LUNDS UNIVERSITET

School of Economics and Management
Master Thesis, spring 2012

Do analysts have specific stock-picking skills?

- A study of stock recommendations performance within industries in Sweden

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Master Thesis within Corporate and Financial Management

Title: Do analysts have specific stock-picking skills?
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Date: Lund, June 2012
Key Words: Stock recommendations, abnormal return, industries, analysts, OMXS.

Abstract

Background: During the period 2000-2010, the majority of the Swedish populations' savings were in equity funds. The consequence of households increased savings in stocks has resulted in a growing market for stock recommendations. However, whether analysts' stock recommendations are reliable or not has been discussed for eight decades, ever since Alfred Cowles pioneering study "Can stock market forecasters forecast?" was published in 1933. The performance of analysts' recommendations has been analyzed by numerous of researchers and many findings have confirmed that investors can obtained excess returns based on published information on a short term basis, but not in the long run. On the other hand, the existing research on stock recommendations performance give no further information for the investors whether there are differences between recommendations within different industries, thus if specific stock recommendations are more reliable than others.

Purpose: The purpose with this thesis is to analyze whether buy recommendations for stocks listed on Stockholm Stock Exchange, issued by banks, are more reliable within certain industries. In order to examine if the recommendations are more reliable, it will be investigated in which industries buy recommendations have the highest excess return.

Method: The excess return is defined as the return above the theoretical return provided by CAPM and the Fama and French Three Factor Model. In addition, the excess return from the recommended stocks over OMXAFGX index is calculated to capture the relative performance of each stock. A hypothesis testing is constructed, which aims to derive statistically conclusions and give a valid answer to the stated hypothesis.

Conclusion: The results in this research are inconclusive. This means that it cannot be proved that abnormal returns can be earned by following recommendations issued by banks on Swedish Large Cap firms. Therefore, it could not be proved that analysts' recommendations are more reliable within certain industries. Even though the results are not statistically significant, there are tendencies and indications that recommendations for firms within the health care industry could generate abnormal 90-day returns and that recommendations within the financials industry are less reliable than others.

Outline

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- In this chapter we explain the procedure of data collection and selection and how this data is processed. The next coming part describes the use of the theoretical and statistical models, which have been utilized to process the quantitative data.

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- This chapter present the results from the hypothesis testing. The result for each industry is presented separately where the outcomes from the tests are demonstrated in tables. The chapter ends with the results from of all industries as one homogenous group.

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- This chapter ties together the theoretical background with the expected and the actual results from the hypothesis testing. An analyzing discussion will be provided in order to explain the sample results and how these are similar to or different from previous research.

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1. Introduction

The intention with this chapter is to give the reader an insight in the thesis's subject. The problem discussion will discuss earlier studies concerning stock recommendations and bring forward the relevance of this thesis and how it differs from previous research. The purpose and research question will be educed from the problem discussion and the research approach will clarify how the thesis purpose will be accomplished.

1.1 Background

"Analysts' expensive Nokia miss", was the headline in *Dagens Industri* on April 12 after the Nokia stock plummeted following Nokia's profit warning the same day. Just days before the profit warning, four Swedish banks raised its recommendations on Nokia to buy, an advice that proved to be expensive (Sundkvist, 2012).

Headlines like this are not unusual to see in the daily news and whether analysts' recommendations are reliable or not has been discussed for eight decades, ever since Alfred Cowles pioneering study "Can stock market forecasters forecast?" was published in 1933 (Womack, 1996).

In Sweden, over 98 percent of the population invests in funds, which are higher than in any other country worldwide, and 54 percent of these investments are savings in direct funds with no links to pensions or endowment insurance. During the period 2000-2010 the majority of these savings were in equity funds with exceptions from 2008 as a result of the financial crisis, where equity funds accounted for less than 50 percent of total fund assets. (Swedish Investment Fond Association, 2012)

Households increased savings in stocks has resulted in a growing market for stock recommendations. *Privata Affärer,* a reputed Financial Journal in Sweden, is listing over a 100 different companies that are issuing recommendations on stocks listed on OMXS and other Swedish markets. However, the academic view depicts an informational efficient market in which stock prices immediately will adjust to reflect new information (Fama, 1970). Thus, stocks will neither be undervalued nor overvalued since each common stock at any instant of time is fairly priced. From this perspective, it would be impossible to attain abnormal return from any type of public information, which makes it questionable if analysts' recommendations have any investment value.

1.2 Problem Discussion

The increased information flow in type of stock recommendations highlights the importance to analyze whether such information potentially may harm the investors rather than make them wealthier.

The performance of analysts' recommendations has been analyzed by numerous of researchers and many findings have confirmed that investors can obtain excess returns based on published information on a short term basis, that is, the day the recommendation was announced or few days post recommendation (e.g Liu et al., 1990; Stickel, 1995; Barber et al., 2001). However, it has been demonstrated both in international studies (e.g. Mathur and Waheed, 1995) and in a Swedish study (Lidén, 2004) that it is impossible to outperform the market and attain excess return in the long run by using investment advice from stock recommendations available in the investment columns of financial papers, magazines and general newspapers.

A common denominator for these earlier studies is that they examine all buy recommendations as one homogeneous group, even if they consist different stocks within dissimilar industries. They lack the fact that different industries act and react differently through the economic cycle and that more mature industries are more stable than high growth industries. So even if earlier research have verified that excess return could obtained in short term, no categorization of the recommendations have been made in order to reveal in which industry, thus for which stocks, the highest excess return could be obtained. Further, the absence of abnormal return in a long-term perspective might be explained by the fact that recommendations for specific industries have high negative return whereas other industries gain high excess return, consequently level off.

Hence, the existing research on stock recommendations performance give no further information for the investors whether there are differences between stock recommendations within different industries, thus if specific stock recommendations are more reliable than others.

1.3 Purpose and Research Question

As mentioned above, there have been many debates and numerous of researches on the reliability of analysts' recommendations. However, no studies have been presented on whether there are industries that are easier to predict than others and consequently, if there are recommendations that are more reliable. The fact that many analysts on average do not seem to be able to outperform passive benchmarks in long term, does not necessary imply that analysts do not have enhanced stock-picking skills in particular industries and that all stocks are equally hard to predict. Thus, the question is whether there are industries where recommendations are more reliable than other industries?

The purpose with this thesis is to analyze whether buy recommendations for stocks listed on Stockholm Stock Exchange, issued by banks, are more reliable within certain industries. In order to examine if the recommendations are more reliable, it will be investigated in which industries buy recommendations have the highest excess return. Our anticipation is to reveal differences between industries regarding the reliability of buy recommendations and to our knowledge, no comparable study has been done.

1.3 Research approach

In order to answer the purpose a hypothesis testing is constructed. We aim to provide statistical correlations detected from a positivist perspective based on quantitative empirical data in form of stock recommendations and returns. With quantitative data, conclusions can be derived statistically and give a valid answer to the stated hypothesis. The research aims to test excess return from stock recommendations within different industries. The excess return (or abnormal return) in this thesis is defined as the return above the theoretical return provided by CAPM as well as Fama and French Three Factor Model. In order to get a further perspective, a comparison with the returns of the general index OMXAFGX is obtained. The industries are categorized after Nasdaq OMX Nordic classification: Basic Materials, Consumer Goods and Services, Health Care, Industrials, Financials, Telecommunication and Technology.

The target group of this paper is defined as individual private investors, that is, non-professional investors. Since the increased information flow in form of stock recommendations makes it difficult to decide which information that is accurate and inaccurate, the results from this study may provide non-professional investors with a greater knowledge of which buy recommendations to follow.

1.4 Limitation

There are typically two major groups of writers behind the stock recommendations; economy journalists and financial analysts hired by banks or stockbrokers, also called "experts" (Lidén, 2004). The choice of using only recommendations issued by banks is based on the fact that analysts hired by a bank are specialized on stock analysis. They work closer to the stock market and have access to first hand information, whereas economy journalists often base their recommendation on information from the analysts. Because of the time constraint, recommendations issued by stockbrokers are excluded.

The research is focusing on *buy* recommendation. To make a profit out of *sell* recommendations investors need to short-sell the recommended stock. Since the target group is mainly non-professional investors, we consider short selling to be too complex. Further, short-selling stocks sometimes involve restrictions and it might not always be possible to take a short position in the recommended stock considering liquidity problems involved in such transactions (Lidén, 2004). In addition, a research by Womack (1996) showed that buy recommendations occur seven times more often than sell recommendations, suggesting that analysts are indisposed to issue sell recommendations.

Our research is focused on the Swedish market and stocks listed as Large Cap on OMXS, that is, companies on the Stockholm Stock Exchange with a market capitalization over one billion Euros. Large Cap stocks are the most analyzed stocks, which we believe the target group has the greatest knowledge and interest for.

2. Theoretical background

The reader will in this chapter be provided with a deeper understanding of financial theory related to stock recommendations. The reader will also be introduced to the theoretical asset pricing models used to calculate stock returns, which will be of great relevance later in the thesis.

2.1 Market efficiency hypothesis and Random walk

If new information introduced to investors changes the market equilibrium price of a stock and the distribution of the probability of return, this new information is called "information content". However, in an efficient market, securities have no information content and investors cannot obtain excess return based on new information. The efficient market model states that in an efficient financial market, security prices at any time fully reflect all the available information (Fama 1970). The hypothesis uses three different classifications of efficient markets. In the *weak form* of market effectiveness, the securities in a financial market reflect only the historical information. This suggests that future prices cannot be predicted by solely relying on historical prices. Thus, an investor cannot obtain excess return based on historical pricing, but may obtain abnormal returns by relying on public or private information. Therefore, technical analysis will not produce any excess returns, whereas fundamental analysis may be useful. A *semi-strong market* is characterized by an instantaneous response to any release of public information. In a semi-strong market, no excess returns can be earned by using an investment strategy based on publicly available information, whereas abnormally high returns can be obtain by using private information. Financial markets in which both public and private information are incorporated in the pricing of the securities are viewed as a market with a *strong-form* of efficiency. In strongly efficient markets, securities are neither under- nor overpriced and under such circumstances, there are no possibilities to earn excess returns. (Fama 1970)

The weak form of financial markets is closely related to the *Random walk hypothesis* (Fama 1965). This theory suggests that prices of securities take a stochastic and unpredictable path, which implies that, the past movements or trend of a security price cannot be used to predict future prices. The theory asserts that both technical and fundamental analysis lacks purpose and that it is impossible to outperform the market by analyzing and selecting the right securities.

2.2 Behavioral finance

The theory of market efficiency has been questioned by behavioral finance. In the traditional efficient market theory, departures from efficiency are small, temporary and infrequent. Behavioral theory suggests that there are behavioral phenomena that cause large and long lasting departures from efficiency. Empirically, patterns that have been

hard to explain from the Efficient Market Hypothesis point of view have come to be called *anomalies* (Shefrin 2007).

A common behavioral phenomenon on the stock market is momentum. The theory of momentum on the stock market anticipates that in the short-term, rising stock prices tend to rise further and declining stocks keep falling. Shefrin (2007) presented a momentum portfolio strategy in which buying the most successful stocks and shorting the most declining stocks of the past six months could generate excess returns in the short run. In the literature of behavioral finance the existence of momentum is explained by several reasons. First, overconfident investors tend to overreact to new positive information about a stock, given that the stock price has increased as a response to good news in the past. The overconfident investors overestimate the value of the new information and the stock price increases to a level that exceeds the intrinsic value. Second, investors tend to under react to new information that causes lag in the increase of the stock price, which will appear to take the form of momentum. The existence of momentum is at odds with the weak form of market efficiency, because in the presence of momentum, the future stock price could be forecasted from historical observations. (Shefrin 2007)

Research within the area of behavioral finance have found evidence of herding behavior among analysts in the United Kingdom, defined as excessive agreement among analysts' predictions. Analysts have shown reluctance in publishing forecasts that deviates from the general opinion. Strong evidence of excessive optimism and overreaction bias among analysts has also been found in previous research. The explanation behind this behavior is twofold. First, analysts are typically employed by banks and brokerage houses, which benefit from the increased trading activity that comes with more positive forecasts. Second, many analysts are hired and affected by the very same corporation they are currently evaluating and thus have a tendency of delivering a favorable forecast for these corporations. (De Bondt & Forbes 1999)

2.3 Capital Asset Pricing Model

The capital asset pricing model (CAPM) is a model of risk and return that was proposed by William Sharpe in 1964 (Ogden, 2003). The model can be used to calculate the expected return for a security or asset. The CAPM separates between non-systematic (or firm specific) and systematic risk. In theory, the firm specific risk can be eliminated completely by diversification and therefore there is no risk premium for carrying firm specific risk. The systematic risk, typically measured by β, affects the entire market and cannot be eliminated through diversification. Systematic risk is the only risk that investors are compensated for. In the CAPM-model, the expected return is denoted:

$$r_{it} = r_{ft} + \beta_{it}(r_{mt} - r_{ft})$$

$$\beta_{it} = \frac{COV(r_i, r_m)}{Var(r_m)}$$

The application of the model is particularly important within modern portfolio theory. Given the risk preferences of an investor, the portfolio that optimizes the investor's utility can be identified. However, this requires the construction of a virtually infinite number of portfolios by combining different securities on the market. Among all the portfolios, the choice of portfolio can be narrowed down to the efficient frontier, which outlines all the efficient portfolios. An efficient portfolio is a portfolio that offers the highest return given a specific level of risk, defined as volatility (Ogden 2003).

The CAPM-model is generally used to calculate the theoretical return for an asset, taking into account the systematic risk. Consequently, the model can be used to calculate the abnormal return of a security, which is simply the actual return of the security subtracted by the return predicted by the CAPM-model. This measure of abnormal return is also referred to as *Jensen's Alpha* (Brooks 2008).

2.4 Fama and French Three Factor Model

The validity and reliability of the CAPM-model have been questioned since its first appearance in 1964. Researchers have found early support for the model in the sense that expected returns of a security is positively related to its beta. One of the main critiques of the CAPM-model was presented by Roll (1977), where he argued that it is not possible to observe the market portfolio and thus the validity of the model cannot be proved.

In contrast to the CAPM-model where only one variable is used to derive expected returns for an asset or a portfolio, the Fama and French Three Factor Model uses three variables (Fama & French 1992). In their paper from 1992, Fama and French concluded that beta did not explain the cross-section of average stock returns. Starting from CAPM, Fama and French included two additional variables based on relative firm size and book-to-market ratios, with the intention of creating an alternative model with higher explanatory power. According to the Fama and French Three Factor Model, the expected return is denoted:

$$r_{it} = r_{ft} + b_{it}(r_{mt} - r_{ft}) + s_{it}SMB_t + h_{it}HML_t$$

Where b_{it}, s_{it} and h_{it} represent the sensitivity of the returns of security to each factor. The intuition is that the investors demand a premium over the risk free rate not only based on relative return to the market portfolio, but also to the extent that the security behaves like a small-firm stock and like a high book-to-market stock. Critics have claimed that the three-factor model lacks a theoretical foundation and question whether

the factors in the model actually explain risk (Ogden 2003). Fama and French argue that if asset pricing is rational, size and book-to-market values are indeed risk proxies. For the HML-factor, Fama and French separate value stocks (high book-to-market ratio) from growth stocks (low book-to-market ratios). Value stocks are considered safer since they appear to be cheap in relation to their fundamental value represented by book value. Growth stocks on the other hand are considered riskier since a substantial part of the market value is premised on future growth (Estrada 2011). As a result, the coefficient of the HML factor is expected to be negative for value stocks and positive for growth stocks. For the SMB factor, Fama and French associate smaller firms with higher risk (Fama & French 1992), which is reasonable since smaller firms typically have lower degree of diversification and higher sensitivity to cyclicality in the general economy. Therefore, a positive sign on the SMB-coefficient for smaller firms and negative sign for larger firms is expected.

3. Industry characteristics and earlier studies

In this chapter, the industry characteristics of the different industries in the sample will be described. Further, the reader will be provided with a brief overview of earlier studies and get a more detailed description of the most relevant research for our own research. From this background information, expectations of the result will be drawn.

3.1 Industry characteristics

3.1.1 Basic Material

The basic material industry refers to the mining and refining of metals, chemical producers and forestry products and accounts for companies involved with the discovery, development and processing of raw materials. This industry is considered to be more comprise than any other sector and since there are no typical stocks within this industry it is more difficult to define what to expect in a typical stock. The sector is regarded as sensitive to fluctuations in commodities prices such as oil, nickel and other metals. (Swedbank, 2012)

3.1.2 Consumer goods and services

Companies in this category are related to items purchased by individuals rather than manufacturers and industries and include companies involved with food production, packaged goods, clothing, beverages, automobiles and electronics. The performance in the consumer goods and services industry are heavily dependent on consumer behavior. When the economy grows the industry faces an increased demand for luxury products such as automobiles, and vice versa, when the economy shrinks there will be a decreased demand for value products. Therefore, consumer discretionary industries like the consumer product industry have a tendency to be very sensitive to economic cycles.

The consumer product industry is currently facing a number of key challenges, according to Patrick Ducass, the global leader of BCG:s Consumer practice (BCG, 2012). Foremost, there is an increased volatility in the consumer industry in general due to high variability in commodity prices and the rising pace of innovation and significant changes in consumers' shopping behavior and aspirations.

3.1.3 Health Care

The health care industry relates to hospital management firms, health maintenance organizations, biotechnology and a range of medical products. Stocks in this sector are often considered to be defensive due to the essential of its products and services. The health care industry is thus less sensitive to business cycle fluctuations, since people still requires medical aid and medicine even in economic downturns. However, this industry is heavily regulated and requires compliance from a number of different agencies, there among the food and drug administration (FDA). The returns are therefore heavily dependent on the medical developments and scientific advancements. (SEB, 2012)

3.1.4 Telecommunication

The telecommunication industry includes a complex network of services like telephones, mobile phones and Internet services and incorporates in a broad definition all companies that provide devices meant for communication. The industry has undergone major changes, both in terms of growth, product and production structure and faces a rapid product development. Statistical data from 2010 has revealed that the telecommunication industry is going to be a dynamic and booming industry in the near future, where new telecommunications technologies will exchange the traditional telecom services. One of the major objectives in the telecommunication industry is to improve the quality and speed of Internet technologies and the industry is characterized by heavy research work (Statistics Sweden, 2010). This sector is in general considered to have stable, slow growth companies, even if it do consist of some smaller faster growing companies. (EconomyWatch, 2010)

3.1.5 Financials

The financial industry include a wide range of companies and institutions including banks, insurance companies, credit card issuer, investment bankers, securities traders etc. The financial industry is an industry in itself but also an ancillary that supports other industries. Hence, one of the biggest distinction that sets apart the financial industry from other industries is the government's heavy involvement in it in order to support 'too big to fail' companies that are close to collapse (EconomyWatch, 2010). The financial sector has historically been a relatively stable sector with low risk, which however has increased recently. Due to the financial crises of 2008 and 2009, the finance industry has become hard to predict and stock prices tumbled. (Swedbank, 2012)

3.1.6 Technology

Broadly, the technology industry includes firms that are involved in the production or delivery of technology goods and services, whose primary function is to create innovative products and processes. This sector is generally focused on advanced technology, or "high tech", and is considered to be a leading industry for growth-based investment. In conformity with the consumer goods and services industry, the technology industry has a tendency to be sensitive to economic cycles. This industry is characterized by high rate of innovation, rapid growth and high risk. (SEB, 2012)

3.1.7 Industrial

The industrial sector, or secondary industry as it is also called, does not represent a single industry in sense of products produced. Instead, companies that produce and manufacture products for a variety of industries are often considered as industrial companies. Examples of industrial sector divisions are automobile industry and steel production. This sector has a tendency of being highly sensitive to economy cycles. (Economy Watch, 2010)

3.2 Earlier Studies

As earlier mentioned, findings from previous studies have verified that stock recommendations generate abnormal returns (e.g. Stickel, 1995; Womack, 1996; Barber et al., 2001) and that investors have obtained excess returns based on published information (e.g Liu et al., 1990 and Saleh, 2007). However, a common denominator for these studies is that they only demonstrate information effect and abnormal return in a short-term period, that is, a couple of day's prior and after the publication dates. Research evidence shows that the recommendations of most analysts do not have information value on a long-term basis, thus do not produce excess returns (Lee, 1986; Mathur and Waheed, 1995; Lidén, 2004).

Table 1.1 Overview of earlier studies within stock recommendations performance.

Overview of earlier studies				
Writers	**Observation period**	**Observation Country**	**ST Abnormal return**	**LT Abnormal return**
Stickel	1988-1991	USA	Yes	Not observed
Womack	1989-1991	USA	Yes	No
Barber et al	1986-1996	USA	Yes	Not observed
Liu et al.	1982-1985	USA	Yes	Not observed
Lin	2006	Taiwan	Yes	Not observed
Lee	1962-1979	USA	Yes	No
Mathur and Waheed	1981-1989	USA	Yes	No
Lidén	1996 – 2000	Sweden	Yes	No

Mathur and Waheed (1995) examine the price behavior of stocks recommended in the IWS financial column of *Business Week* during 1981-1989. Their results show positive, significant abnormal returns for the day prior the publication day, at the publication day and two days after the publication of the recommendations. However, in a long-term holding period of six-month post publication, a negative excess return is observed. According to their study, this suggest that secondary information in sense of analysts

recommendations in newspapers and magazines are of value only to low transaction cost short-term traders, while investor who buy for long-term investment generally receive below market returns.

Lidén (2004) analyze long-term returns for buy and sell recommendations on the Swedish market printed in media during the time period 1996 – 2000, where he tries to answer the question if these recommendations can earn an abnormal return in the long run. He concludes that buy recommendations are misleading, whereas sell recommendations generally gives a correct guideline for investors. He explains these results by the idea that positive information is more difficult to interpret than negative. Further, if an investor follows both buy and sell recommendation, he will earn a return in line with the market. Consequently, no excess return could be gained by following buy and sell recommendations printed in the media.

Lidén (2004) makes a distinction between recommendations issued by analysts hired by banks and stock brokerage and economy journalists, where he argues that economy journalists often base their recommendation on analysts first hand information. He demonstrates that there is no sizable difference between the recommendations issued by the two groups, since following all recommendations issued by either analysts or journalists yields a return in line with the market. This gives support for Lidén's expectations that analysts offer their information to private clients before publication date, making both analysts and journalists recommendations secondary information.

The research provided by **Lee (1986)** analyzes the information content of stock recommendations available in the column of Heinz H. Biel in Forbes Magazine between 1962-1979. The methodology for measuring the information content and the effects of the financial advice is to calculate the cumulative excess returns of stock recommendations. He concludes in his study that an investor could not constantly create excess returns by blindly following recommendations published in public media. On the other hand, he demonstrates that the stock recommendations gain superior advice in the short run but not in the long run, that is, over three month.

Womack (1996) performed his study based on data from 1981-1991 on buy and sell recommendations, where the focus is an examination of the post recommendation excess returns. The primary data comes from First Call, a real-time database produced by First Call Corporation of Boston. His research showed significant effects on the stock prices for both buy and sell recommendations immediately and in subsequent months after the announcement date. For buy recommendations, excess return occurs predominantly in the first post-recommendation month whereas the excess returns for sell recommendations accrue over about six months. However, the six-month mean return is not significantly different from zero, suggesting that excess return could not be obtained on a long-term basis.

3.3 Expected Results

Based on the industry characteristics and previous research expected results from the hypothesis testing is drawn. Considering that all earlier studies have demonstrated excess returns on a short-term basis, both international and in Sweden, the findings from this study are expected to reveal the same. However, based on the fact that some industries have higher dependency of R&D development and faces higher volatility it is projected that the particular industries will show significant lower or no excess returns.

Telecommunication and technology are the two industries that are characterized by heavy research work, rapid product development and future growth opportunities. Considering the dynamics of these industries, the performance of stocks within telecommunication and technology are likely hard to forecast, consequently, the issued recommendations within these industries are expected to earn lower or no excess return compared to other industries.

The health care industry is in line with telecommunication and technology industries heavily dependent on R&D and the performance of the stocks are reliant on the success of medical developments. Even if this industry is not sensitive to economic cycles, the projections on whether a firm may succeed or not is considered hard to predict. As result, the recommendations for this industry are expected to perform worse than average and earn lower excess returns. The previous financial crisis 2008-2009 and the ongoing European crisis make it hard to predict the outcome of the financial sectors stocks. However, the historical relatively stable sector and low risk make up for positive expectations of this industry's recommendations.

The sample testing all industries as one homogenous group is not expected to reveal significant excess return in the long run taking into consideration that non of the previous research have been able to show significant results for abnormal return on a long-term basis before. However, a higher excess return is anticipated to been revealed for the more mature industries, that is industries which have passed the emerging and growth phase, than the high growth industries. The basic material, consumer goods and services and industrial industries are expected to be more mature relative the telecommunication and technology industries, consequently have more reliable stock recommendations.

4. Data and Methodology

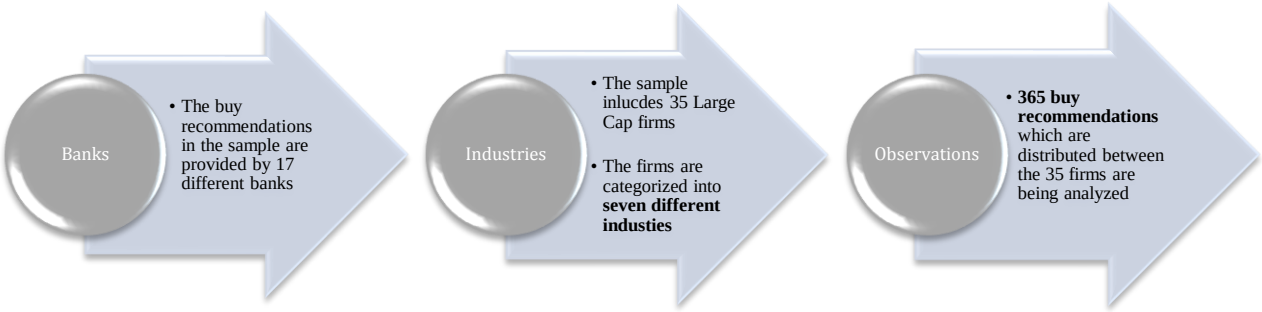
In this chapter we explain the procedure of data collection and selection and how this data is processed. The next coming part describes the use of the theoretical and statistical models, which have been utilized to process the quantitative data.

4.1 Data collection

The stock recommendations are collected from *Privata Affärers* website privataaffarer.se. All recommendations present the following information: 1) the time and date of the announcement, 2) the name and ticker symbol of the relevant company, 3) the brokerage firm and analyst issuing the recommendation and 4) the comment text of the recommendation, which sometimes include a target rate. The recommendations listed on this website are only available three years back in time, thus the sample encompass the period 1st of April 2009 to 31st of December 2011. Since the abnormal returns are calculated on a 90 days post recommendation basis, which will be explained later, the sample is limited to the last of December 2011 in order to obtain three-month post recommendation stock prices.

Figure 1.1 illustrates how the sample of buy recommendations are selected and categorized. The following part will in detail describe each step and the criteria needed to be included in the sample.

Figure 1.1 Illustration of data selection and categorizations.



4.1.1 Categorization of data

This thesis is only focusing on buy recommendations provided by banks. In order for a bank's recommendation to be included in the sample, the bank needs to fulfill the following criteria:

- Published recommendations on stocks listed on OMXS Large Cap.
- Published at least 10 buy recommendations between the time period April 2009 – December 2011.

All banks that do not fulfill the criteria above are excluded from the sample for not being active enough with analyzing and publishing stocks recommendations listed on OMXS and therefore do not add any value to the sample. In total, recommendations from 17 different banks are included in the sample (see appendix).

As earlier mentioned, the intention with this thesis is to test whether buy recommendations within different industries gain higher abnormal return and as a result could be viewed as more reliable. The stocks are therefore categorized after which industry it pertain. The industry categorization used in this paper is the classification defined by Nasdaq OMX Nordic: Basic Materials, Consumer Goods and Services, Health Care, Industrials, Financials, Telecommunication, Technology, Oil & Gas and Utilities. The following criteria needs to be fulfilled for each industry:

- Include at least one Large Cap firm.
- The firms included in the industry need to have at least 30 recommendations collectively during the observed time period.

The Utilities industry do not contain any Large Cap firms and the Oil & Gas industry has in total too few stock recommendations and are therefore excluded from the sample.

All buy recommendations issued by the 17 banks between 01-04-2009 – 31-12-2011 are sorted out for each firm within the different industries. Firms that have not obtained any buy recommendations are automatically excluded. Since the different banks use different names on their recommendations, such as "outperform" and "better than index", buy recommendations are defined as all recommendations that in the eyes of a not professional investor would perceive as a recommendation to buy.

For some stocks, more than one recommendation have issued during the same day or week by several banks. As discussed in chapter 2, a herding behavior among analysts defined as excessive agreement among analysts' predictions has been found. By including all the recommendations issued within the same week might therefore have a bias on the sample. Including only one recommendation issued within a week for each stock has consequently made an adjustment for this bias. The final sample includes 365 observations and the distribution between the different companies and industries is illustrated in the Table 1.2 below.

Table *1.2 Illustration of sample distribution. Numbers within the brackets are the amount of recommendations for that firm.*

Recommendation distrubution							
	Basic Material	**Consumer Goods & Services**	**Health Care**	**Telecommunication**	**Financial**	**Technology**	**Industrial**
	Boliden (11)	Electrolux B (14)	AstraZeneca (10)	Millicom (8)	Nordea (7)	Ericsson (32)	Scania B (9)
	Holmen B (4)	Husqvarna B (7)	Geting (10)	Tele2 (19)	Ratios B (7)	Tieto (10)	Securitas B (4)
	Lundin Mining (6)	Oriflame SDB (10)	Elekta B (19)	TeliaSonera (8)	SEB A (2)		Skanska B (9)
	SSAB B (3)	SCA B (8)	Meda A (12)		SHB A (13)		SKF B (20)
	Stora Enso R (8)	Swedish Match (11)			Swedbank (13)		Trelleborg B (10)
		Axfood (3)			Wallenstam B (3)		Volvo B (8)
		Hakon Invest (1)					
		H&M (17)					
		MTG (29)					
Total:	32	100	51	35	45	42	60

4.1.2 Bias

The fact that sample includes recommendations from banks only may have a bias on the study. Analysts working for a bank are expected to follow specific rules issued by the bank. However, there may exist other incentives for an analyst to issue a buy recommendation that are not based on the valuation of the stock. The bank the analyst is working for may have a close relationship with a specific firm and therefore have a lot to gain from a positive analysis of that particular company. Furthermore, the bank itself or an important private customer of the bank may have a big stake in the recommended firm and would for that reason appreciate a positive recommendation. At last, the bank may benefit from increased brokerage fees from increased trading of stocks.

4.2 Methodology

Table 1.3 below illustrates an example of how the collected data is processed and how the abnormal returns are obtained for each stock recommendation. This subchapter will part by part explain and motivate the different factors used to estimate these abnormal returns.

Table 1.3 Illustration of data collection and calculations of actual return, return by CAPM and FAMA & French 3-factor model.

H&M

Date of Recommendation	Date	Stock Price	Actual Return	OMXAFGX	Return OMXAFGX	AR - Index	CAPM	FAMA	AR - CAPM	AR - FAMA
2011-09-07		190,4		280,28						
	2011-09-12	180	-5,6%	263,93	-6,01%	0,39%	3,74%	2,44%	-5,67%	-5,65%
	2011-12-07	211,1	15,9%	293,52	4,62%	11,32%	3,74%	2,44%	15,03%	15,34%

			Adjusted	**Adjusted**
Beta:	0,32522129		0,05%	0,03%
Market premium:	5%		0,91%	0,60%
Risk-free rate:	2,11%			

Fama-French	**Coeffients**	**Factors**
Beta	0,813180712	5%
SMB	0,01249976	4,8%
HML	-0,56234803	3,7%

4.2.1 Calculation of abnormal return

In this thesis, the abnormal return of a stock is defined as the return in excess of the risk adjusted return. The advantage of this approach is that the return of an investment is measured in relation to the level of risk that is associated with the investment. In the traditional view, the relationship between risk and return is positive, thus an investor

demands higher return for higher levels of risk. In a world of only risk neutral investors, the level of return would be the single interesting variable when evaluating an investment recommendation. However, as earlier mentioned the target group of this thesis is mainly non-professional investors. Assuming that the majority of the these investors are risk averse, it would not be as meaningful to evaluate the value of stock recommendations based solely on the level of return earned by following recommendations. The reason is that risk averse investors would demand higher return for carrying additional risk. In this study, both the CAPM model and the Three Factor Model developed by Fama and French are used as measures for the risk adjusted return of a security. In addition, the excess return from the recommended stocks over OMXAFGX index is calculated to capture the relative performance of each stock. Since we calculate the returns from CAPM and Fama and French Three Factor Model using data prior to the recommendations, the index comparison captures the relative performance of each stock during the time period after the recommendation.

The excess return over index is calculated both in short-term of five-day period and in long-term of 90-day period**.** The approach is similar to previous research where short-term returns are measured over a few days and long-term returns are measured over a few months (e.g Lee, 1986; Wathur and Waheed, 1995; Womack, 1996; Lidén, 2004). However, the method of which time period to use is not unanimous among the previous research. We consider 90-days to be a reasonable average investment horizon for non-professional investors and the five-days short-term returns are calculated for comparison.

4.2.2 Actual return

The actual return is calculated five and 90-days post recommendation announcement for all the 365 recommendations. By sorting out the stock price for each stock the day the recommendation was announced as well as five and 90-days subsequently, the actual return of the stock is obtained. In cases where five or 90-days stock price is not obtainable because of closed stock market that day, the earliest obtainable stock price afterward is used. All the stock prices are taken from Datasteam.

4.2.3 CAPM-model

The inputs needed to estimate the risk adjusted return in the CAPM-model are beta, market risk premium and the risk free rate.

The Beta

A unique beta is calculated for each observation in the sample. However, for stocks in which two or more recommendations are made within the same month gets the same beta. The beta is calculated by dividing the covariance between the stock returns and the market portfolio returns with the variance of the market portfolio. As discussed in a previous chapter, one of the challenges with the CAPM-model is to find a market

portfolio that represents all existing securities. In this paper we use OMX Generalindex, AFGX, provided by the Swedish journal Affärdsvärlden, as a proxy for the market portfolio. The index is broad and value weighted, which is why it serves as an appropriate representative of the market portfolio. Further, the measurement period for estimating beta should include at least 60 data points according to Koller et al (2010). There is no common standard for the appropriate measurement period, however using five year of monthly returns originated as a rule of thumb during earlier test of CAPM (Black et al., 1972). In practice, it has been found that the most common measurement period for beta estimations are monthly five-year periods (Groenewol and Fraser, 1999). In this thesis, an estimation period of 60 calendar months immediately prior to the month including the recommendation is used, which goes in line with what previous researches on stock recommendations performance have employed (e.g Womack, 1996). Questions may be raised if the post-recommendation returns can be explained by time-varying beta risk, and that it therefore would be more appropriate to use a measurement period *after* the recommendation. However, a research by Womack (1996) showed that calculations of betas for buy and sell samples had no significant change in beta between pre-recommendation and post-recommendation periods.

Market Premium and Risk free Rate

The next challenge with the CAPM-model is to define the market risk premium, that is the premium earned over the risk free rate of holding the market portfolio. Among finance practitioners there are disagreements over how to measure the market risk premium. Koller et al (2010) suggest a market risk premium within the range of 4,5% to 5,5%. In this paper we will follow these recommendation and use a market risk premium of 5%. Finally, a 10-year Swedish government bond is used as an approximate value of the risk free rate. The reason for this choice is that the intention is to measure the performance of Swedish stocks; hence an estimate for a risk free asset on the Swedish market is needed. The fiscal policy of the Swedish government is oriented towards financial soundness and has an AAA-rating (Standard & Poor's, 2012).

Since the theoretical returns provided by CAPM is calculated on a yearly basis, the returns are adjusted to get the theoretical five and 90-days returns. Using the geometric mean formula makes the adjustments:

$$(1 + r_{CAPM})^{5/365} - 1 \qquad (1 + r_{Fama})^{5/365} - 1$$

$$(1 + r_{CAPM})^{90/365} - 1 \qquad (1 + r_{Fama})^{90/365} - 1$$

4.2.4 Fama and French Three Factor

As previously discussed, the Fama and French Three Factor Model is developed from the framework of CAPM, where two additional factors are added to the model to improve the explanatory power. With this reasoning, the market portfolio in the Fama

and French Three Factor model should represent the global market portfolio as in the CAPM model. The problem is that the global market portfolio is very hard to construct and data of this kind do not exist today. It could be argued that the American market is the closest approximation to a global market portfolio since it is one of the largest economies with the largest and most developed financial markets. In such case it would make sense to use the SMB and HML factors provided by Kenneth French on his website. The advantage of this approach is that Kenneth French's data covers the entire period of 1926-2012 and could therefore serve as better estimates of the SMB and HML factors. The disadvantage of this approach however is that the financial markets differs greatly among countries due to difference in legislations and taxes among other things which suggest that the SMB and HML factors vary largely among countries. In a research by Griffin (2002), it was proved that domestic versions of the Fama and French Three Factor model enjoyed higher explanatory power than a global version. Moerman (2005) found that even within the integrated euro-area, domestic models gave better estimates than a euro-area version of the model. Therefore, the SMB and HML factors used in this thesis will be estimated by using Swedish stock market data with the intent to achieve more accurate estimates of the expected return.

The risk free rate and the market risk premium enter the Fama and French model in an identical way as in the CAPM-model. The estimation of the SMB and the HML factors is made in the same way as suggested by Fama and French (1992). The method is also identical to the one used by Moerman (2005) and Griffin (2002). First, all companies in the Swedish stock exchange are ranked by market capitalization. The median value represents the dividing line between big (B) and small (S) companies. Second, the companies are ranked on book-to-market ratios, where companies above the 30th percentile represent high (H) book-to-market companies and companies below the 70th percentile represent low (L) book-to-market companies. Each stock is now categorized with respect to both size and book-to-market ratios and with classifications, six portfolios can be constructed: Small/High (SH), Small/Medium (SM), Small/Low (SL), Big/High (BH), Big/Medium (BM), Big/Low (BL). The SMB and HML factors are then calculated by subtracting the average monthly returns according to below:

$$SMB = \frac{SH + SM + SL - BH - BM - BL}{3}$$

$$HML = \frac{SH + BH - SL - BL}{2}$$

Each portfolio is rebalanced two times per year so that changes in portfolio composition are taken into account. In a final step, the calculated monthly returns are averaged over a ten-year period to arrive at the final SMB and HML-factors. The result of our factor calculation and a comparison with the American counterpart is provided in the table below:

	Swedish market		American market*	
	SMB	HML	SMB	HML
Geometric mean (2002-2012)	4,8%	3,7%	4,2%	1,9%
Artithmetic mean (2002-2012)	6,5%	5,8%	4,6%	2,3%
Volatility	5,3%	5,8%	2,5%	2,5%

*Provided by Kenneth French on his website.

Measured in geometric means, the SMB-factor for the Swedish market is close to the American version, however, the HML-factor on the Swedish market is almost twice the American counterpart. In their original paper, Fama and French provides no guidelines for which average to use, but the geometric mean is suggested in Estrada (2011) and is therefore used when calculating the expected returns in this thesis.

We determine the coefficients for beta, SMB and HML for each stock with multiple regression analysis to find the relationship between the return of each stock and the returns of the above described factors.

To achieve comparability with the results from the CAPM-model, the estimations of the coefficients are based on monthly data on a five-year basis prior to each recommendation. The results from the regressions show high variability in explanatory power, measured by the R-squared. No specific pattern of explanatory power has been observed in the regressions, even though the R-squared ranges from roughly 20% to 80%. The regular beta coefficient that measures each stock's variability with the market portfolio is significant on at least the 5% level for every regression. The coefficients for SMB and HML vary greatly between stocks in terms of significance, but no specific pattern among industries was observed.

4.2.5 Home bias

Despite well-documented gains from international diversification (e.g. DeSantis and Gerard, 1991), one of the most noticeable features of international portfolio investment is the extent to which equity portfolios are concentrated in the domestic equity market. A study by French and Poterba (1994) illustrate that U.S equity traders are allocating almost 94 percent of their funds in domestic securities despite the fact that U.S market covers less than 48 percent of the global equity market. This phenomenon, where investors appear to invest mainly in their home country, is called "the home biased puzzle" and exists in other countries as well (Coval and Moskowitz, 1991). Initial explanations for this phenomenon focus on barriers to international investment such as governmental restrictions on foreign and domestic capital flows, high transactions costs, foreign taxes or the existence of national boundaries such as exchange rate fluctuations, culture and sovereign risk. Other explanations that have not been studied in as large extent are that investors may simply feel more comfortable about local companies, firms which they know more about, or they may have a psychological desire to invest in the local community.

Because of home bias, we have chosen to not use the estimation of the SMB and HML factors provided by Kenneth French on the U.S market. A more accurate estimation by using the Swedish market data is expected to be gained. However, there is a trade off between using Swedish data and the factors estimated on the U.S market. The advantage by using the factors provided by French is that it covers a longer time period and could therefore give a better estimation.

4.2.6 Hypothesis testing

In order to draw any conclusions from the dataset used in this thesis, the abnormal returns calculated needs to be tested for statistical significance. The test employed in this thesis is a simple t-test, which involves only two parameters, the mean and the variance. In order to test hypotheses with a t-test, a sample from a large normally distributed population needs to be randomly selected (Brooks, 2008). The data used in this research includes stock recommendations on companies listed on the Swedish Large Cap stock exchange issued by banks during 2009-2012. The sample is not randomly selected, and as a result the findings in this research do not apply to analysts´ recommendations in general, but for recommendations on Swedish Large Cap companies made by banks.

Two variables are constructed to model abnormal returns, which is the variable we intend to test for statistical significance. The variables are defined as the actual return subtracted by the return predicted by CAPM and Fama and French Three Factor Model respectively, and the general index OMXAFGX:

$$X_1 = r_{it} - \ r_{ft} + \beta_{it}(r_{mt} - r_{ft}) \qquad (1)$$

$$X_2 = r_{it} - \ r_{ft} + b_{it}(r_{mt} - r_{ft}) + s_{it}SMB_t + h_{it}HML_t \qquad (2)$$

The abnormal returns are grouped into industries, since the intention is to analyze whether analysts' recommendations are more accurate within certain industries. The variables for abnormal returns are constructed for both five-day returns and 90-day returns.

In the hypothesis-testing framework, two hypotheses are used, known as the null hypothesis and the alternative hypothesis. The null hypothesis is the statistical relationship that is actually being tested and the alternative hypothesis is the statistical relationship that is of interest (Brooks, 2008). In this case the statistical relationship of interest is if there are positive abnormal returns to be earned by following analysts´ recommendations, represented by positive values on X_1 and X_2. Therefore, the null hypothesis and the alternative hypothesis are defined as:

H_0: $X = 0$

H_1: $X > 0$

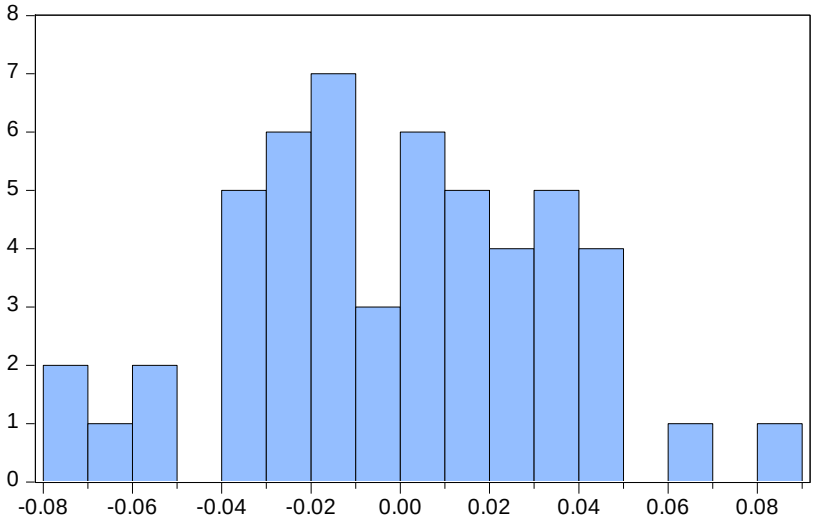
Since we are not interested in negative abnormal returns, represented by negative values of X_1 and X_2, a one-sided t-test is employed. A rejection of the null hypothesis in a one-sided test means that no positive abnormal returns could be proved. For each industry, six t-statistics are calculated (CAPM, Fama and French Three Factor Model and market index for both five- days and 90-days). Each t-statistic is defined as:

$$t = \frac{\bar{x} - \mu_0}{s/\sqrt{n}}$$

Where the variable s is the standard deviation of sample n. The final step compares the t-statistic with the critical value for t, which depends on the sample size and the significance level of choice. The significance level determines where the null hypothesis will be rejected or not rejected and indicates to which extent the results are caused purely by chance. For example, a significance level of 10% implies that there is a 10 % probability that the results of the test are caused purely by chance. A conventional level of significance is 5%, but generally 10% and 1% are commonly used (Brooks, 2008). In this thesis the abnormal returns are tested on both the 10%, 5% and 1% levels.

As previously mentioned, the underlying data in a t-test needs to be randomly selected and normally distributed. One of the most employed methods for testing if the data used in a statistical analysis is normally distributed is the Bera-Jarque test (Brooks, 2008). The test involves the mean, variance, skewness and kurtosis. The skewness of a dataset measures the extent to which the data is symmetric around its mean value and the kurtosis measures how fat the tails of the distribution are. With these inputs, a test statistic is calculated, with the null hypothesis that the data is normally distributed. If the p-value from the Bera-Jarque test is 5% or less, the null hypothesis can be rejected and the conclusion is that the data is not normally distributed (Brooks, 2008). The Bera-Jarque test, performed in Eviews 7.0, is used in this thesis to test the data of abnormal returns for normality in its distribution. In Table 1.4 below, we provide an example of the test performed. The test shows the distribution of the five day abnormal returns over CAPM for the health care industry. In the example the p-value is 88% which means that the null hypothesis has to be accepted and therefore there is no evidence of non-normality in the distribution of these returns. The Bera-Jarque test is performed for all calculated returns, which results in a total of 48 tests. None of the tests shows any significant evidence of non-normality in the dataset used and therefore the t-test can be employed to test the abnormal returns for statistical evidence.

Table 1.4 Bera-Jarque's test of normal distribution.



Series: _5_DAYS_CAPM	
Sample 1 52	
Observations 52	
Mean	-0.001227
Median	0.001063
Maximum	0.086476
Minimum	-0.075102
Std. Dev.	0.035303
Skewness	-0.078055
Kurtosis	2.701091
Jarque-Bera	0.246387
Probability	0.884092

5. Presentation of Result

In this chapter the results from the hypothesis testing is presented. The result for each industry is presented separately where the outcomes from the tests are demonstrated in tables. The chapter ends with the results from of all industries as one homogenous group.

As earlier explained the abnormal return is defined as the return that exceeds the return predicted by CAPM and the Fama and French Three Factor Model respectively. In addition, the OMXAFGX index is used as a benchmark. The abnormal returns are categorized based on industry affiliation and thereafter the mean, standard deviation and t-statistic is calculated for each industry. The decision rule is that the null hypothesis is rejected when the t-statistic is greater than the critical value and in such case there are statistical evidence of abnormal returns. The results from each industry are presented separately below. Henceforth, abnormal return is denoted AR.

Table *2.1 Presentation of the results for the Basic Material industry.*

Basic material	**AR CAPM**		**AR Fama-French**		**AR OMXAFGX**	
	5-days	90-days	5-days	90-days	5-days	90-days
Mean	0,35%	-7,31%	0,36%	-6,93%	0,29%	-3,51%
Volatility	3,67%	19,77%	3,67%	19,65%	2,94%	15,27%
T-statistic	0,096	-0,370	0,099	-0,353	0,097	-0,230
Number of observations	32					
Critical value 1%	2,46					
Critical value 5%	1,70					
Critical valule 10%	1,31					

Recommendations within the basic material industry shows positive average abnormal returns (AAR) on a five-day basis and negative AAR on a 90-day basis for CAPM, the Fama and French Three Factor Model and compared to index. Since the t-statistic do not exceed the critical t-value on any level of statistical significance, the null hypothesis cannot be rejected. Therefore it is not possible to conclude that there are abnormal returns to be earned by following recommendations on Large Cap companies in the basic material industry made by banks.

Table 2.2 Presentation of the results for the Consumer goods and services industry.

Consumer goods & services	**AR CAPM**		**AR Fama-French**		**AR OMXAFGX**	
	5-days	90-days	5-days	90-days	5-days	90-days
Mean	-0,16%	-2,98%	-0,14%	-2,60%	0,94%	-0,80%
Volatility	3,75%	13,48%	3,75%	13,45%	6,19%	11,04%
T-statistic	-0,042	-0,221	-0,036	-0,193	0,152	-0,072
Number of observations	100					
Critical value 1%	2,36					
Critical value 5%	1,66					
Critical valule 10%	1,29					

Seen to the average abnormal returns predicted by CAPM and Fama and French Three Factor Model, the consumer goods and services industry seems hard to predict since there are no positive abnormal returns. Even though the five-day return is negative, the returns from recommended stocks within the goods and services industry still outperform index on the five-day period. As in the basic material industry, none of the results are statistically significant and thus, the null hypothesis of zero abnormal returns has to be accepted.

Table 2.3 Presentation of the results for the Health Care industry.

Health Care	**AR CAPM**		**AR Fama-French**		**AR OMXAFGX**	
	5-days	90-days	5-days	90-days	5-days	90-days
Mean	-0,12%	2,58%	-0,13%	2,50%	0,08%	3,96%
Volatility	3,53%	12,81%	3,53%	12,76%	2,86%	10,30%
T-statistic	-0,035	0,201	-0,036	0,196	0,027	0,384
Number of observations	51					
Critical value 1%	2,40					
Critical value 5%	1,67					
Critical valule 10%	1,30					

The recommendations issued within the health care industry display the highest 90-day returns of all industries in this study. Further, an investor who followed recommendations made by banks on companies within the health care industry enjoyed

a 0,08% return over index on a five-day basis and 3,96% on a 90-day basis. These results however are not statistically significant on 1%, 5% or 10% level.

Table 2.4 Presentation of the results for the Telecommunication industry.

Telecommunication	AR CAPM		AR Fama-French		AR OMXAFGX	
	5-days	90-days	5-days	90-days	5-days	90-days
Mean	-0,38%	-0,23%	-0,36%	0,28%	0,72%	1,99%
Volatility	2,29%	9,16%	2,28%	9,15%	2,62%	12,28%
T-statistic	-0,168	-0,025	-0,156	0,031	0,275	0,162
Number of observations	35					
Critical value 1%	2,44					
Critical value 5%	1,69					
Critical valule 10%	1,31					

Considering the high technological pace and the high R&D intensity in the telecommunication industry, the industry is expected hard to assess even for analytics. Therefore the expected results from recommendations within the Telecommunication industry are in the lower end. In the above presented results, the returns from recommendations in the telecommunication industry are mostly negative, although the recommendations outperform index for the period after the recommendations. This indicates that the recommendations do not earn a fair return seen to the associated risk, but they outperform the overall market. As for the other industries, the results are not significant at any level, so any general conclusions cannot be made from these results.

Table 2.5 Presentation of the results for the Financials industry.

Financials	AR CAPM		AR Fama-French		AR OMXAFGX	
	5-days	90-days	5-days	90-days	5-days	90-days
Mean	-1,19%	-2,49%	-1,20%	-2,61%	-0,33%	-1,78%
Volatility	3,94%	15,59%	3,95%	15,52%	3,15%	8,90%
T-statistic	-0,302	-0,160	-0,304	-0,168	-0,105	-0,200
Number of observations	45					
Critical value 1%	2,41					
Critical value 5%	1,68					
Critical valule 10%	1,30					

The recommended stocks in the financial industry have earned negative average abnormal returns both according to CAPM and the Fama and French Three Factor Model. In addition, these stocks have underperformed the general index in both five-day returns and 90-day returns after the recommendations. Since the t-statistic is below the critical value, the null hypothesis has to be accepted and therefore, there is no evidence of positive abnormal returns in the financial industry. Neither could it be concluded that

the recommended stocks have shown negative abnormal returns, since the t-statistics are not less than the critical values with reversed sign.

Table 2.6 Presentation of the results for the Technology industry

Technology	**AR CAPM**		**AR Fama-French**		**AR OMXAFGX**	
	5-days	90-days	5-days	90-days	5-days	90-days
Mean	1,65%	-0,52%	0,74%	-1,29%	0,61%	-1,09%
Volatility	5,39%	16,40%	5,04%	16,56%	3,94%	13,08%
T-statistic	0,307	-0,032	0,147	-0,078	0,156	-0,083
Number of observations	42					
Critical value 1%	2,418					
Critical value 5%	1,682					
Critical valule 10%	1,302					

The average returns from recommended stocks within the technology industry seem to earn above the risk adjusted return on a five-day basis, but not on a 90-day basis. These stocks also seem to outperform index on a five-day basis, but the null hypothesis has to be accepted since none of the t-statistics are greater than the critical values.

Table 2.7 Presentation of the results for the Industrial industry.

Industrial	**AR CAPM**		**AR Fama-French**		**AR OMXAFGX**	
	5-days	90-days	5-days	90-days	5-days	90-days
Mean	-0,71%	-1,85%	-0,65%	-0,86%	0,32%	0,09%
Volatility	5,63%	16,34%	5,65%	16,56%	3,44%	9,77%
T-statistic	-0,126	-0,113	-0,114	-0,052	0,094	0,009
Number of observations	60					
Critical value 1%	2,394					
Critical value 5%	1,672					
Critical valule 10%	1,297					

As for technology stocks, the abnormal risk-adjusted returns for recommended stocks in the Industrial industry are negative. Investors who followed banks' recommendations for industrial stocks during 2009-2012 outperformed index on average, but since these results are not statistically significant, the performance might as well be caused solely by chance. As for the other industries, no significant positive abnormal returns could be proven for industrial stocks.

Table 2.8 Presentation of the results for the all industries as one homogeneous group.

All industries	AR CAPM		AR Fama-French		AR OMXAFGX	
	5-days	90-days	5-days	90-days	5-days	90-days
Mean	-0,14%	-1,97%	-0,23%	-1,79%	0,45%	-0,11%
Volatility	4,26%	15,28%	4,17%	15,22%	4,25%	11,45%
T-statistic	-0,032	-0,129	-0,056	-0,118	0,105	-0,010
Number of observations	365					
Critical value 1%	2,337					
Critical value 5%	1,649					
Critical valule 10%	1,284					

In total the average abnormal risk adjusted return is negative for the recommended stocks during the period 2009-2012. This implies that on average, the returns from following banks' recommendations on Swedish large cap companies where not high enough to compensate for the risk associated with these stocks. The recommended stocks earned an average of 0,45% over index on a five-day basis but negative returns on a 90-day basis. However, these results are not statistically significant and might as well be caused by randomness.

The outcome from the CAPM and the Fama and French Three Factor Model show similar results in terms of abnormal returns. The model seem to show consensus regarding the sign of the abnormal returns within all industries, with the exception of the telecommunications industry where CAPM suggests negative abnormal 90-day returns whereas the Three Factor Model suggests positive ones. This difference is not substantial since both models predict abnormal 90-day returns that are close to zero.

6. Analysis

This chapter ties together the theoretical background with the expected and the actual results from the hypothesis testing. An analyzing discussion will be provided in order to explain the sample results and how these are similar to or different from previous research.

In the above presented results, no statistical significance was found. As a result, it is not possible to draw any conclusions if the accuracy of banks' recommendations differs among industries. Even when the total samples of 365 recommendations are tested on an aggregated basis, no statistical relationship is provided. This means that not only on an industry basis, but also on a total basis, investors that followed banks' recommendations during the period 2009-2012 could not enjoy any statistically significant abnormal returns. The findings in this paper supports the findings in Lidén (2004), where it was found that no abnormal long-term returns could be earned by following analysts' recommendations on the Swedish market during the period 1996-2000. However, Lidén found positive short-term abnormal returns from recommended stocks, which could not be proven in this research. The findings are also in line with previous research performed on other financial markets. To our knowledge, no previous research has found evidence for long-term abnormal returns from analysts' stock recommendations (Stickel 1995; Womack 1996; Lidén 2004; Barber et al 2001; Liu et al 1990; Lee 1986; Mathur and Waheed 1995), and for that reason the results for long-term abnormal returns are in line with pre-result expectations. Regarding the short-term performance, excess return has been found in previous studies, which is why positive abnormal returns in this study were expected. It was found that recommended stocks outperform index on a five-day basis, however, these results could just as likely be due to chance and therefore the findings for short-term performance are not in line with the previous research.

Even though analysts' recommendations did not generate abnormal return on the aggregate level, abnormal returns were expected for certain industries. The intuition behind the expectations is that certain industries are easier to predict than others. Due to the high technological pace and R&D intensity in the telecommunications and technology industry, less accuracy of analyst's recommendations in these industries was expected. The result does not display any significant differences in the accuracy of analysts' recommendations among industries. However, the results surprisingly indicate that the worst performing industry is not the telecommunications or technology industry, but rather the financial industry. There are of course other potential explanations than industry dynamics that could explain these results, for example the financial crises. Recommendations in the financial industry show an average negative

abnormal return for both risk adjusted returns and compared to index. The timing and duration of the financial crisis and the ongoing European debt crisis might obstruct the ability of banks to make accurate recommendations within the industry (SEB, 2012). This could explain both the overall poor performance but in particular the poor performance within the financial industry.

It should again be highlighted that the findings are not statistically significant, and therefore the results are more of indicative nature than of a definitive relationship. Recommendations issued within the health care industry indicate positive abnormal 90-day return on average and the highest abnormal 90-day return of all industries. These results contradicts our expectations, since it was expected that the health care industry is hard to predict based on high dependency on R&D and FDA approval for new drugs (SEB, 2012). Moreover it was expected that the basic material, industrial and consumer goods and services industries are more mature and hence, that the recommendations within these industries are more accurate compared to the others. The result does not indicate any support for these expectations, since basic material stocks earned high negative average abnormal return on a 90-day basis. Further, stocks within the industrial and consumer goods and services earned allover negative average abnormal returns.

In terms of market efficiency, the results could be interpreted as high efficiency on the Swedish financial markets. The recommendations issued by banks published in media are public information and in an efficient market there are no abnormal returns to be earned by employing investment strategies based on public information (Fama, 1965). However, if the recommendations made by analysts were based on private information, the value of such information would be instantaneously capitalized into the share price upon publication. In such case, the results would display positive abnormal five-day return. The outcome does not indicate positive abnormal five-day returns, but the total sample of recommended stocks do beat index on a five-day basis. Then again, this result might as well be caused by chance. In the absence of specific knowledge of how banks make their recommendations, we are left with the conclusion that banks *could* have private information, which in turn could explain the indicated result that recommended stocks outperform index in the short run. A possible explanation for the lacking positive abnormal returns from analysts' recommendations was brought up by Lidén (2004). In his study, he suggests that some analysts share the recommendation with private clients to profit from the information before publication of the recommendation. Such behavior would generate abnormal returns prior to the recommendation rather than after the recommendation in an efficient market. The stock performance prior to a recommendation is out of the scope of this study, but could have explained why stock recommendations do not seem to create any post-recommendation value for investors. If banks base their recommendations on private information, but do not share the recommendation with private clients before publication, the results in this study indicates strong form of market efficiency on the Swedish market. The explanation

behind this statement is that no abnormal returns could be proven during the period studied even though analysts' recommendations contain private information.

Possible explanations of this thesis results could also be found within the area of behavioral finance. As mentioned, previous research on the financial markets in the United Kingdom (De Bondt & Forbes, 1999) has shown that analysts' show herding behavior defined as excessive agreement of a forecast. In the data used in this research, indications of such behavior have been demonstrated by patterns of consensus in the buy recommendations. During the studied period 2009-2012, several periods are characterized by identical recommendations by several different banks, and during these periods, few recommendations in the opposite direction have been observed. However, since recommendations made within one week are counted as one recommendation, we expect this potential herding behavior to have little effect on the results. The explanations offered by behavioral finance are instead found within the potential financial gain of analysts'. It cannot be ruled out that the banks in the sample face a conflict of interest in the sense that they have an incentive to deliver favorable recommendations of companies in their client base. In the same way, it should not be ignored that banks do benefit from increased trading activity, which could lead to excessive optimism and a bias towards publishing favorable recommendations (De Bondt & Forbes, 1999). Lidén (2004) partly supports this view by his argument that changes in stock recommendations are based on positively biased information from the company management.

Each test of abnormal returns in this thesis implicitly assumes that the models used are accurate models of asset pricing. It could be the case that these models are not appropriate models for asset pricing in the Swedish market during the research period. The CAPM model has been criticized for using only one explanatory variable and thus leaving out other important variables (Roll, 1977). The results from the regressions of the coefficients in the Three Factor Model show highly variability in explanatory power, ranging from 20-80%. Therefore, poorly fitted models could cause the results in this paper. However, the models used in this thesis are widely used in previous research and are generally accepted models of asset pricing. Even if the models are not appropriate estimates of abnormal return, the recommended stocks could not beat the passive market benchmark either, suggesting that earning excess return in short-term or long-term by following the buy recommendations are not significant possible.

7. Conclusion

The conclusion of the thesis is presented in this chapter. We provide an answer to the research question and purpose of the thesis. Finally, we finish off with suggestions of further research.

The results in this research are inconclusive. This means that it cannot be proved that abnormal returns can be earned by following recommendations issued by banks on Swedish Large Cap firms. These findings are line with previous research where analysts' recommendations have not shown positive abnormal returns except for the short-term. The anticipation with this paper was to provide better guidance to non-professional investors in terms of investment strategies, by revealing differences between industries regarding the reliability of analysts' recommendations. Even though there are indications of differences among industries, the results in this thesis is inconclusive even on an industry basis. Therefore, it could not be proved that analysts' recommendations are more reliable within certain industries. Even though the results are not statistically significant, there are tendencies and indications that recommendations for firms within the health care industry could generate abnormal 90-day returns. Further, the results indicate that recommendations within the financial industry are less reliable than others.

In lack of statistical evidence of the expected results, possible explanations are found within the theory of efficient markets and behavioral finance. In an efficient market, no abnormal returns could be earned by following analysts' recommendations. If analysts' recommendations are based on publicly available information, the result in this paper indicates semi-strong form of efficiency on the Swedish market. Furthermore, if analysts' recommendations are based on private information, the result indicates strong form of market efficiency. In terms of behavioral finance, positively biased analysts could cause the results in this paper. Analysts are typically employed by firms, which benefit from the increased trading activity that comes with a recommendation. This suggests that analysts' interests are not solely oriented towards presenting accurate and reliable recommendations.

7.1 Further research suggestions

This thesis has only been focusing on industry categorization of Large Cap firms listed on OMXS. However, no statistical significant result could be provided whether there are differences between the stock recommendations reliability within these industries. A suggestion for further research within this subject is to categorize the stock recommendations after size, that is, Small Cap, Medium Cap and Large Cap firms, rather than industries. Further, the stock performance prior to a recommendation is out

of the scope in this study, but could have explained why stock recommendations do not seem to create any post-recommendation value for investors. Another suggestion for further research is therefore to analyze the performance of stock recommendations categorized into different industries *prior* to the announcement of the recommendation.

8. References

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Appendix

Banks included

Bank of America
Carnegie
Credit Suisse
Citiigruop
Danske Bank
Deutsche Bank
Goldman Sachs
Handelsbanken
JP Morgan
Merrill Lynch
Morgan Stanley
Nordea
Royal Bank of Scotland
SEB
Swedbank
UBS
Ålandsbanken