explained that a low interest rate environment occur when the interest rates takes a turn to lower levels than the historic average, for a determined period. This type of environment comes with a range of effects and consequences since the interest rate is set by the central bank to stimulate economic activity, which is the basis for conventional monetary policy. As the interest rate is lowered, the price of lending decreases which in turn stimulates business activity. As interest rates are raised, economic activity dampers which is done by central banks to keep the economy from overheating (Wiesen, 2015).

The Swedish central bank determine the repo rate (Sveriges Riksbank, 2016). In December 2018 the central bank of Sweden decided to raise the repo rate from -0.50% to -0.25 %, which was the first time since 2016 that it was changed. Through the years the repo rate have fluctuated depending on
what the central bank has determined and estimated about the nature and future of the Swedish economy. Since February 2015, the repo rate have been of a negative nature, meaning the rate has fallen below zero for the specific economic zone (Sveriges Riksbank, 2019). This implies that banks have to pay to keep up their excess reserves stored at the central bank rather than receiving a positive interest income. At the same time companies are obligated to pay to keep their reserves at the bank. (McAndrews, 2015). Kliesen and Bullard (2016) affirmed that one of the more major effects of a low interest rate environment, is that it punishes savers that heavily rely upon interest income. If returns turn out to be low investors seek out assets that yield a higher expected return, of which some are more speculative activities that potentially increase financial instability. They stated it could be the case that banks and other institutions tend to take more risk, when rates are in the lower range for longer periods of time. It may also lead to investors heavily investing in long-term assets, those which price levels will drop if the interest rates were to suddenly increase again (Kliesen & Bullard, 2016).

Thorbecke (1997) explained that stock prices equal the expected present value of future cash flows. Hence, he claimed that evidence that monetary expansion shocks increases stock returns indicates that expansionary monetary policy has real effects. Implying that this kind of policy increases companies future cash flows or decreases the discount factors at which those cash flows are capitalized. In his study he used several measures of monetary policy and a variety of empirical techniques, which presented evidence that monetary policy has large effects on stock returns, both before a change in the monetary policy occur and afterwards. This research supported Gertler and Gilchrist (1994) research stating that monetary policy, at least in the short run, has real and important effects on the economy. Gertler and Gilchrist (1994) argued that a monetary tightening, by worsening balance sheet positions, can constrain the access for firms to credit, which confirms the negative relation between stock return and monetary policy.

### 2.4 A trigger for multiple expansion

Monetary policy and interest rates are, as mentioned, tools that the central bank is able to control in order to keep the country’s economy on track. There are however more factors that affect the economy and what is to be explained, especially the pricing of stocks. Nofsinger (2014) explained that people are not rational, meaning they will always to some extent make errors. This in turn makes the stock market unpredictable since the prices to some extent will fluctuate depending on the people’s behavior and mindset.

De Bondt and Thaler’s (1985) study presented evidence of weak form market inefficiencies when they revealed that stock market overreact to new market information, which gave the starting signal
to the subject of behavioral finance. Behavioral finance is a theory advocating inefficiencies in the EMH. This is described by Nofsinger (2014), where he explained that studies of finance have long assumed that people make rational decisions and that they are unbiased in their predictions about the future. This though, are bad assumptions according to psychologists. He argued that people often act irrationally in the face of risk and uncertainty and therefore make predictable errors in their forecasts. This, he explained can cause the stock price to deviate from its fundamental value. Shefrin and Statman (1985) presented evidence of patterns of loss and gain realization, confirming the disposition effect, i.e., their study showed that investors tend to sell winners too early and ride losers too long. Selling winners to soon implies that investors tends to sell stock that will continue to perform after being sold, and hold on to losers implies that the investor keep the stock that has declined and will continue to decline (Nofsinger, 2014).On the other hand, he explained that investors underestimate risk and overestimate expected performance when there is too much optimism involved which can cause price bubbles. This is not uncommon and not a recent phenomenon, the more things change the more people stay the same, he stated.

Consensus is formed when one learn what other people think about stocks. When people act on the consensus a herd is generated, i.e., when an adequate number of people believe the consensus is right, more people will follow the footsteps. Even the overall market can be affected by herding which occurs when numerous investors are influenced by psychological biases in a similar way. Events of this nature has been seen in the history, e.g., before the Dotcom-bubble collapsed the valuation multiples of Internet companies reached extremely high levels. For example, the P/E level of various IT companies were in the thousands (Nofsinger, 2014). This can be compared to the average P/E level on the OMXSPI that has been around 14 during the last 100 years (Avanza, 2019). In recent years the Swedish financial market have experienced falling interest rates and company earnings growth which has increased the demand for stocks (Ekonomifakta, 2019). According to Sveriges Riksbank (2016), the valuation levels of companies trading on the Swedish stock exchange are today in general on high levels in a historical perspective.

O'Neil (2009) explained that new technologies are making it easier and more accessible to execute trades on stock exchanges, while Prechter (2001) argued that most of the decisions regarding the financial market, are in reality other individual’s decisions. He explained that today, people are mainly affected by the reports from analysts and experts which then is used when making investment decisions. This meaning that people are putting aside their own values and instead follows the herd that arose when people started taking actions based on the consensus. Investors do not want to be left behind and therefore they always keep an open ear so that they can review what other investors are doing. When investors act on the consensus it provides them with a feeling of being part of
something bigger, which makes them less observant to a more formal analysis of the investment since they already know that numerous investors have made the same investment (Nofsinger, 2014). He explained that this is what eventually can cause a price bubble, when enough people believe and act on the consensus which drives up the prices to levels that there is no basis for.

2.5 Multiples

The price level varies as Nofsinger (2014) explained, and in order to investigate this matter multiples are commonly used within finance (Damodaran, 2012). By analyzing the P/E and the EV/EBITDA multiples of the top performers the study describes how the perceived value of these companies have fluctuated in comparison to the sector multiple of which they operate in. The study should then be able to embrace the performance and by that the investors willingness to pay relative to the multiple development.

The value of a company is a function of its capacity to generate cash flow, its expected growth in these cash flows and the uncertainty in these cash flows (Damodaran, 2012). He explained that no matter the multiple, revenue or earnings, these variables are functions of risk, growth and potential to generate cash flow. He continued by stating that this indicates that companies with less risk, greater potential to generate cash flow and higher growth rate should trade at higher multiples than companies with higher risk, less potential to generate cash flow and lower growth.

Valuation plays a central role in what is done in finance, ranging from questions about corporate governance and the market efficiency to different investment decisions (Damodaran, 2012). He stated that generally there are three methods of valuation. The first, DCF valuation, relates the value of an asset to the present value of expected future cash flows on that asset. The second, contingent claim valuation, uses option pricing models to measure the value of assets that share option characteristics. Lastly, he explained the third, relative valuation, which estimates the value of an asset by looking at the pricing of equivalent assets relative to a common variable such as earnings, cash flows, book value, or sales.

Damodaran (2012) explained that relative valuation is widely used because it can be completed with far fewer assumptions and more quickly than a DCF valuation, i.e., it is easier to use a multiple instead of a DCF valuation to estimate if an asset is over- or undervalued. He stated that multiples are more likely to reflect the current state of the market since it does not measure intrinsic value, but relative value. Multiples are simply the ratio of a market price variable (e.g., stock price) to a particular value driver (e.g., earnings) of a company. He stated that the relative valuation’s simplicity
is also its weakness, it can result in inconsistent estimates when important variables such as risk, cash flow potential or growth are overlooked. He continued explaining that since a relative valuation reflects the state of the market, this can result in assets ending up with valuation levels too high, when their peers are overvalued by the market, and too low when the market is undervaluing the peers. This can occur since it is the market alone that does the job of setting the price in relative valuation, he explained. On the same path were Graham and Dodd (2009) and Greenblatt (2010), when they described relative valuation as a value investment strategy which they based on the fact that companies that are undervalued by comparison to their peers, often constitute good investment cases.

Relative valuation has been widely discussed, nevertheless, there are few studies focusing on the empirical evidence of how relative valuation relates to stock price movements (Rossi & Forte, 2016). Therefore, they orchestrated their study to explore if different levels of multiple valuation errors or accuracy performances could predict future stock price movements. They also examined if multiples are able to provide valuable signals which in turn could provide excess returns to investors. One of the major obstacles in relative valuation is the selection of value drivers and the identification of comparable companies. Therefore, companies belonging to the same industry are practice to use as peers in relative valuation (Rossi & Forte, 2016). There are however more obstacles in relative valuation. Schreiner (2007) explained, because multiples represent a certain point in time and indirectly assume no major changes in business, market shares or competition, they are short sighted. When changes do happen, it may cause misinterpretations of the denominator i.e., the fundamental measure. Since there are no universally recognized guidelines, there are different measures among practitioners, which implies that different results depends on the person performing the analysis (Rossi & Forte, 2016). Nevertheless, close to 85% of equity research reports are based upon a multiple and peers, and it do exist rules of thumb which are forming the basis of relative valuation (Damodaran, 2012).

2.5.1 Multiple expansion and multiple contraction

According to Corporate Finance Institute (2019) multiple expansion is the process of buying an underlying security at a lower valuation multiple and then enabling disposal at a higher multiple. It can be used to describe any increase in a company’s valuation multiples. The contrary to this would be multiple contraction, which would indicate a negative development of the valuation multiples. As Damodaran (2012) explained, the relative valuation estimates the value of an asset by comparing the pricing of equivalent assets relative to mutual variables such as earnings or cash flow, i.e., the majority of the multiples are ratios of what investors are willing to pay for a specific amount of earnings or expected cash flow. Thus, multiple expansion comes from investors paying, or being
willing to pay a higher amount for the stock, and multiple contraction would indicate that investors’
willingness to pay has decreased (Corporate Finance Institute, 2019). Given that the study aimed for
a focus on the drivers behind the stock price, the multiple expansion is essential for completion. By
finding the historical gap between forward looking figures of EPS and the price, it is possible to
determine the multiple expansion or contraction.

2.5.2 P/E

Graham and Dodd (2009) stated that a stock is in general considered to be worth a specific number
of times its earnings, i.e., the P/E ratio is the ratio of the market price per share to the EPS.
Damodaran (2012) stated that the P/E ratio of a stock is often compared to its historical average to
make judgments about whether the stock is under- or overvalued. Thus a stock that is trading at a
P/E ratio much higher than its historical patterns is often considered to be overvalued, whereas one
that is trading at a ratio lower than its historical patterns is considered undervalued.

\[
\text{PE} = \frac{P_0}{\text{EPS}_0} = \frac{\text{Payout ratio} \times (1 + g_n)}{(k_e - g_n)}
\]

*Calculation 2, Damodaran (2012).*

From calculation 2 it can be derived a number of determinants that influence the P/E:

- The payout ratio, if it increases the P/E ratio increases, for any growth rate. The P/E ratio
  increases as the return on equity increases.
- The riskiness, which has an inverse relationship to the P/E ratio.
- Expected growth rate in earnings, which has a positive relationship to the P/E ratio.

Damodaran (2012) described the P/E ratio as an increasing function of the payout ratio and the
growth rate and a decreasing function of the riskiness of the firm. The multiple is a function of the
perceived risk of a firm, and the effect shows up in the cost of equity. A firm with a higher cost of
equity will trade at a lower multiple than a similar firm with a lower cost of equity, he stated.
However, in addition to knowing the determinants of a multiple it is important to understand how
the multiple changes when the determinants change since there is no linear relationship between
determinants and multiples. For example, the P/E ratio is much more sensitive to changes in
expected growth rates when interest rates are low than when they are high. The reason for this is that
growth produces cash flows in the future, and the present value of these cash flows is smaller at high
interest rates (Damodaran, 2012). He explained that an increase in interest rates results in a higher
cost of equity and a lower P/E ratio, other things equal.
Graham and Dodd (2009) stated that the level of the P/E multiple depends on which sector the company operates in, the history of the company and its fundamentals, and the current psychology of the market. In their study they argue that the whole idea of basing the value upon current earnings seems absurd, since the current earnings are constantly changing. The ratio of the multiplier would therefore at a glance seem like an arbitrary choice. They continued to explain that the stock market must construct its values first and find its reasons afterwards, i.e., the prices of stocks are not carefully thought out calculations, but results of a mixture of human reactions and behavior. The levels of what has been considered as acceptable P/E ratios has changed over the years in pace with changing economic environments (Graham & Dodd, 2009). According to Damodaran (2012) the simplicity of the P/E makes it an attractive choice, but its connection to a firm's financial fundamentals is often overlooked, leading to substantial errors. Still, the P/E multiple is the most commonly used multiple in relative valuation but it is also one of the most misused, he stated.

### 2.5.3 EV/EBITDA

Another widely used multiple is the EV/EBITDA. Contrasting from the P/E, this multiple is a firm value multiple that has increased in popularity during the past two decades (Damodaran, 2012). The EV/EBITDA relates the total market value of a firm, net of cash, to the earnings before interest, taxes, depreciation, and amortization of the firm:

$$\text{EV/EBITDA} = \frac{(\text{Market value of equity} + \text{Market value of debt} - \text{Cash})}{\text{EBITDA}}$$

Damodaran (2012) explained that the reasons for its increasing recognition are that there are fewer firms that are lost from the analysis, since there are a smaller number of firms with negative EBITDA than there are firms with negative EPS. Moreover, differences in depreciation methods across firms causes differences in operating income or net income but does not affect EBITDA. Finally, he explained that the EV/EBITDA multiple is a better choice when comparing firms with differences in the financial leverage.

$$\frac{\text{EV}}{\text{EBITDA}} = \frac{(1 - t) - \frac{\text{DA}}{\text{EBITDA}} (1 - t) - \frac{\text{Reinvestment}}{\text{EBITDA}}}{(\text{WACC} - g)}$$

*Calculation 3, Damodaran (2012).*

From calculation 3 there can be determined five determinants of the EV/EBITDA, where the following applies, other things being equal:

- Firms with lower costs of capital should trade at higher multiples.
- Firms with higher expected growth should trade at higher multiples.
- Companies that acquire a greater share of their EBITDA from depreciation and amortization should trade at lower multiples than otherwise similar firms.
- The larger the portion of the EBITDA needed for reinvestment to generate expected growth, the lower the multiple will be.
- Companies with lower tax rates should trade at higher multiples than otherwise similar firms with higher tax rates.

There are however some difficulties regarding this multiple. For example, for firms with cross holdings the EV/EBITDA can be difficult to estimate (Damodaran, 2012). He explained that since cross holdings can be categorized as either majority active, minority active, or minority passive holdings they affect the enterprise value in different ways which will have the effect that the EV/EBITDA multiple will be too high or too low if you do not account for these aspects.

### 2.6 Related studies

Presented below are studies with similar focus areas. It has been challenging to find studies that have been conducted through analysis of both intrinsic and extrinsic factors that affect the stock prices of companies in specific countries. However, there are studies examining the relationship between macroeconomic variables and stock market returns, and other studies analyzing the relationship between firm specific factors and the stock price.

Haugen and Baker (1996) examined the determinants of the cross-section of expected stock returns and presented evidence that the important determinants of expected stock returns are interestingly common to the leading equity markets around the globe. They used risk factors, liquidity, price level indicators, growth potential, technical and sector variables in their analysis of the stock determinants. There was no evidence from differences in firm fundamental characteristics or in the nature of the distributions of return between the high and low return deciles that the realized return differences are risk related. Rather, it appeared that the predictive accuracy could be attributed to bias in market pricing (Haugen & Baker, 1996). Consequently, the results revealed an extensive failure in the EMH, according to them. Finally, they argued that of the factors related to sensitivities to macroeconomic variables, none appear to be as relatively important drivers of expected stock returns.

In his study, Oyama (1997) analyzed the general relationship between stock prices and macroeconomic variables in Zimbabwe. He found evidence that stock prices in Zimbabwe were primarily affected by shifts in the risk premium at first. However, later in his analyzed time period
the study suggested that increases in stock prices could be explained by movements in M2 and interest rates. He found evidence that presented a stable relationship between stock returns and the growth rate of money and treasury bills. Moreover, the study presented evidence that macro variables explains stock returns to some extent, while other stock movements could not be explained.

This matter was also studied by Abdulrahim (2011) when he analyzed the empirical relationship between Nigerian stock market returns, and the changes in a number of macroeconomic variables during the years 2005 – 2010. Using multivariate Arbitrage Pricing Theory (henceforth APT), the variables studied were; inflation, interest rate, oil production, exchange rate, and money supply M2. His empirical results, supported the view that macroeconomic variables explains a significant portion of stock market returns. The APT model presented evidence that a significant portion of the observed variations in Nigerian Stock Market returns, for the sample period, were influenced by macroeconomic variables. Consumer price index, short-term interest rate, and money supply have a big influence on the Nigerian stock market returns, he concluded. The regression results suggested there is a significant negative relationship between short-term interest rate, consumer price index and stock market returns, whereas changes in money supply have a positive impact on the stock market returns (Abdulrahim, 2011).

In his study, De Bondt (2008) presented new evidence on determinants of stock prices at the total market index level in various countries. Using a stock price model, he estimated a long-term equilibrium fundamental value of stock prices on the basis of earnings, a risk free interest rate and a structural equity risk premium. His regression results indicated that the long-term equity risk premium is an important determinant of stock prices. He stated that in the short-term, stock prices can and do fluctuate from their long-term fair value, and nonfundamental factors may have an impact on the determinants of stock prices in the short-term. He argued that it is important that investors not only look at the P/E multiple, but also take into account the risk free rate and the risk premium level.

Enow and Brijlal (2016) investigated the determinants of stock prices using companies listed on the Johannesburg stock exchange between 2009 and 2013. Their results revealed that dividends, EPS and P/E ratios account for almost 60% of the stock price movements. Regression analysis suggested that EPS and P/E were significantly positively correlated to stock prices even though dividend per share was not. The study of Malhotra and Kamini (2013) focused on determining the factors influencing stock prices in India, in the context of National Stock Exchange (NSE) 100 companies. Similar results to the study of Enow and Brijlal (2016), they found that book value, EPS and the the
P/E ratios have a significant positive association with the stock price of a company whereas dividend yield have an inverse association with the company’s stock price.

Srinivasan (2012) examined the fundamental determinants of stock prices in India across six major sectors, namely; Manufacturing, Pharmaceutical, Energy, Infrastructure, Banking and IT. His empirical results suggested that, apart from what Malhotra and Kamini (2013); Enow and Brijlal (2016) revealed, size is a significant factor in determining the stock prices of the companies in all sectors apart from manufacturing. He stated that the performance of the fundamental ratios of the industry are immeasurably helpful and essential to investors and analysts striving for the top performing stocks in different industries. Unlike the majority of the researchers analyzing determinants of stock prices, Sunde and Sanderson (2009) carried out a qualitative study of the determinants of stock prices in Zimbabwe. Targeting people involved with organizations registered on the Zimbabwe Stock Exchange the carried out interviews and the archival method. With their empirical results, they concluded that there are economic, political and social factors that determine the stock prices, where economic and political factors was established as the main factors affecting stock prices.


3

Methodology

3.1 Scientific approach

The point of science and research is to give an audience knowledge and understanding within a specific area that concerns our world, in this case, the financial world. For science to be explanatory, some assumptions of how to obtain this knowledge need to be implemented (Arbnor & Bjerke, 1994). Jacobsen (2002) stated that we are all tendentious people driven by our own interpretation. This gives rise to the problem of determining which interpretation of our reality that end up being closest to the correct one. He explained that since the world is driven by different interpretations of our reality, it is not surprising that the process of collecting new knowledge and data for best possible approximation is also differently interpreted. In this study, the data collection has been carried out through the use of the financial databases Bloomberg and FactSet.

A descriptive study is intended to chart facts and conditions (Lans & Van der Voordt, 2002). This research describes, studies and interprets multiple factors in different time frequencies during the last 15 years. Through this, the study exposes the different market conditions during the sample period and what, in terms of valuation and performance, have driven the OMXSPI and in particular the aggregated top performers.

Knowledge can be divided into scientific and other forms of knowledge (Lekvall & Wahlbin, 2001). They stated that what separates the scientific form of knowledge from the others is the way to obtain the knowledge, the process of structuring the theoretic development and the methodical tools used for implementation. The research in focus comprises of scientific knowledge since the reality is interpreted in line with theoretic framework by a determined methodology.

3.1.1 Quantitative

According to Bryman and Bell (2015), the concepts quantitative and qualitative describes the way of how we obtain information regarding our work. They stated that quantitative speaks to numbers and mathematics whilst qualitative refers to words. Nenty (2009) explained that quantitative approaches are focusing on measurements of data points collected throughout the study. He stated it could be as easy as averaging a score from a questionnaire, or as difficult as collecting daily data points on
valuation metrics for a specific company or industry and by that be able to determine patterns. The latter is closer to the approach of this thesis. According to Nenty (2009) this approach facilitates statistical treatment of the research. On the other hand, qualitative methods enable a more thorough investigation of a phenomenon, as the research often circulates around only a few cases (Alasuutari, 1996). The risk of the quantitative approach is the partial perspective of the data that is obtained and used. In cases when there are external factors outside of the decision-maker’s control and their probability is unknown, the quantitative approach can become more unreliable. Important to bear in mind is that the use of one of the above-mentioned approaches does not have to exclude the other one (Glaser & Strauss, 2006[1967]). However, a quantitative approach was found applicable to this study.

For the study, a massive collection of historical data points was collected from the financial databases Bloomberg and FactSet. This enabled pattern analysis, which one could state is of quantitative nature (Upton & Fingleton, 1985). Chapter 4 consists of obtained or calculated data that provides the reader with a clear image of the development of the top performers and the OMXSPI during different time frequencies. What speaks for a quantitative approach is that the problem statement is clear and delimited since the aim was to analyze the top performer’s development. It also analyzes the top performers multiple development in comparison to its competitors in the same sector, and which have been the key drivers trailing the performance during the different time frequencies. With this approach it was possible to stay objective throughout the process of conducting the study.

Statistical data used in the study, such as stock prices and levels of interest rates are of quantitative nature (Sharma & Kaushik, 2018). The authors consider this data to be characterized of a high level of objectivity since the data collected is presented in actual numbers, it is unthinkable for them to be affected by subjectivity in the study. The advantage of the quantitative approach is that it can easily be implemented in computers or extracted through computers (Bryman, 2012). Since the data used in the study is on a general level and not deep enough to be affected by the act of one person, it is not considered a disadvantage that the data was collected in an impersonal and comprehensive manner. The study has not embraced any specific individual acting, but as the intention was to give an in-depth report, the study combined the societal level of statistics with theories supporting it.

### 3.1.2 Deductive

The deductive method, from theoretic framework to an empiric approach, only discusses the already established theories (Bryman & Bell, 2015). It starts with general themes, before ending with the more deep and specific themes. Trochim (2006) explained that a deductive researcher works from
the “top down” perspective, from a theory to a question or hypothesis, to add new data and perspectives to test the theory, and if the data supports the hypothesis. You move from a general level to a more specific one. This is done in this study since it analyzes how the factors, that in the established theories are suggested to affect stocks, are affecting the identified top performers. By that you start from a firm interpretive framework for the deductive approach. This approach works fine in mathematics but not always well when describing the natural world since it often is the findings of the phenomena that is the goal and not the starting point, as it is with a deductive approach (Nisbet, Miner & Yale, 2018). An inductive method on the other hand is based on the collected data in order to develop or question already established theories (Bryman & Bell, 2015.) Compared to the deductive approach, the inductive approach was found to be less appealing for this study. Forces that affect stock prices is a widely studied subject with several already established theories, that have been of use in this study which is why the deductive approach was a better fit.

To summarize the different traits of writing a scientific report, the authors concluded the study would be of scientific character with a quantitative and deductive trait, seeing the study is based on a mathematical approach and a discussion of already established theories.

### 3.2 Collection of Data

According to Ajayi (2017) there are two different types of data that underpin a research, primary data and secondary data, of which the secondary type is used in this study. The financial data used in the study was collected from FactSet and Bloomberg. When the data was extracted from the financial databases, codes could be built and analyses was conducted based on the collected data. The screening process where the top performers were identified was based on both mathematical screening and historical data. The model that generated the stock driver graphs was based on codes that retrieved reported data for each stock in the. As the platforms scans each interim, annual and investor report, it can be assured that the information is of the primary variety. Furthermore, to improve the accuracy of the report, the data collected was chosen to be on a monthly basis. Therefore, the parameters were modified to be extracted in a forward format, meaning they are describing the estimated next 12 months, every month.

#### 3.2.1 OMXSPI

The index OMXSPI includes the entire spectra of companies trading on the Swedish stock exchange, which makes it a satisfying fit for the study when it is possible to include all different sectors. The choice to delimit the study to the spectra of companies trading on the OMXSPI eliminated an adequate number of differences in terms of geographical and cultural behavior, compared to if stocks
listed on other stock exchanges would have been included. The OMXSPI was chosen and the total return including dividends of the identified stocks was calculated, which already is included in the OMXSGI. Given the fact that the study embraces the triggers for the stock price and the main drivers behind it, the OMXSPI was necessary instead of the OMXSGI to be able to generate stock driver graphs. If the gross index would have been used in our model, the investors’ willingness to pay, the multiple expansion, would have appeared greater than what it actually has been. Consequently, by using the OMXSPI and calculating the total return, the OMXSGI is still in play, but manipulated into a way so the study can take more parameters into account when conducting the research, presenting the results and concluding the analysis.

3.2.2 Top performers

Clearly, “top performers” has a subjective meaning to its content. The idea of top performing stocks may differ from person to person. This study embraces the last 15 years and it defines the top performing stocks as the ones performing better than the index, both weighted and non-weighted. After the calculations was made, 21 stocks met the criteria of becoming a top performer, from the point of view embraced in this study. So, once again, to clear the air of any misunderstanding, the study does not attempt to interpret which stocks may be the top performers in the years to come, rather it identifies them in a historical perspective. Furthermore, the study analyzes which the main motivations has been or rather the triggers behind the exceptional performance of these top performers. Following is a description of how these specific companies and their stock were identified.

The top performers were identified through a mathematical screening. The screening was conducted and mainly based on a company’s total return including dividends, during the last 15 years. By generating the ticker for every company within the OMXSPI, the data collection is facilitated. Through the platform, the aggregate of the OMXSPI already exists. So, by creating a report, where the FDS tickers (FactSet specific identifiers) are generated, the codes can be used for any given ticker, simply by dragging the formulas in the chosen direction.

One of the major codes for the screening enabling the identification of the top performers was the one that generated the total return. The code gives us the percentage return including dividends, during the last 15 years. In this calculation further implementation of the market cap is needed to find the weight of the specific stock in the OMXSPI, and by that the weighted performance during the years 2004 – 2018.
In the study, when a stock performs better than the OMXSPI, it is assumed the stock is one of the companies contributing to a positive development of the entire index. However, once the market cap is considered, it is easy to see that even though a company represents a strong performance in terms of return, its contribution to the growth of the index is still small. By weighting a company’s performance and its market cap relative to the OMXSPI, and classifying this as a top performer, a stock needs to perform better than the OMXSPI, both weighted and non-weighted. When the companies that meet these requirements had been identified, the multiples for each one was calculated.

When the top performers had been identified, the codes were modified into generating the different multiples required to determine the relative value of the different companies. These codes were manipulated into the way of either putting the price or the enterprise value from a specific company at a specific time above the chosen underlying variable such as earnings. When these codes later were put into a chosen time period, it was able to extract them on company as well as on a sector level.

Next step was to categorize the companies into sectors under which they operate in. Instead of generating a code for this, the method instead consisted of adding the parameter into the quick report based on the aggregate of the OMXSPI. The use of “Average if” formulas enabled the values to be offset into a new sheet of choosing and calculating the average based on the sector outcome from the quick report, earlier presenting us with the FDS tickers. The average multiple was shown in a new table giving an overview of the sector valuation on different multiples. As the multiples per company already had been extracted, the comparison to the sector was now enabled.

As the stock driver graphs are built in the manner of taking the next 12 months estimates for all parameters into account, the study is able to outline what is multiple expansion as the estimated growth in sales, EPS and net income may already be priced by the investor. To determine the real multiple expansion, this is the preferable way. However, as the figures are based on estimates the values may be exposed to minor subjectivity and psychological biases. Another aspect to criticize is the value creation or rather the price increase of the specified company. One can take it as far and say that all companies within the index are connected and follows the average trend. It will be this reports responsibility to identify these general drivers simultaneously with the drivers of the top performers.

The results from the screening in combination with the stock driver graphs, later to be presented, provided interesting outcomes. It was able to see if a stock was expensive and still had performed
and become even more expensive, due to performance, or if the main driver had been that the company was undervalued, and the performance were mainly affected by the increasing willingness to pay, i.e., multiple expansion.

Later, the large amount of data needed processing and compressing to enable more easily understood data and results. To make it easier for the reader, the key data points were compressed into tables of the different time frequencies, i.e., periods of 3, 5, 10 and 15 years. The 10 tables in the following chapter demonstrates each top performer’s total return during the period, the multiples (P/E and EV/EBITDA) at the start of the period and at the end. Additionally the relative discount/premium was included in the interest of presenting to the reader if the company was traded close to the sector level, and for the study to investigate one key research question, namely, how the stock have developed relative to its peers. Given the fact that some of the companies’ earnings were negative at some points, the multiples became negative during that period. For the purpose of determining the relative discount or premium, a simple absolute formula was implemented so the denominator of the formula would become positive and the percentage difference would show the real value.

Regarding the empiricism, a decision was made to reduce the number of graphs and instead aggregate the companies into one graph displaying the top performer’s relative performance. Moreover, the best performing of the identified stocks is presented in a stock driver graph to present what has mainly driven the total return during that period specific period of time.

### 3.2.3 Outliers and extreme values

After the screening, the majority of the companies within the OMXSPI were excluded from the research to some extent, since they were not analyzed in further detail. The total screening consisted of 364 companies. It is important for the reader to understand that all of these companies are included when looking at the relative performance of the OMXSI against the top performers. However, when conducting the screening some of the companies were excluded from the opportunity of becoming a top performer. 2004 is the first year considered in the study and there are 159 companies that today are trading on the OMXSPI that did their Initial Public Offering (henceforth IPO) later than this year. Therefore, they were excluded from the process of identifying the top performers. Given the fact that they were needed when carrying out the relative valuation i.e., when calculating the multiples, these companies still contributed to the purpose of the study. However, they are not a major part of the final research where the top performers are illustrated and analyzed as the aggregated top performing stocks of the OMXSPI.
Particular sectors and the companies within these sectors are more difficult to put against one another in a relative valuation, and by that determining whether the stock is seen as cheap or expensive. As a consequence of the way the companies within these sectors are operating and how they generate revenue, the P/E and EV/EVITDA ratios need further adjustments for them to be applicable relative to another sector. This is why the decision of removing three GICS sectors was made, namely, real estate companies, banks and holding companies. 39 real estate companies, 20 holding companies and 9 banks were excluded, meaning a total number of 68 companies were excluded from the opportunity of becoming a top performer by removing these three GICS sectors.

The results of the screening, including the process of delimiting the extreme values and its outliers debouched in 21 top performing companies. Given that multiples change rapidly when a company for the first time generates a positive bottom-line, the multiples can reach very high values compared to what is considered normal. In those cases it would be more interesting to apply the growth of the bottom line performance in order to get a fair value, PEG (Damodaran, 2012). When extracting the data, a few companies came in with multiple values at unreasonable values. These values would later have affected the sector multiples if they would have been included. The extreme values could have reduced the quality of the study since the findings potentially could have appeared as misleading if not excluding these. In order to avoid this, companies that did not meet the criteria of the study were identified as extreme values and to further delimit the study these were excluded at an early stage.

Given the fact that banks, real estate companies and holding companies’ holds major weight within the OMXSPI, the top performers this study has identified are not completely accurate. Outside of those sectors the research is able to outline the top performers and the underlying drivers. The sectors that were excluded would still be able to show the multiple expansion or contraction in terms of the gap between price and earnings but as these sectors tend to be valued with multiple adjustments, the time limit of the study had to be taken into account and therefore these sectors were excluded.

3.3 Choice of time period

When establishing the time frame of our study the authors wanted to make sure to include different economic states in order for the study to be more general and making sure it was not only something happening in a specific time period. The 15 year time horizon was chosen with the purpose of including a full economic cycle and the years before the global financial crisis in 2008 – 2009 which provided us with a broad perspective to analyze. Rolling time periods of 3, 5, 10 and 15 years were chosen for the authors to scrutinize if the key determinants of the development of the stocks varied in different time periods. By dividing the full period into minor periods, the study was able to
embrace the key triggers and drivers of the stock price within that specific time span. Later on, when the results from the different time periods are compared, the drivers of the stock price are explained through the study’s theories and empiricism, supported with the identified specific happenings that have affected the outcome.

However, there is no way knowing for certain if the 15 year period is enough to be able to generate a result with absolute accuracy. The 15 year period should be enough, comparing to similar studies, to establish patterns and draw conclusion. Yet, given that the financial world has not seen proper stability for quite some time (depending on how stability is defined), there is no way for the authors to determine whether this scale really covers a full economic cycle. Of course this depends on how financial stability is defined. Given that we are constantly developing at an increasing pace, determining stability becomes difficult. We deem the 15 year period fit for this study as the study needs to be finished within a specific time frame.

3.4 Methodology delimitation

With the intention of developing a thesis including thorough analysis of multiple aspects, some certain delimitations were required, in order to clarify the outcome. Initially, a geographic delimitation took place by establishing that the depth of the thesis would be delimited to the stocks of the companies trading on the OMXSPI. Moreover, the study focuses on the years 2004 – 2018 in order to include data from a full economic cycle and the global financial crisis in 2008 – 2009. 5 – 10 years is considered to be a full economic cycle in the study, which is in line with Damodaran (2012). The analysis is performed on the companies found to be the main drivers of the OMXSPI, the top performers. Finally, transaction costs, sign up costs and taxes are not taken into account in this study. Since these aspects would affect the results, based on assumptions of their amount, the authors are not including these costs.

With the intention of fulfilling the object to establish a pricing pattern for each top performer and for its sector, multiples were calculated and analyzed to determine at what price levels the stock is over- or undervalued. For this part the GICS was used as a guideline with the purpose of reducing valuation error by selecting comparable firms within the GICS sectors which is in line with (Rossi & Forte, 2016). The GICS methodology aims to enhance the investment research and asset management process for financial professionals worldwide. It was designed in response to the global financial community’s need for accurate, complete and standard industry definitions (MSCI GICS, 2018). Furthermore, the research is further delimited through the assumption of the average multiple for each of the 24 industry groups to be a benchmark, and a reliable reference to determine whether a stock is considered overvalued, and if it yet was able to perform or if the multiple
expansion is a reaction from the stock being undervalued from the start of the sample period. The GICS structure comprises 11 sectors, 24 industry groups, 69 industries and 158 sub-industries (MSCI GICS, 2018). At first, the relative valuation took the GICS 3 level into consideration as the belief to enhance the results. However, to reduce the number of extreme values, a decision was made to reduce the different sectors and therefore the GICS 2 level was used instead of GICS 3 level. This choice comes with the effect of giving more stability to the average values. However, this may also cause companies to fall into the wrong peer group. As an example to that, the Capital Goods sector includes companies that may differ widely in terms of capital intensity and products which of course affects the outcome.

3.5 Ethical principles

Ethical principles have appeared throughout the process of conducting the study. Ranging from the choice of topic and prevention of fabrication of data, to the relationship between the students that participated in the tutorial seminars. Therefore, it was important to bear in mind ethical aspects, to ensure staying on the right side of the line between right and wrong. Since the thesis is of a quantitative nature, without involvement of human subjects, the data used have been collected by more formal means. Hence, the focus of ethical principles have been to present and treat the data collected in an accurate manner. There are different ethical aspects needed to bear in mind depending on what kind of study that is carried out. For the sake of this study, the focus was to ensure that the treatment and use of data not gives the reader a misleading idea of what is presented in the research which Hermerén (2011) stated is crucial in a quantitative study. Therefore, it was of the utmost importance to define the variables measured, e.g., the multiples and the top performers, in order to answer the research questions.

The quantitative methodology applies different types of approaches depending on the character and purpose of the study (Pérez, Rapiman, Orellana & Castro, 2017). A relevant feature in the study was the implementation and protection of equality and justice when defining the type of sample selection so that all companies that complied with the selection criteria had equal possibilities to be part of the study. Thus, the screening process of finding the top performers involved all companies trading on the OMXSPI from the start, in order to avoid selection bias and be able to generalize the findings more.

3.6 Research quality

In determining the quality of the research, reducing error is of prime concern (Greener, 2008). “Garbage in garbage out” is an expression that illuminates the fact that the results never can be
better than the data used. She explained that if the data in a research includes deficiencies and inaccuracies when conducting financial modelling, the results will always to some extent be deceptive. Bryman and Bell (2015) affirmed it is important to always bear in mind that the quality needs to be preserved and definite in all phases, at all times when conducting a study. Panter and Sterba (2011) stated that in the American Psychological Association ethics code, the most relevant measurement instruments are validity and reliability.

Therefore, the validity and the reliability are important aspects to consider when evaluating the quality of the research. The latter being how it has been measured while the validity takes into consideration what has been measured. According to Rienecker and Jörgensen (2018) it is of utmost importance to practice a critical selection when exploiting secondary sources of data, which solely are the kind of sources used in this study. The data used in the study was primarily collected from FactSet and Bloomberg’s financial databases.

3.6.1 Validity in quantitative research

There are two categories of validity, internal and external (Roberts, Priest & Traynor, 2006; Punch 2014). They explained that external validity touches upon the ability to generalize the findings of the study. This was taken into account from the start when all the companies of the OMXSPI were included, which strengthens the external validity of the study since the whole population of interest was taken into consideration. However, companies that qualified as a top performer but undertook their IPO after 2004, real estate companies, holding companies and banks were all later excluded, which affects the outcome and weakens the external validity. On the other hand, without excluding these the results could have become misleading, resulting in an even lower validity of the study. Nevertheless, there are several earlier studies that have studied what actually affect stock prices and some of these are contradicting one another, which is why the variables that are examined in this study cannot be seen as fully representative for this kind of research. There have not yet been established which the actual determinants are that affect the stock price development, since numerous studies on this matter are contradicting one another. If different variables would have been analyzed the outcome could have turned out differently, even though the chosen variables are seen as relevant for the purpose of this study.

Internal validity handles the reasons for the outcomes of the study, as an example, if the research question is communicated in a correct way in order to reflect what is actually measured in the study, and whether it avoids confounding (Roberts, Priest & Traynor, 2006; Punch 2014). They explained there are different approaches to evaluate the internal validity, where criterion validity and construct validity are the two approaches relevant for this study.
Criterion validity measures how well one measure predicts the outcome of another measure, e.g. how well the low level of the repo rate predicts the outcome of the measurements of the multiples, P/E and EV/EBITDA. Studies investigating similar subjects have been studied in order to get a better understanding of factors suggested to affect stock prices, to learn from the outcomes of these studies and to avoid replicating. Therefore, by analyzing variables used in prior studies, and comparing different methods used to measure factors affecting stock prices the criterion validity in the study is strengthened.

Construct validity addresses the relationships between the concepts analyzed in the study and the theories relevant to the particular concepts. It examines the causality between different variables. For example, even if the Swedish GDP correlates with the OMXSPI, there is a chance there is an underlying variable behind the high coefficient of determination. The fact that there are many factors influencing stock prices makes it problematic to identify and analyze which the actual drivers behind a stock’s development are. Subsequently, lowering the validity of the research compared to if we had known for certain which factors that affect stock prices and to what extent.

Since the study is limited to stocks trading on the Swedish stock exchange, it could be problematic to apply the findings of the study to other markets. This being an important aspect when evaluating the external validity has been noted and it reduces the contribution to the research area. However, the study have been constructed to achieve a high level of internal validity. Since the purpose of the study is to analyze the factors trailing the performance of the top performers it has been important to take internal validity into consideration throughout the process. This is reflected in the fact that both macroeconomic and factor specific variables are considered in the study in order to elucidate which variables that have contributed to the development of the stocks being analyzed. Finally, the fact that the period of time analyzed stretches over what is considered longer than a full economic cycle, along with the fact that the multiples are defined and calculated in the same way for all the companies in the study, strengthens the internal validity of the study.

3.6.2 Reliability in quantitative research

Reliability is a measure of the study’s trustworthiness. It describes to what extent research instruments would provide the same information if used under different circumstances, assuming nothing else changed (Roberts, Priest & Traynor 2006; Bryman & Bell 2015). Consequently, the authors have treated the data in a careful and reliable manner throughout the entire methodology and the procedure of treating the data until the last part of drawing the conclusions. Given the fact that Excel and the generated codes are mathematical calculations, human factors cannot affect the
result. Nevertheless, the case could be that the two platforms used, Bloomberg and FactSet, may have restated their figures due to an earlier mistake made. Given that companies sometimes tend to restate the historical figures, this is something that may affect the reliability of the extracted figures and thereby the screening itself. Yet, the figures are reported and thereby, the authors deem them as correct and applicable to the study. Furthermore, the definition of valuation metrics such as the multiples may have transformed.

However, there are clear guidelines in Bloomberg of how the multiples have been calculated which makes it possible to reach the same results by collecting the essential factors for the calculations. Therefore, the human factor is considered being what imposes the largest risk to the reliability of the study. When databases are used for data collection it is important that the reliability can be assured (Bryman & Bell, 2015). Consequently, it is of importance to undertake a critical and precise mindset when analyzing and using the collected information. Since the financial data has been collected from reliable and frequently used databases, the collected data is considered having a high degree of reliability. Furthermore, the fact that the data used in the study is of secondary nature and is easily accessible, facilitates the possibility to reconstruct the research.

3.6.3 Generalizability

The study is, as mentioned, delimited to the Swedish market and the stocks trading on the OMXSPI. With this delimitation it can at first glance seem like the findings will not be applicable to other markets. However, the stock market is nowadays interconnected and countries depend upon each other which means that different markets are affected by similar variables (O’Neil, 2009). For example the financial crisis in 2008 – 2009 started in the United States but later spread throughout our world (Reinheart & Rogoff, 2008). This gives room for discussion regarding the question if the findings of this study can be applied on other markets, even though the study is focused to the Swedish stock market.

Moreover, by including the whole spectra of companies from the start, it appears like the findings could can generalize the Swedish stock market. However, there are many variables affecting stock prices, meaning that if another study analyzes different variables than those that are analyzed in this study that study may come forward with distinctive results. Nevertheless, the variables that are being studied originates from the theories and the earlier that were presented in chapter 2. There is a significant relationship between these variables and earlier research regarding the impact these variables have on the stock market which increases the study’s generalizability.
3.7 Method criticism

The theories presented have carefully been reviewed and selected in order to provide the authors and the readers with an insight of economic theories and through them an understanding of the work and findings of the study. Despite the fact that the researchers behind the theories carefully have been reviewed by numerous other researchers there is still no certain way to know that these are actually the ideal theories to use. From the history one can tell that even established and well-known economic theories can, and often have been modified, when other researchers come up with new findings on the area they study. O’Neil (2009) clarified that there are new innovative technologies and findings that rapidly are changing the business environment. This meaning that in the future new findings and modifications of already recognized economic theories can occur, therefore, it is problematic to actually state whether the theories used in this study are the ideal ones, and if they are reliable enough. However, the previously presented theories are considered to be useful for this study in order to provide the reader with an understanding of the subject of the thesis.

An extensively discussed subject, ever since it emerged in the studies of Black (1986) and then Delong, Schleifer, Summers and Waldmann (1990), is that financial markets can be affected with, so called, noise. This phenomenon can emerge as deviations from the classic financial theories, for instance the EMH, signifying that movements in stock prices are not always logical and based on fundamental values (Lee, Shleifer & Thaler, 1991). Hence, it can be hard to obtain statistically significant relationships and therefore, the validity of the actual fundamental drivers behind the value of a firm can be debated. Although researchers may use as many approaches as possible to ensure reliability and validity, there remains the possibility that imperfections may occur at the design, data collection or analysis stage, resulting in an inadequate study. However, in order to reduce the risk of deficiencies in this research to a minimum, the procedures have been scrutinized and questioned for validity and reliability during the process of conducting the study.

Nevertheless, since the study is delimited to the OMXSPI which is a small part of the financial world, one can discuss that garbage is the best data alternative used in the study. This comes from the fact that the results obtained can be problematic to apply on other markets with different conditions. Moreover, since new regulations regularly are made up on the financial markets, if one were to conduct the study again at a later time, there is a chance the results would come out differently. The IFRS 16 came into effect on 1st of January 2019, which will have an impact on the valuation multiples of companies and their reporting standards (Deloitte, 2018). This is an example of a factor that could play a role in changing the values of relative valuation, consequently, making it difficult to compare similar future studies to the results obtained in this research. Finally, as earlier stated, there are many variables that have an impact on the stock market and thereby the stock prices.
Consequently, if other or more variables would have been included in the research there is a possibility that the results obtained would have come out differently. However, certain variables were identified as relevant for the study in question and these are in theories and earlier studies, suggested to affect stock prices which strengthens the research quality of the study.
Empirical results

4.1 Economic development

4.1.1 GDP

On a six month rolling basis the Swedish GDP development during 2004 – 2018 can be observed in figure 1. It displays a clear positive pattern apart from smaller pitfalls and during the years of the global financial crisis, 2008 – 2009 where a sharp drop is seen. Given this positive development one can say that the economic well-being in Sweden has improved since many indicators of the quality of life are positively correlated with GDP (Brooks, 2014). She explained that the drivers behind GDP growth are personal consumption, business investment, government spending and the net trade. The below three graphs are, in simpler terms, the development of the financial well-being of Sweden which the authors deem fit to study as these are drivers behind volume invested.

In figure 2 the development of the GDP per capita can be spotted. This is basically the same output as in figure 1 but instead the number of Swedish inhabitants are taken into account. Once again, this is a measure of the average Swedish person’s standard of living which often is used to perform cross country analysis (Brooks, 2014). However, the authors are mainly interested in the development as a possible driver behind investment growth. Hence, the negative factor is eliminated for this indicator by not taking income distribution into account.
To be able to identify the main factors behind the positive GDP development the authors looked further into the underlying determinants. As earlier stated, GDP is a sum of the personal consumption, government investments, government spending and net trade in any country. In figure 3 one is able to see the personal consumption as major part of the GDP sum. It is also the underlying GDP determinant that has shown the greatest positive performance during 2004 – 2018. Government spending has fluctuated but still appear to be on the same level by 2018 as it was in 2004. In the net trade it is seen a minor decrease. Moreover, it is possible to identify the government investments as the fastest growing indicator after the financial crisis in 2008.
4.1.2 Repo rate, risk premium and inflation

The level of the repo rate increased steadily from 1.50% in December 2005 to 4.75% in September 2008, when the financial crisis shocked the world and central banks worldwide drastically lowered the interest rates. As did the Swedish central bank, which is seen in figure 4 as sharp consistent decline from the top levels of 4.67% in September 2008, down to 0.25% in July 2009. In December 2011 the repo rate level had reached 2.00% before the central bank started reducing it again. This time the repo rate reached a level below zero, -0.10%, by February 2015. The Swedish central bank had reduced the repo rate to a level of -0.50% by February 2016. It remained stable at -0.50% for some time before the Swedish central bank decided to raise it in December 2018, towards -0.25%, meaning there is yet a low interest rate environment in Sweden (Carletti & Ferrero, 2007).

![Figure 4, FactSet (2019).](image)

The data points that constitute the risk premium levels have been collected from PwC's (2018) yearly survey which was described in chapter 2. The risk premium levels in Sweden have experienced a positive pattern (increasing levels) during the last 15 years which is illustrated in figure 5. In contrast to the GDP and repo rate levels the risk premium level increased during the financial crisis. An increase from 4.3% 2007, to 5.4% 2009 before it declined for two consecutive years. For the past few years the risk premium has experienced a less volatile development and has established itself around 6.5%. To sum it up, in a historical perspective, the risk premium has been increasing and have reached new all-time high levels in recent years where the peak was in 2015, reaching 6.8%.
The 10 year yield curve can help gauge investor sentiment (Damodaran, 2012). He explained that expectations about future inflation is an important determinant of longer term rates. If investors expect a declining inflation, the longer term rates will be lower and the other way around. From figure 6 it is possible to determine a clear declining pattern of the 10 year yield curve over the last 15 years, even though it has stabilized more on low levels in recent years. Also from the graph there can be seen that the financial crisis had a large impact in the form of a clear drop in the yield curve in late 2008 while another sharp drop is seen in 2011.

The Swedish central bank has a set target of the inflation level at 2% (Sveriges Riksbank, 2019). From figure 7 one can determine an increasing inflation rate up until the financial crisis, when it drops from above 4% in 2008, down to almost -2% by the start of 2009. From that point the inflation
rate worked its way up beyond 3% in 2011 before it started decreasing and reached a below zero level by 2012. In 2017 and 2018 it is possible to read form the graph that the inflation rate was closer than before to stay near the inflation target at 2%. Comparing the 10 year yield curve in figure 6 to the inflation rate in figure 7 it is possible to see that the most drastic drop in both curve occurred in late 2008 and in 2011.

4.2 Development of the OMXSPI

The development of the OMXSPI including dividends during 2004 – 2018 is exhibited in figure 8. There is seen that this index have experienced a great value increase during this time period. This occurred in spite of the fact that from the peak in 2007 to the bottom level in 2009 there was a substantial decline which took years to recover from.
However, since the global financial crisis in 2008–2009 the OMXSPI have had a positive development deprived of long periods of negative development, apart from 2011 when the OMXSPI declined in the wake of the European debt crisis and the United States losing their AAA credit rating (Euromonitor International, 2011). By the end of 2018 the value of the OMXSPI including dividends had more than quadrupled in comparison to the value at the start of 2004. The second half of 2018 meant a sharp decline which is seen in the end of the curve, displayed in figure 8. Before this decline the value of the OMXSPI had almost reached a fivefold increase since 2004.

### 4.3 Development and valuation of the top performers

#### 4.3.1 15 year period

For the full sample period figure 9 displays the development of the top performers including dividends, in comparison to the OMXSPI when being rebased at the start of the sample period, i.e., 2004. From the start up until 2006 both curves moved closely together before a discrepancy can be seen, and after the financial crisis in 2008–2009, a positive divergence between the development of the top performers and the OMXSPI is revealed. However, both curves move in a similar direction throughout the sample period, the difference being greater movements in the curve of the top performers. When studying figure 9 it appears that the aggregated top performers have outperformed the OMXSPI throughout the 15 year period.

![Top performers vs OMXSPI](image)

**Figure 9, Authors (2019).**

For the first time in the study, the readers are now about to be introduced to the top performers. The empiric results consists of tables and a description of what can be found in them along with graphs
displaying the performance of the aggregated top performers and the OMXSPI, as was seen above in figure 9. All the tables are constructed in the same manner. All of the identified top performers are illustrated to the far left in the tables, and next to them are the sectors they operate in. Then the tables display the total return including dividends (TR) for each of the top performers in the specific time period. Next part is when it gets interesting, the P/E at the start of the time period (2004 in table 1) of each top performer and the P/E of the sector which they operate in is displayed next to the column that is labelled: discount/premium. The numbers found in that column are calculated by dividing the top performer’s P/E to the sector’s P/E and then subtracting 1. For example to reach the premium level of 41% (in the case of the P/E of Vitrolife in 2004) the calculation is the following: \((19.7/14) - 1 = 41\%\).

The same procedure then follows again when the P/E ratios from 2018 are used in the calculation in order to calculate the discount/premium by the end of the analyzed time period. When the eyes are turned to the EV/EBITDA, it is not more complicated than what has been explained regarding the calculation of the P/E discount/premium. The same step are followed where the top performers EV/EBITDA ratio is put against the sector ratio with the purpose of calculating the discount/premium first at the start of the analyzed time period and then by the end. At the bottom of the tables the aggregated results of the top performers and their sectors are found. This is where the most interesting results are found since the study analyzes the top performers on an aggregated level. However, the same principle follow when calculating the discount/premium on an aggregated level. The interesting here is to analyze how the discount/premium of the top performers have developed throughout the analyzed time period. Table 1 displays decreasing P/E ratios between 2004 – 2018 for both the top performers and the sectors (implying they became more inexpensive), but the top performers experienced a larger decline which is why the discount decreased from 69% to 56%. During the same period the EV/EBITDA ratio of the aggregated top performers increased (implying they became more expensive) while the EV/EBITDA ratio of the aggregated sectors decreased (implying they became more inexpensive). The outcome of this resulted in that the premium of the top performers increased from 13%, in 2004 to 25% by 2018.
With these explanations the reader should now be able to identify the performance of the top performers and the OMXSPI, each top performers multiple development along with its sector’s multiple development and how the perceived value of the aggregated top performers have fluctuated in comparison to the aggregated sectors.

Now turning to table 1 again, in order to inspect the results in even more detail, it can be derived that an astonishing average total return including dividends of 2052% was achieved by aggregated the top performers during 2004 – 2018. The aggregated P/E of the top performers decreased from 45.0 to 23.8 during 2004 – 2018, while the aggregated sector P/E decreased from 26.6 to 15.2. From table 1 it is possible to determine that the top performers were trading at a premium of 69% in 2004, by comparison to the aggregated sector P/E. These results implies that the top performers would have been seen as expensive from the start and that they relatively speaking had become more inexpensive by 2018 when the premium had declined to 56%. Isolating the drop in the P/E ratio of the aggregated top performers, one would have assumed the decline in the premium would have been greater than 13 %. However, the aggregated sector ratio also experienced a great decline which explains the small decline in the premium of the top performers. On the other hand, when turning to the EV/EBITDA, the aggregated top performers were trading at 13.9 in 2004, which had risen to 14.6 by 2018. During the same time the aggregated sector EV/EBITDA decreased from 12.3 to 11.7, meaning the top performers went from trading at a premium of 13% towards trading at a premium of 25%. These results imply the contrary, that the aggregated top performers have become, compared to the aggregated sectors, more expensive.

### 4.3.2 10 year period

When the data is being rebased 2009 in figure 10, it describes the development from the end of the financial crisis up until the end of 2018. There can be seen a solid positive development of both the OMXSPI and the top performers. A positive divergence takes place throughout the period with tendencies to a negative divergence during the last six months of 2018 where the top performers experienced a sharper decline than the OMXSPI.
Table 2 demonstrates the multiple development of the top performers compared to the GICS level 3 sectors. When looking at the aggregated P/E of the top performers, table 2 tells us they were trading at a premium of 53% in 2009 while they were trading at a premium of 56% by the end of 2018. There can be seen that the aggregated sector P/E increased from 11.2 to 15.2 while the aggregated P/E of the top performers increased, from 17.2 to 23.7. Regarding the aggregated EV/EBITDA of the top performers, there can be seen an increase from 7.4 to 14.6 while the aggregated sector multiple increased from 4.1 towards 11.7 during 2009 – 2018. Thereby, decreasing the premium the top performers were trading at from 78% down to 25%.

4.3.3 5 year periods

Now displaying data in periods of 5 years, figure 11 exhibits the development of the top performers and the OMXSPI when rebasing the data 2004. There can be seen that the curves move in a very similar pattern during the first six months before discrepancies appear. Yet, the curves keeps moving in the same direction and the figure illustrates a declining pattern in both curves starting in the
middle of 2007, which continues until the tail end of this time period.

Figure 11, Authors (2019).

Comparing the aggregated P/E of the top performers to the aggregated sectors, the top performers were trading at a premium of 69% in 2004. By the end of 2008 the premium had decreased, reaching 53% which is displayed in table 3. This coming from the decrease in the aggregated sector P/E from 26.6 to 7.3 while the aggregated P/E of the top performers declined form 45.0 towards 11.2. The aggregated EV/EBITDA levels experienced a similar development, both the aggregated EV/EBITDA of the top performers and the sectors decreased. However, the aggregated multiple of the top performers decreased more, from 17.7 towards 11.8 while the aggregated sectors multiple declined from 12.3 to 9.2, resulting in a decline in the premium of the top performers from 44% to 29%.

Table 3, Authors (2019).

Next 5 year period constitutes the development during 2009 – 2013 and is displayed in figure 12. There are very similar movements for both the OMXSPI and the top performers throughout the entire period even though there can be seen a positive divergence starting early in 2009. A positive divergence that is found to accelerate by the end of this 5 year period. What stands out in figure 12 is the decline in 2011, where both curves declined sharply during the first two quarters before the
pattern returned to a positive development. At this time the financial world shook, as earlier mentioned, partly because of the European debt crisis and also the fact that United States lost their AAA credit rating (Euromonitor International, 2011).

![Figure 12, Authors (2019).](image)

The multiple development between 2009 and 2013 is presented in table 4. Comparing the aggregated P/E ratios of 2009, the top performers were trading at a premium of 38%, deriving from their aggregated P/E multiple of 17.2 compared to the aggregated sector multiple of 12.4. By the end of 2013 the premium had decreased to 31%. The aggregated P/E of the top performers increased slightly to 19.8 while the aggregated sector multiple increased towards 15.1. When studying the EV/EBITDA there is seen the top performers traded at a premium of 78% in 2009, an aggregated EV/EBITDA of 7.4 compared to 4.1. 5 years later the premium had decreased to 31%, coming from an increase in the aggregated EV/EBITDA of the top performers towards 11.6 compared to the aggregated sector multiple of 8.8 in 2013.

![Table 4, Authors (2019).](image)

The third and last 5 year period is ranging from 2014 to 2018. As have been seen in the other two figures of 5 year periods, the top performers and the OMXSPI demonstrate similar patterns. In this
time period a positive divergence starts in early 2015 which continues until the middle of 2018. From there on towards the end of the time period there is a clear decline in the otherwise positive development. When inspecting figure 13 one can determine the top performers experienced a slightly larger decline than the OMXSPI during the second half of 2018.

The development of the multiples between 2014 and 2018 are found in table 5. Observing the aggregated P/E of the top performers it can be determined they were trading at 30.0, implying a premium of 45% when being compared to the aggregated sector P/E of 20.7. A premium that had increased towards 68% by 2018, deriving from a decline in the multiple of the top performers towards 25.6 and a decline in the aggregated P/E of the sectors to 15.2. The aggregated EV/EBITDA of the top performers also traded at a premium in 2014, a premium of 60%. However, opposite of the aggregated P/E, the EV/EBITDA premium the top performers traded at decreased, reaching 23% by 2018. The aggregated sectors experienced an increase from 9.1 to 11.9 while the aggregated top performers experienced a marginal surge from 14.5 towards 14.6.

Figure 13. Authors (2019).

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Table 5. Authors (2019).
4.3.4 3 year periods

Now turning to periods of 3 years, starting with 2004 – 2006. Observable in figure 14 is practically identical movements with a positive divergence between the curves of the top performers and the OMXSPI. Towards the end of the period, during the second half of 2006, one can grasp a period of negative divergence before it becomes positive again when the top performers had a more positive development than the OMSPI.

![Figure 14, Authors (2019).](image)

The aggregated P/E of the top performers were trading at a premium of 69% in 2004. A premium that had declined to 30% by 2006. Both the aggregated P/E of the top performers and the sectors decreased where the P/E of the top performers experienced a larger decrease, from 45.0 to 22.8, compared to the aggregated sector P/E which decreased from 26.6 to 17.6. Considering the EV/EBITDA, this aggregated multiple of the top performers traded at a premium of 48% in 2004, which had decreased to a premium of 30% by the end of the 2006. The top performers went from trading at 18.2 to trading at 9.4 while the sectors went from trading at 12.3 to trading at 7.3 A similar development as was seen in the P/E multiple, the aggregated EV/EBITDA of the top performers experienced a greater decline than the aggregated sector multiple.

![Table 6, Authors (2019).](table)

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Figure 15 exhibits the development during 2007 – 2009. This 3 year period displays a more volatile pattern where a declining pattern starts in the second quarter of 2007. A pattern that continues and accelerates to a sharp drop during the second half of 2008 for both the top performers and the OMXSPI. After the drop there can be observed a short stable phase before a recovery is initiated. The decline was smaller for the top performers and the recovery was greater in comparison by the OMXSPI. This resulting in the top performers coming out of this volatile time period with an overall positive development compared to the value at the start of this 3 year period. The OMXSPI instead ends up with a lower value by the end of the period, the index did not manage to recover completely during this period of time, even though a positive development started in early 2009. There can be seen that the value of the OMXSPI was in early 2009 down to half of what its value was in the middle of 2007.

Table 7 presents drastic changes in the valuation multiples of the top performers and the sectors which they operate in between 2007 – 2009. In 2007 the aggregated P/E of the top performers was 31.9, compared to the sectors of 16.4, resulting in a premium of 94%.

![Top performers vs OMXSPI](image_url)
When the eyes are turned to the levels in 2009 it becomes obvious there has occurred a large decline in the aggregated P/E of the top performers. It had decreased to 17.2 while the aggregated P/E of the sectors also declined, towards 11.4. This meant the top performers went from trading at a premium of 94% towards trading at a premium of 50% by the end of 2009. A contrary development is observable when turning to the EV/EBITDA, even though the absolute value of the aggregated multiples decreased for both the sectors and the top performers. The aggregated EV/EBITDA of the top performers was 11.6 in 2007 while it was 10.2 for the aggregated sectors, meaning the top performers traded at a premium of 14%. By the end of 2009 this premium had increased to 45%. The aggregated EV/EBITDA decreased for both the top performers and the sectors where the sectors experienced a large decline down to 5.1, i.e., it was cut in half, while the multiple of the top performers decreased to 7.4.

The years after the financial crisis are illustrated in figure 16. During the first two quarters of 2010 the curves of the OMXSPI and the top performers moved alongside each other, before a positive divergence takes place throughout the rest of the time period although the curves move in an almost identical pattern. Overall there is a positive pattern, however, there is a clear decline in both curves during the second and third quarter of 2011.

In 2010 the aggregated P/E of the top performers was 21.8 while the aggregated sector multiple was 14.7, implying the top performers traded at a premium of 49%. By the end of 2012 the aggregated P/E of the top performers had decreased, reaching 19.0, while the multiple of the sectors had decreased to 12.0. This resulted in an increase in the premium they traded at in 2010, up to 59% by 2012. The EV/EBITDA of the top performers were trading at a premium of 32% in 2010, which had decreased into a premium of 26% by 2012. This is an outcome of the fact that the top performers
experienced a marginal decline in the aggregated EV/EBITDA from 10.7 to 10.5, and the sectors a marginal surge from 8.1 to 8.3.

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</table>

Table 8, Authors (2019).

Observing the development of the OMXSPI and the top performers between 2013 and 2015 in figure 17, one can determine that the curves move in a similar pattern throughout the entire period apart from the last six months of 2015. During these six months the top performers experienced an accelerating increase growth which was greater than the growth acceleration the OMXSPI had. Therefore, there can be seen an increasing discrepancy between the curves. Moreover, the top performers turned to a more stable positive pattern in December 2015 while the OMXSPI, on the contrary, experienced a declining pattern in December 2015.

Figure 17, Authors (2019).

Seen in table 9 are, among others, the numbers 19.8 and 15.1 which was the aggregated P/E of the top performers respectively the sectors in 2013. This is implying that the top performers traded at a premium of 31%. By 2015 the aggregated P/E was 25.5 respectively 20.0, meaning the discount declined to 27%. In 2013 the aggregated EV/EBITDA was 11.6 respectively 8.8, implying the top
performers traded at a premium of 31%. By 2015 the premium had decreased to 25%, coming from an increase in the aggregated P/E of the top performers towards 14.1 and a larger percental increase in the aggregated EV/EBITDA of the sectors, towards 11.3.

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Table 9, Authors (2019).

Figure 18 displays the last of the five 3 year periods, this one ranging from 2016 to 2018. A positive development is seen to have been taking place up until the second half of 2018 where a sharp decline was experienced. There is possible to determine patterns which also was seen in earlier figures, the curves of the OMXSPI and the top performers move in a similar pattern but with an increasing discrepancy. However, when looking at the last quarter of 2018 one can grasp a decreasing discrepancy, coming from a larger decline in the curve of the top performers in comparison to the OMXSPI.

Figure 18, Authors (2019).

Comparing the aggregated P/E of the top performers to the sectors which they operate in, table 10 implies the top performers traded at a premium of 42% in 2016. A premium that had decreased to 31% by the end of 2018. The aggregated P/E of the top performers declined from 29.6 in 2016 to 24.3 by 2018, while the aggregated sector P/E declined from 20.9 towards 18.6. Now turning to the
EV/EBITDA, the top performers also here traded at a premium in 2016. A premium of 18% that had increased towards 23% by 2018. In 2016 the aggregated EV/EBITDA was 15.7 and 13.4 for the top performers respectively the sectors. By the culmination of 2018 these aggregated EV/EBITDA multiples had decreased to 14.6 respectively 11.9.

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</table>

Table 10. Authors (2019).
5

Analysis

5.1 OMXSPI performance

The stock driver graph in figure 19 exhibits which factors that have contributed to the development of the OMXSPI during the last 15 years. To simplify the understanding of the stock driver graphs the authors want to make it clear how these are constructed:

When rebasing all the underlying data, the relative performance can be visualized. As the figures are based on 12 months forward looking numbers, the expected expansion is already in the estimates. As earlier was explained, the area between the EPS and the price is what is defined as a multiple expansion, meaning that investor actually buy the share at a higher price than its current earnings (Corporate Finance Institute, 2019).

![OMXSPI stock driver 15 year range](image)

Figure 19, Authors (2019).

There can be understood that these factors have been varying with the time. Rebased 2004, it can be seen increasing margins which made investors willing to pay more up until the financial crisis in 2008 – 2009, which in turn explains the multiple expansion seen in figure 19. Beginning in the second quarter of 2007, a multiple contraction phase occurred. A phase that contributed to an even greater price decline when the financial crisis hit the world in 2008, when there also is seen a drop in the margins. During the years of the financial crisis, 2008 – 2009, there was also seen a drop in
figure 1 and 2 which displayed the GDP and GDP per capita development. In figure 3, which displayed the underlying GDP variables, there was seen a drop in the level of personal consumption and investments, implying that a reduced welfare and an unwillingness to pay contributed to the multiple contraction and drop in price level (Brooks, 2014). Moreover, from figure 4 (displaying the repo rate development) and figure 7 (displaying the inflation rate) there could be seen increasing repo rate levels and inflation rates while figure 5 displayed an increasing risk premium. Basically all macro factors indicated something was about to go down and as the multiple contraction during the crisis in figure 19 suggests, the average investor started to flee the stock market somewhat before the crash. It can be seen when studying the graph that it peaked in the second quarter of 2007 before a rapid multiple contraction followed, until 2009 when there is again seen an increasing willingness to pay for the top performers, i.e., a multiple expansion

When studying figure 19 it appears that there is a recuperation starting in the beginning of 2009, even though the margins were negative and sales continued to decrease. However, there was more positive macroeconomic outlooks by this time; increasing GDP, higher government investment levels, increasing inflation, which are factors that most likely contributed to the recuperation of the investor confidence that contributed to the multiple expansion after the financial crisis in 2008 – 2009 (Earle, 2018). When studying the figure it can be seen that from 2010 to 2018 there are periods of clear multiple expansions, but also seen is that sales and net margin have contributed to the positive development of the OMXSPI. During these years there have been an increasing GDP and a low and declining repo rate which have contributed to the positive development of the stocks listed on the OMXSPI. This statement is in line with Kliesen and Bullard (2016) since they stated that in a low interest rate environment investors tend to seek out assets that yield a higher expected return, thus many investors choose the stock market when interest rates are low.
The stock driver graph in figure 20 illustrates what has actually driven the development of the OMXSPI during 2009 – 2018.

Given the fact that the data forming the stock driver graph is rebased, it illustrates the relative performance underneath the price which then provides a clear image on the underlying determinants that have contributed to the value increase of the index. Everything above the EPS and underneath the price (the red area) is the multiple expansion. It does not come as a surprise that with 2009 as the starting point, the willingness to invest has increased sharply. However, it is still possible to determine that both the top line and the bottom line performance, i.e., sales and net margin also have driven the stock prices of the companies comprising the OMXSPI. Another interesting aspect to study is the decline in the price level during the second half of 2018. Even though sales declined, there is still seen a net margin stability in the index, so what was actually behind the price decline? This is a clear example of multiple contractions (Corporate Finance Institute, 2019), which is to be studied in more detail when the top performers are analyzed in the different time periods.

Figure 20, Authors (2019).
5.2 Performance and valuation development

5.2.1 Stock driver graph 15 year period

For the complete sample period the performance of the aggregated top performers is illustrated in figure 21 as a stock driver graph. Prior to the financial crisis in 2008 – 2009, the authors can confidently state that the top performers did not essentially demonstrate any remarkable returns. It is not until after 2009 where there is seen a sharp increase commencing on all company specific levels (apart from sales that is lagging). As a result of the drop in the second half of 2018, the main driver behind the performance from the starting point in 2004 up until the end of 2018 has been the net margin (before the drop it was the multiple expansion). The period from 2016 to 2018 can be identified as the best period in terms of growth and performance when studying figure 21. With the period ending in the aforementioned drop in price while the margin growth stayed moderately flat, one can discuss that the future EPS growth should move more in the same pace as sales and in line with them. If this is the case that would then indicate the top performers may have experienced its golden time and will probably not experience any major performance going forward. However Islam, Khan, Choudhury and Adnan (2014) presented results that the stock prices and the EPS does not move together since there are several factors affecting the stock price which means that there may still be discrepancies between the price, sales and EPS in the future. Factors contributing to the development when putting all the collected data together is outlined below and then analyzed in order to understand why the top performing stocks have performed the way they have.

Firstly, the positive GDP development (figure 1) can definitely be linked to the positive development of both the top performers and the entire OMXSPI. The GDP development indicates that Sweden’s
economic activity has increased and since there also has been a positive trend in GDP per capita (seen in figure 2), one could state that the living standard in Sweden has increased (Brooks, 2014). Therefore, this positive development indicates that the average citizen with the better standards has had an increasing willingness to invest. Seen in figure 3 was increasing levels of personal consumption, along with increasing government investment levels which are factors that contributes to the positive market development that has occurred during the analyzed time period, which also is seen in figure 21.

Secondly, figure 4 and 6 displayed an overall decreasing repo rate and 10 year yield which would indicate a higher demand for stocks (Ekonomifakta, 2019). This in turn implies a strong investor confidence, when it comes to the stock market, which contributes to the positive development of the top performers. When the stock market experiences a positive development and when the interest rates are low cause an increasing demand for stocks which in turn can increase the herding behavior, which Nofsinger (2014) explained occurs when enough people believe something is right, the more people will follow. The fact that there has been a positive development of the Swedish stock market and low interest rates which leads to a demand for stocks are factors that the authors suggest have contributed to the positive development of the top performers during 2004 and 2018.

Table 1 displayed the multiple development during the full time period of 15 years. When looking at the aggregated P/E and EV/EBITDA of the top performers, it was seen that both multiples were trading at premium levels, when compared to the aggregated sectors, in 2004. The premium, when looking at the P/E, was 69% by the start and 59% by the end of the period, implying the top performers were expensive and stayed expensive throughout the period. This meaning that if investors were considering investing in a portfolio comprising the top performers, this would seem expensive both in 2004 and 2018 if studying the aggregated P/E. However, relatively speaking the performers became more inexpensive since the premium decreased during this period of time. On the contrary the aggregated EV/EBITDA suggests that the top performers became more expensive in comparison to the sectors which they operate in, since the premium increased from 13% to 25% between 2004 – 2018.

When analyzing the aggregated P/E of the top performers and the sectors it appears they were highly valued in 2004 since the ratio for both groups had almost been halved by the end of 2018. Nevertheless, the bottom line growth of the top performers has had a strong performance during this time which is yet another factor contributing to the decreasing ratio of the P/E. The EV/EBITDA ratio of the top performers on the other hand increased while the aggregated sectors ratio decreased.
5.2.2 Stock driver graph 10 year period

As previously mentioned, it was not until after the financial crisis in 2008 – 2009 that the top performers really started to demonstrate excess performance. Therefore, in figure 22 it is possible to see this time period enhanced which makes it easier to identify the triggers that have caused the development after the financial crisis up until today. The graph illustrates an overall positive pattern with increasing sales, net margin, EPS, price and a clear multiple expansion of the aggregated top performers. During this period figure 1 and 2 displayed a growing GDP and GDP per capita development, figure 3 displayed a positive pattern in consumption and government investments levels, figure 4 illustrated an overall decreasing repo rate, which the authors claim are all factors that have contributed to the positive development of the top performers. This statement is backed up the findings of Oyama (1997) and Abdulrahim (2011) when they suggested that there exist a negative relationship between stock market return and interest rates and inflation rate while there is a positive relationship between stock market returns and monetary policy.

The sharp drop in 2018 is something to really dig further into in order to understand what causes these major drops moving forward. It is known that the world was constantly shaking due to, among other factors, the trade war between China and the United States (BBC News, 2018). There can also be derived from the results obtained in chapter 4 that the repo rate showed a small positive change at this time when the Swedish central bank decided to increase it for the first time since 2016. The authors mean that these events along with more pessimistic macroeconomic outlooks contributed to the decline in the stock market during the second half of 2018. Wiesen (2015) stated that increasing interest rates and expectations of future increases are known to have a negative impact on the stock market which strengthens the statement of the authors. The inverted repo rate curve also
demonstrates this clearly in figure 31 and 32, which are to be illustrated, where there is seen an increasing repo rate together with a declining market while a declining repo rate is seen together with an increasing market. This meaning that the top performers benefit from a low interest rate environment.

In 2009 the aggregated top performers were trading at a premium of 53% when looking at the aggregated P/E compared to the sectors which they operate in. When the aggregated EV/EBITDA multiple of the top performers was analyzed in table 2 they too would appear expensive, trading at a premium of 78% in 2009. Both these multiples in 2009 suggests that the top performers were expensive when being compared to the aggregated sectors. It is interesting when the aggregated EV/EBITDA is analyzed in table 2 since it displayed that this ratio of the aggregated top performers had almost doubled by 2018 and the ratio of the aggregated sectors had more than tripled compared to the ratios in 2009. These results lead to a decrease in the premium of the top performers since the aggregated sector multiples increased more than the multiple of the top performers, implying the top performers came out of this period appearing more inexpensive than they did in 2009. However, the premium of the P/E increased since the ratio of the top performers increased more than the sector ratio, meaning the top performers appeared more expensive in 2018 than in 2009, compared to the aggregated sectors.

The fact that the ratio of both the P/E and the EV/EBITDA of the top performers have increased are results strengthening the stock driver graph in figure 22 where there is seen a strong multiple expansion phase throughout the period. This is seen in the graph when you compare the price to the EPS. Then it is clear that the price have had a superior development compared to the EPS which implies higher valuation multiples (Corporate Finance Institute, 2019).

If a financial crisis had not occurred just before this time period (2009 – 2018), the stock driver graph most likely would have appeared very different since many indexes and companies experienced large declines during the crisis (Raptor Partners, 2009). In their report they explained that by 2009 investors started to regain confidence which had been eliminated during the financial crisis in 2008 – 2009. The fact that many companies experienced difficult times during the crisis which also decreased valuation levels, was displayed in table 7 where the multiple development during 2007 – 2009 displayed large multiples contractions. These factors have contributed to the multiple expansion seen in figure 22. Since when the investors regained their confidence and expected new upcoming earnings after the financial crisis in 2008 – 2009, they were once again willing to pay which is in line with Corporate Finance Institute’s (2019) explanation of multiple expansion.
5.2.3 Stock driver graph 5 year periods

Figure 23 illustrates the years leading up to one of the most difficult times in the history from a financial perspective. A crisis known to have begun in the subprime mortgage market in the United States later to blow out into a global financial crisis in 2008 – 2009 (Raptor Partners, 2009). Many researchers and financial market participants stated this to have been the most serious financial crisis since the great depression in the 1930s and it a game changer according to Leightner (2011), which is why it is of interest to analyze to what extent the crisis affected the top performers of this study.

The authors deem this graph rather interesting as it outlines how nobody saw the crisis coming. During 2004 and 2005 both macroeconomic variables and company specific measures looked moderately flat. Then, during 2006 the aggregated top performers had a good year in terms of performance, with the bottom line performance outshining the topline and on top of that, there is seen a multiple expansion (figure 23). In other words, investors believed the time to come would be good for investments and the stock market. Yet, during this time the repo rate was increasing, since the Swedish central bank tried to handle the increasing inflation rate which was illustrated in figure 7. At the same time the risk premium was showed an upward reaction (figure 5), meaning the investors thought the inflation would continue to increase (Damodaran, 2012). With these signs in hand one could state that the signs of a disaster was there since the monetary policy tools not managed to damper the economic activity in a favorable way. Eventually, the financial markets instead took a hit which is obvious when you inspect the price development of the top performers during 2008 in figure 23.
Most stocks and entire indexes around the world (Reinhart & Rogoff, 2008), and even the top performers showed undesirable performances starting from the second half of 2007, and especially during 2008. Nonetheless, the major drop mainly came from the investor perspective, their decreasing welfare and willingness to pay, rather than from the underlying performance of the top performers on an aggregated level. This was seen in figure 2 and 3 which displayed the GDP per capita and the level of government investments, where a decline was observed in both graphs during the crisis in 2008 – 2009. At the same time it is seen both in figure 21 and figure 23 that sales and bottom line still showed a positive development relative to the base point. This could be an indication of public companies having more trouble than private ones at this time, but that this also was an exceptional time to lay the foundation for an IPO. However, once the crisis in 2008 – 2009 hit the market there is seen an overall negative performance which figure 21 and 23 displayed.

When table 3 was analyzed, it displayed clear multiple contractions between 2004 – 2008, both when analyzing the aggregated P/E and the EV/EBITDA of the top performers. The top performers appeared expensive since they were trading at a premium of 69%, when looking at the aggregated P/E, and a premium of 44% when turning to the aggregated EV/EBITDA. The multiple contraction that occurred during these 5 years resulted in decreasing premiums of the top performers, meaning they became less expensive compared to the aggregated sectors. Yet, the top performers still traded at premiums of 53% respectively 29% by the end of 2008. The fact that the P/E premium did not decline even more when the P/E ratio declined from 45.0 to 11.2 comes from the fact that the P/E ratio of the aggregated sectors also experienced a great decline, from 26.6 down to 7.3. As figure 4 illustrated there was a rapidly increasing repo rate during 2007 and 2008 which is a factor that according to Damodaran (2012) contributes to a lower P/E ratio since it comes with a higher cost of equity, which strengthens the multiple findings in table 3.

Once again turning to figure 23 it appears the largest decline in the multiples should have occurred during the second half of 2008. At this time it is seen declining net margin and EPS even though sales remained moderately stable, but the price level experienced a major fall. These factors are strengthening the multiple contraction findings in table 3, since it appears clear that the price of the aggregated top performers declined way more than their EPS did.

Below, in figure 24, is a major enhancement of the 5 year period, starting 2009 in the middle of the financial crisis. From figure 24 one can derive that investors once again, after the crisis, were willing to pay for the underlying earnings. The price demonstrates a sharper increase than the underlying EPS which indicates that the investor confidence was back on track after the crisis put it on hold. This is strengthened by more positive macroeconomic outlook with an increasing GDP, seen in figure...
1, and increasing government investment levels and personal consumption levels seen in figure 3. Another interesting aspect to consider in figure 24 is that between 2009 and 2010 there is seen that sales almost continuously declined even though the price continuously increased during the same period. This indicates that investors expected up and coming increased earnings which can explain the positive price development. This reaction is in line with Harper’s (2018) statement that you pay for a positive outlook of a future streams of earnings and an expectation of future growth when buying a stock.

The findings exhibited in table 4 (displaying the multiple development between 2009 and 2013), illustrated increasing ratios of both the P/E and the EV/EBITDA of the top performers, which is in line with what the stock driver graph displays. What is interesting is that the premium of the top performers declined, meaning they became more inexpensive compared to the sectors. A realistic reason for this is that the top performers experienced a smaller decline during the financial crisis in 2008 – 2009, in comparison to the aggregated sectors. In figure 15 it was seen that the top performers did not decline as much as the OMXSPI did during 2007 – 2009, which strengthens the statement. However, the top performers too experienced multiple expansions during this 5 year period (2009 – 2013), although the multiple expansion of the aggregated sectors was greater which explains the declining premiums of the top performers.

In figure 25, the last 5 year period of the 15 year time frame is illustrated. In 2014 the price level was in line with sales and the EPS before a multiple expansion occurred, coming from an increasing bottom line growth, the stock driver graph suggests. Figure 25 embraces the period in terms of performance and development and gives a clear image of how the investors willingness to pay took a
hit and shifted during the second half of 2018. The graph outlines how the EPS growth started to stagnate and coming in below what consensus and investors expected, giving quite the negative shift in price down to the point of where it actually is in line with the EPS and no expansion can be seen. Judging by this, the top performers may not be the up and coming future top performers. Given the prior positive revision trend turning into a more negative one, it is expected from our top performers to have a bottom line performance more in line with its top line. The drop in 2018 is an effect of several factors of which are difficult to determine what had the largest impact. One could say it is all a chain reaction starting with more pessimistic macroeconomic outlooks, increasing interest rates and two major leaders in east and west who bargained across the world hoping for the best possible outcome for its own nation. Given that the entire world today is so dependent on trade, either with or without these nations, the financial market really took a hit (BBC News, 2018).

![Top performers stock driver](image_url)

Figure 25, Authors (2019).

Table 5 told us that the premium of the top performers increased during 2014 – 2018 when studying the aggregated P/E, meaning they became more expensive relative to the aggregated sectors. Nevertheless, when turning to the EV/EBITDA, the top performers came out less expensive since the premium decreased. Table 5 exhibited that the aggregated P/E of the top performers decreased during this period, and if the eyes are again turned to figure 25 it appears like most of this contraction occurred during the second half of 2018. During these months there is a clear price drop while the net margin and sales remained stable, even though the net margin seem to have stagnated for some time. By the end of 2018 the Swedish bank also increased the repo rate which figure 4 displayed. This is an event that the authors suggests contributed to the heavy multiple contraction and drop in price. A statement that is backed up by Damodaran (2012) where he stated that the P/E ratio is sensitive to changes in expected growth rates when interest rates are low than when they are
high, and an increase in interest rates results in lower P/E ratios. A low interest rate environment is the case of Sweden at this time, which then caused this event to have a larger impact than it would have had if there would have been higher interest rates.

### 5.2.4 Stock driver graph 3 year periods

Now turning to stock driver graphs in periods of 3 years, figure 26 illustrates at first (during 2004), investors’ unwillingness to pay, i.e., multiple contraction. This occurred even though there is seen a bottom line and top line growth during the first two quarters of 2004. There is a rather flat development from then up until the second quarter of 2005 when there are seen tendencies to an increasing willingness to pay, increasing earnings and increasing net margin, at the same time as sales slightly declined. This implies that the price was mainly driven by the growing EPS and net margin, which made the investors more willing to pay for this. In the middle of 2006 there is a small decline which occurred at the same time as the Swedish central bank started increasing the repo rate, which is known to have a negative impact on the stock market (Wiesen, 2015). Interestingly there can be seen an ambiguous development by the end of this period, in the fourth quarter of 2006, where the price continued to increase while sales, EPS and net margin declined. It appears like the investors were willing to pay more for the expected future earnings even though there were signs of a turnaround of the positive development since the EPS and net margin had started to decline.

![Top performers stock driver](image)

*Figure 26, Authors (2019).*

Table 6 provided us with the multiple development between 2004 and 2006. There was seen declining premiums and strong multiple contractions when analyzing the aggregated P/E and the EV/EBITDA of the top performers. Comparing these findings to figure 26, it appears that the multiple contraction mainly derives from a strong bottom line performance since the increasing
earnings is in the denominator which lowers the multiple (Damodaran, 2012). This is strengthened by the fact that the top performers experienced an overall positive development in this period (seen in figure 26) and despite that, there was seen lower P/E and EV/EBITDA ratios in 2006 which table 6 displayed which strengthens the statement that the multiple contraction mainly derives from strong bottom line performance.

Figure 27 illustrates probably one of the most unpredictable and interesting stock driver graphs. The development during the years 2007 – 2009, a period that involves the global financial crisis. This is also the period where the aggregated top performers experienced their weakest performance out of the analyzed time periods. Six of the top performers ended up with negative numbers in terms of total return including dividends and a few achieved a return just above 0% in this period, which table 7 displayed. Whereas in all the other analyzed time periods there was a maximum of two top performers ending up with a negative total return in a specific time period which suggests that this was a tough period, even for the top performing stocks of the OMXSPI.

The aggregated P/E and EV/EBITDA of the top performers found in table 7 exhibited lower ratios by the end of the period than was found at the start. What catches the eye in this table is the average discount/premium, depending on which multiple that is studied. The P/E ratio of the top performers showed a great decline, but still traded at a premium of 50% by the end of 2009 (94% in 2007). Yet, the EV/EBITDA premium increased by 31% to a premium of 45% (14% in 2007). According to Raptor Partners (2009) the EV/EBITDA valuation levels reached record high levels in the second and third quarter of 2007 during the LBO bubbles, but started to decline in the first quarter of 2008, compared to its prior quarter about 21%. This overall declining pattern is suggested to have had an
impact on the increased premiums of the top performers. Given that the market experienced such a large decline during this period where the average sector EV/EBITDA was cut in half whilst the ratios of the top performers declined only half of the percentage points in comparison by the aggregated sectors, it is not surprising that the increased premium valuation can be spotted.

From figure 27 is can be derived that sales was not enough to keep up the price which is understandable given the EPS decline. Here is a typical example of a multiple contraction (Corporate Finance Institute, 2019) where investors clearly are not willing to pay for the streams of earnings.

The price being driven by a changing variety of factors is illustrated in figure 28, during the period of 2010 – 2012. Here is seen a higher price volatility in the stocks of the top performers, mainly explained by the volatility in the multiple expansion and contraction seen in the figure. Interesting is that even though there is a stable growth in both top and bottom line performance, the price fluctuates at a high pace and not in line with the EPS. This could come from the fact that these are the years after the financial crisis in 2008 – 2009 which changed the market environment and the investor sentiment (Raptor Markets, 2009).

![Top performers stock driver](image)

*Figure 28, Authors (2019).*

Table 8 displayed the multiple development between 2010 and 2012. The table showed us that when analyzing the P/E, the aggregated top performers became more expensive compared to the sectors which they operate in, even though their ratio decreased. The aggregated sector ratio decreased more than the ratio of the aggregated top performers and therefore the top performers became, relatively speaking, more expensive. A contrary development becomes clear when the EV/EBITDA ratio is inspected. The ratio of the aggregated top performers decreased while the ratio of the aggregated sectors increased, making the top performers more inexpensive by 2012 than they appeared in 2010.
Multiple expansion is explaining the performance of the top performers at first in figure 29, even though there are declining margins during 2013. Nevertheless, when sales starts to increase by the end of 2013 there is seen an equal increase in price due to bottom line performance lagging. At the point when margin starts performing in the beginning of 2015 there is a sharp increase in the price level. The multiple development in table 9 goes hand in hand with the stock driver graph below, meaning that there is seen a clear multiple expansion in figure 29 which also was seen in table 9. The P/E for both the top performers and the sectors increased, meaning they both became more expensive. However the ratio of sectors increased more, making them relatively speaking more expensive compared to the top performers. Therefore, the premium of the top performers declined from 31% in 2013 to 27% by 2015. The same pattern is seen when studying the EV/EBITDA ratio. Both the top performers and the sectors ratios increased, but the aggregated sectors experienced a greater increase. Consequently, the top performers became relatively speaking more inexpensive and the premium had declined form 31% in 2013 to 26% by the end of 2015.

![Figure 29, Authors (2019).](image-url)
The time period during 2016 – 2018 is displayed in figure 30 which clearly demonstrates an example when the price has been driven by increasing sales, but primarily by increasing margins which investors have been willing to pay for. However, during the second half of 2018 there is seen a sharp decline in the price level, down towards the same level where the EPS is found. This occurred even though sales and margins did not show any signs of declining levels. This is a clear example of multiple contraction, investors were no longer willing to pay what they previously paid for the same levels of earnings (Corporate Finance Institute, 2019).

Between 2016 and 2018 table 10 displayed decreasing ratios of the aggregated top performers and the aggregated sectors. The P/E ratio of the aggregated top performers experienced a decline which by the end of 2018 had resulted in a premium that had declined from 42% to 31%. A decline which would have been even greater if not the P/E ratio of the aggregated sectors also would have decreased. The EV/EBITDA ratios also declined, however, the premium of the top performers increased from 18% to 23%, making the top performers relatively speaking more expensive by the end of 2018 than they were at the start of 2016. This result comes from the fact that the ratio of the sectors experienced a greater decline than the top performers did. As have been mentioned, there are many factors that is affecting stock prices, and De Bondt (2008) explained that even nonfundamental factors may have an impact in the short run. This appears to have been the case during the second half of 2018. Since even though there were, once again, more pessimistic macroeconomic outlooks, a raise in the repo rate and the ongoing trade war, neither EPS, sales nor net margin showed signs of turning to a declining pattern, rather a more flat one.

Figure 30, Authors (2019).
5.3 Economic factors

As was illustrated in figure 1 in the previous chapter, the repo rate increased fast during 2006 - 2007 before it sharply dropped during the financial crisis in 2008 – 2009. The drastic drop in the repo rate was an attempt from the Swedish central bank to stimulate the economic activity (Riksbanken, 2016). This is in line with Wiesen (2015) since he explained that interest rates are raised by central banks to keep the economy from overheating and they are lowered in turn to stimulate business activity.

There are still interest rates below zero as of 2019, meaning that there is still a low interest rate environment (Carletti & Ferrero, 2007), 10 years after the financial crisis. This environment has made it easier for people to borrow money which in turn have increased the indebtedness of the Swedish households (Riksbanken, 2019). The low interest rate environment also has the effect that interest bearing securities become less appealing to people and gives them more incentive to consume or invest in for instance the stock market, which Kliesen and Bullard (2016) acknowledged in their study. This can be backed up by the fact that the overall OMXSPI has experienced an overall positive development between 2004 and 2018, and the 10 year yield has declined steadily during the same period, along with the aforementioned low repo rate. In other words people have turned to the stock market when looking for investment opportunities (Kliesen & Bullard, 2016). Nevertheless, since the overall Swedish market has experienced a positive development, that among others, figure 19 displayed, is a factor that the authors mean have made it easier for the top performers to achieve their durable performance between 2004 and 2018. If there instead would have been an overall declining market pattern the study most likely would have identified different top performers and these ones would not have achieved the same performance as the top performers of this study has.

![OMXSPI stock driver 10 year range](image-url)

*Figure 31, Authors (2019).*
As have been stated, the Swedish repo rate is suggested to have had a great impact on the development of the OMXSPI which the graphs in figure 31 and 32 clearly outlines. In these figures, the data of the Swedish repo rate has been inverted and put against the rebased stock driver graph in order to outline the relative performance and the impact from the fluctuations in the repo rate. From figure 31 it is possible to determine a clear correlation between the multiple expansion and the Swedish repo rate, rather than between the multiple expansion and the top and bottom-line performance between 2009 and 2018. This is an effect of, as was earlier mentioned, that investors flee to the stock market rather than rate driven securities in a low interest rate environment (Kliesen & Bullard, 2016). Judging by this, it appears from figure 31 that the stock market right after the financial crisis in 2008 – 2009, up until 2011, was lagging the fluctuations in the repo rate but after that the market have responded to the majority of the movements in the repo rate.

However, once the repo rate became more flat in terms of fluctuations, there is in figure 31 still seen a certain volatility in the relative price performance of the OMXSPI. Once the repo rate becomes flat, this is not an argument for investors to stand behind anymore as there are no fluctuations to make quick profit from (Kliesen & Bullard, 2016). Before was mentioned that the trade war was suggested to have contributed to the drop during the second half of 2018 when many stock indexes declined (BBC News, 2018), including the OMXSPI. What not yet has been mentioned is that based on the macroeconomic variables analyzed in the study, the positive GDP development which is mainly driven by government investments and personal consumption (seen in figure 3) and the remaining low repo rate would indicate that this event may be a “one off”. Meaning that even though it seemed as there would be a positive development, the market showed otherwise and now when looking back at the events, this can be identified as an opportunity to invest since there were no actual signs of declining company measures (EPS, top line and bottom-line performance was flat). Hence, since the data that constitute the stock driver graphs are based on 12 months forward looking numbers this strengthens the fact that a multiple contraction occurred during the second half of 2018. People were no longer willing to pay the same for the amount of future upcoming earnings (Corporate Finance Institute, 2019).
To further enhance the correlation or rather the lagging part, the same graph over a 15 year period is found in figure 32. Here it is possible to outline the years both before and after the financial crisis in 2008 – 2009. Even though the crisis started in United States, it spread across countries and had an impact internationally (Raptor Partners, 2009). Although the repo rate increased in 2006 and 2007, the OMXSPI still experienced a positive development as a fact of people continuously investing during 2006 – 2007, which was seen in figure 3 that displayed increasing levels of personal consumption and government investments. This contradicts Kliesen and Bullard’s (2016) study which explained that people would move toward more safe investments when the interest rates increase. It seems this was not the case in 2006 and 2007, instead there were increasing consumption and investment levels which is suggested to have contributed to the overheating of the economy.

![OMXSPI stock driver 15 year range](image)

*Figure 32, Authors (2019).*

The years leading up to the financial crisis was a time when the average person was very much indebted (especially in the United States) due to cheaper and riskier loans than usual (Reinhart & Rogoff, 2008). In the study of Raptor and Partners (2009) they explained that as the interest rates grew, companies and private persons was not able to repay the interests, resulting in significantly lower levels of incoming cash. This is a factor that contributed to the massive decline on most levels that can be seen in 2008 and 2009, since people could no longer afford to consume nor invest as they could before. The net results took hits of the higher interest rates, and the multiple contraction can be seen as an effect of investors selling their holdings to a lower and lower price, most likely to pay back debt (Raptor Partners, 2009). In their report they stated that the crisis came not only with lower expected earnings levels, it also included a banking and credit crisis which strengthens the
statement that people no longer could invest on the same level as had been possible before. Turning back to figure 3 again, it appears that during this time the indicator that was sharply declining was the government investments. Therefore, from the findings of this study, this variable can be stated to be one of the most important indicators to study when it comes to the decision of investing or not investing in the stock market. Furthermore, figure 3 also displayed that government investments have experienced somewhat of an exponential growth after the crisis in 2008 – 2009, which is an important factor this study links to the positive development of the OMXSPI and the top performers during 2004 and 2018.

5.4 Summary of findings

To facilitate the process of stepping into the conclusions, we see the need to summarize the findings and thoughts into a more structured section based on the following factors: Valuation development and Top and bottom-line performance.

5.4.1 Valuation development

This would be the most difficult section to analyze as the valuation of all companies on the OMXSPI changes every day. That being said, the top performers are of course the companies that have met the criteria of the study and those that have achieved the greatest total return including dividends during 2004 – 2018. From the start the authors set out to identify the companies that have driven the OMXSPI, and as could be seen in all the figures of chapter 4, where the top performers were put against the OMXSPI, there was not a single time period where the OMXSPI outperformed the top performers. Interesting to see is that the movement in the curve of the top performers and the curve of OMXSPI correlates at a very high certainty in all analyzed time periods, indicating that the top performers really have driven the OMXSPI in terms of performance.

What now has become clear after studying all the findings, is that the aggregated top performers has been trading at premium levels in all analyzed time periods compared to the aggregated sectors which they operate in, which was displayed in the different tables in chapter 4. This contradicts Graham and Dodd (2009) and Greenblatt (2010), since they described relative valuation as a value investment strategy which they based on the fact that companies that are undervalued by comparison to their peers, often constitute good investment cases. The findings of the study opposes this clearly since the top performers have appeared, relatively speaking, more expensive than their peers in all of the analyzed time periods.
What is interesting is that when studying the P/E of the aggregated top performers, the tables in chapter 4 illustrated that after 2009, there are not many time frequencies where the aggregated top performers start to trade at a premium which then declines. In the majority of the time periods after the financial crisis in 2008 – 2009, the premium of the top performers increases, which is remarkable as they continued to perform even though the multiples where at the high levels compared to the aggregated sectors. Therefore, the authors claim that this indicate that the multiples analyzed in the study is not enough to determine whether a stock is a buy or a sell, instead the quality of the company and macroeconomic factors are more important factors to consider when evaluating stocks.

The time before the crisis in 2008 – 2009, the multiple development appears different. The tables in chapter 4 displayed that both the P/E and the EV/EBITDA premium levels of the aggregated top performers is hitting lower levels during these years, but still the market prices them as premiums. The stock driver graph in figure 21 displays that there is no real multiple expansion prior the financial crisis in 2008 – 2009. The same pattern is seen in the stock driver graph’s in figure 23 and 26, i.e., there is not much of a multiple expansion phase prior to the crisis. That being said, the stock driver graph in figure 22 illustrated a clear multiple expansion between 2009 and 2018, a factor that have been identified as one of the main drivers behind the durable performance over time. To sum it up, it has become clear that the multiple expansion phase commenced after the financial crisis in 2008 – 2009 shook the world and the top performers.

In terms of multiple development, the tables provided us with results that was in line with the development in the stock driver graphs. Meaning that in the stock driver graphs when there was seen a multiple expansion, the table displaying the multiple development in the same period illustrated increasing ratios. An overall declining premium level pattern is identified after having analyzed the different time periods. This could be a case of investors starting to become more and more unwilling to pay the same amount as they earlier have done for these top performers.

5.4.2 Top and bottom-line performance

As can be derived from the graphs in figure 21 and 22 (displaying the 15 and 10 year stock driver graphs of the top performers), the main driver during these time periods has been the multiple expansion, but that does not mean that the performance of the company has not mattered. As can be seen in these two stock driver graphs, the performance has also shown a positive performance at the same time as the price has increased. This would indicate that the prices increased as the investors expected more future streams of earnings coming in. This is strengthened by Thorbecke’s (1997) statement that the stock prices equal the expected present value of future cash flows. It appears that
the investors that expected a future growth in earnings were right, the performance continued to be positive. On the other hand, in the end of 2018 there is seen that both the OMXSPI and the top performers experienced a stagnating growth at the same time as the prices dropped sharply. This could indicate that the time of our top performers is over and that the time has come for others to take their place by performing better on a weighted basis over time.

**5.5 Future development**

By now it should be clear that the identified top performers may not be considered as the major performing stocks when going forward. This as a fact of their growth struggling by the end of 2018, when sales and net margin stagnated, and the overall declining premium pattern. From the findings of the study the important things to keep an eye out for is suggested to be the Swedish repo rate and the government investments. These variables have in this study been identified as major drivers behind the positive development of the top performers and the OMXSPI. Put these variables together and it is possible that you can use them as a weapon as well as a shield for future investments in stocks.
Conclusion

From the findings in chapter 4 there could be established very similar patterns between the top performers and the OMXSPI. The difference mainly being that the top performers in every sequence experienced a superior development than the OMXSPI, but also greater declines during short sequences. Moreover, the tables displayed remarkable returns of the top performers in all of the analyzed time periods. The fact that the movements appear a lot alike in all 10 analyzed time periods, along with excess returns and the top performers outperforming the OMXSPI is evidence suggesting that the stocks that have driven the OMXSPI during 2004 – 2018 successfully have been identified.

Further findings can be used to answer the second research question. In general, over the 15 year period, the multiple expansion is identified as the clear main driver behind the exceptional performance, both when it comes to the OMXSPI and the top performers. However, after the drop during the second half of 2018, the overall impact from the multiplex expansion shrank to a similar level as net margin. Meaning that relative to the starting point, multiple expansion and net margin has been important drivers behind the durable performance of the top performers between 2004 and 2018. Yet, the general performance of each company has also played its part, meaning that the multiple expansion mainly comes from what investors believe the company to be worth based on the underlying performance. As for the shorter time periods, the underlying performance becomes more of a driver, especially the years before the financial crisis in 2008 – 2009. During these years before the crisis there was not seen much of a multiple expansion, instead the net margin appears to have driven the performance of the top performers. During the crisis in 2008 – 2009 the multiple contractions drove the prices down, but top line performance was its savior at this time. This is visualized in the stock driver graphs as the expansion is the difference of the bottom-line performance and the price.

By deepening the analysis to understand what drives multiple expansion, given the substantial contribution from the multiple expansion to the development of the top performers and the OMXSPI during the studied years, it can be concluded that there are a couple of indicators this study identifies as important drivers, mainly macroeconomic factors. The GDP growth and the GDP per capita, indicators of specific countries well-being, are important factors since they contribute to an increasing personal consumption and willingness to invest. However, two even more important
drivers behind the performance is found to be the personal consumption and the government investment that can be outlined as the two main drivers behind the GDP and thereby the personal well-being. Combine increasing levels of these variables with a decreasing repo rate, and through the former analysis of these factors, it is clear that they have contributed to the performance of the OMXSPI and the top performers.

Ultimately, the third research question is answered with help of table 1 which embraces the entire period of 15 years. In 2004 it was seen that the average P/E of the top performers was at 45. Comparing this ratio relative to the aggregated sector average implied that the top performers traded at a premium of 69% in 2004. Interesting is that even though the ratio decreased to 23.8, the top performers still traded at a premium of 56% by the end of 2018. If the eyes instead are turned to the EV/EBITDA to get a broader perspective, there is seen a slight increase in both the ratio and the premium of the aggregated top performers. The results from analyzing the P/E implies that the aggregated top performers would be considered as overvalued in 2004, but as now is known these are the top performing stocks of the OMXSPI that has achieved remarkable return over the last 15 years. Consequently, the accuracy of the P/E multiple when making investment decision based on this multiple can be questioned.

6.1 Future recommendations

To fellow researchers considering extending this research. The authors believe this thesis covers much ground on macroeconomic factors as well as microeconomic factors. From the start there were plans to further analyze every single top performer, but due to lack of time and resources the choice was made to explore them on an aggregated level when conducting this study. Therefore, the authors believe that if the research was to be extended, it could be interesting to analyze the specific companies in more detail. What also would be interesting is to create the screening at different time periods which would establish new top performers, and then dig deeper into which specific happenings that have been the underlying drivers for each and every one of the identified companies. By doing so, the researchers may be able to determine patterns at shorter time periods and by that deepen and extend this research.

Given that macroeconomic studies can be put into more general perspectives and thereby theories used at a global level, the authors believe this study can be conducted on distinctive financial markets and not only the Swedish. Once again, due to the time period the thesis have been limited to it was not possible to extend the research further into other financial markets. Even though some data points during the financial crisis are basically as a fact from the financial crisis starting in the United
States, the study would also be interesting to conduct on a United States level as a whole since it is a market that has a great impact on other stock markets around the globe.


