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Strategic Business Cycle Forecasting

A Company Perspective

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Executive Summary

The business environment in modern economies can increasingly be characterized rapid change, fierce competition and internationalization. Furthermore, the financial instability of recent years has contributed in ways, making the business environment even more difficult for companies to navigate in. This makes the development of models, such as strategic business cycle forecasting that can help companies manage their exposure to external factors increasingly important.

The objective of this thesis was to uncover how strategic business cycle forecasting can be utilized in a specific company that operates in a specific industry.

In the process of illuminating the subject field a literature review of business cycle theories was conducted. The review clarifies the underlying phenomenon that enables the application of strategic business cycle forecasting. After clarifying the phenomenon, methods of actual forecasting and exploitation of forecasting results are presented.

A string of interviews was conducted to give further insights into the subject field. The results were employed both directly and as guidance in the process of completing the objective.

An assessment of possible leading indicators was conducted. The purpose was to demonstrate the method of forecasting view as most applicable to the case company. The assessment would identify and discus indicators on a macro, meso and micro level, comparing them to the specific company case. The intention being to demonstrate which indicators and which level would have leading qualities in the specific case. The findings suggest using indicators on the macro or micro level.

Lastly, the business areas where forecasting results can be employed strategically, in the case company, were discussed. The strategic possibilities are many but of those discussed, the most important were in this specific case in regards to demand and input costs.

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Chapter 1 - Introduction

1.1 Motivation

The economic environment is changing more rapidly than ever before, causing an everlasting stream of important decisions for management to make. The continuing development of globalization, internationalization, increased competition, resource scarcity and rapid technological development is bound to only increase the rate of change (Duus: 2013).

An example of the more extreme proportions is the financial crisis of 2007. Looking back on the seven years that have passed since the unraveling of modern financial markets it becomes obvious just how interconnected the world is. How modern economies are not isolated from one another and how problems in one economy can spread, creating a global crisis. Furthermore the spill-over effects, from failures in financial markets to non-financial markets have proven to be quite significant (Knopp: 2010).

Being able to adapt quickly to changes in the economic environment is therefore perceived as a critical ability if companies are to outperform their competitors. This is why strategic business cycle forecasting becomes increasingly important. The ability to forecast coming changes in the economic environment and understanding the implications these will have on one's own business enables management to adjust the business accordingly before they occur, meanwhile their competitors fall behind. If companies had been able to anticipate the crisis they could have adjusted their business and maybe even used the crisis to wipe out weaker competitors? Thereby, maybe even gaining from it? These questions underline the need and importance of strategic business cycle forecasting.

1.2 Problem Identification

It is well-documented that business cycles exist and that they are recurring (Niemira & Klein, 1994). However, research into the management of business cycle risks is rather limited compared to other types of risk management. While theory of the business cycle has been around for more than a hundred years, the amount of time spent on possible ways of forecasting and managing it, in regards to companies has been rather limited. The gains of being able to forecast business cycles seem rather obvious. So why isn't more time invested in the subject? The fact that

companies are not allocating resources to strategic business cycle forecasting is most likely a result of the lack of literacy on the topic in top management and a general presumption that there is too much uncertainty involved in predicting the future. Companies only seem to worry about business cycles when the economy is contracting. In times of recession, everyone is focused on when it will turn around. As soon as the economy has recovered, there is talk of The New Economy. It is said that The New Economy cannot go into recession. Therefore it does not make sense to allocate resources for predicting and managing business cycles. However, time and time again supporters of The New Economy have been proven wrong.

This thesis aims to fill some of the gap in this area of business theory by looking at the topic from a company point of view. It will seek to gather information and present it in a way that is relevant and informative for companies.

1.3 Problem Statement

The thesis aims to answer the following problem statement.

How can a company such as Hoffmann A/S, which operates in the construction market, utilize strategic business cycle forecasting?

I will seek to answer the problem statement by answering the following sub-questions.

1. What is the business cycle?
2. What is strategic business cycle forecasting?
3. Is forecasting currently employed in Hoffmann? If so, what kind of forecasting?
4. How should Hoffmann go about doing forecasting?
5. How would building a strategic business cycle forecasting capability benefit Hoffmann?

1.4 Delimitations

In the literature review a large amount of theories will be presented. However, each theory will not be explained in explicit detail. The purpose of the review is to illuminate the phenomenon that enables one to do strategic business cycle forecasting. Since no single theory is able to explain the phenomenon entirely, an overview of many is given, listing key points and critique.

Different methods of forecasting are proposed, but only one is analyzed more thoroughly. The choice fell on the economic indicator approach due to its relatively simple and practical

applicability. The discussion of this approach is not considered a step by step guide as to how forecasting should be employed. The thesis has chosen to only examine possible leading indicators. The reason why, is that the thesis focuses on applicability and simplicity. The application of leading indicators as a forecasting tool is considered a simple and easily applicable forecasting method compared to other forecasting tools.

The thesis relies heavily on charts to display timing relationship between time series. When working with different time series, different statistical tools are available such as Correlation coefficients, MACD approach and CCC coefficient. This is not a statistical paper and most of such tools are therefore not applied. Given the company view that the thesis is taking, it is important that the methods discussed can be performed by people without an education in statistics.

The thesis does not take into account any aspects of organizational behavior that may either facilitate or prevent the implementation of the approach. The thesis assumes that organizational behavior has no affect on the implementation of the approach.

In regards to indicators on the macro, meso and micro level, the thesis focuses on the macro and micro. Meso leve indicators could in principle have been left out, however, seen as housing starts is viewed as an important indicator by many, the level has been included.

1.5 Choice of Methodology

In the process of answering the problem statement, the thesis will apply a variety of methodologies. Methodology helps insure the quality of the research and data analysis. The methodology used will briefly be introduced in this section. Chapter two will then define the concepts more thoroughly.

Paradigm: The paradigm behind this thesis is post-positivism also defined as critical realism (Voxted, 2008). This paradigm has been chosen because of its summative abilities. Furthermore, it accepts both qualitative and quantitative research methods, which is a valuable quality.

Ontology: The thesis employs the ontology of critical realism. This ontology is described as limited realistic. It is done so, since it insists on portraying the world as realistically as possible, while

acknowledging that the absolute truth cannot be found. Furthermore, this ontology makes it possible to do a clear conceptualization of the world (Nygaard, 2012).

Research process: The thesis will make use of Claus Nygaard's (2012) five step research process. These steps will be explained in greater detail in chapter two.

1.6 Choice of Theory

1.6.1 Literature Review

The first part of the thesis is a literature review. The review will give an overview of classical business cycle theories. It will primarily be based on the overview given by Niemira & Klein (1994). However, literature by other authors will also be examined. The literature review will provide the knowledge needed to answer research questions one of the thesis.

1.6.2 Case Studies

Peter Navarro has recently published a large scale case study. In which he analyzes the successful use of business cycle forecasting in a wide variety of companies. The thesis will analyze his conclusions and use his findings as theoretical inspiration in the answering of research question two.

1.7 Data

The answer to the first two research questions will be based on a review of literature. The last three questions will be based on both primary and secondary data. Primary data will be used in the form of qualitative interviews with management in Hoffmann and experts in the subject field. Secondary data will be employed in the form of data from Hoffmann, Dansk Byggeri, Danmarks Statistik, Datastream and other case studies done on the topic.

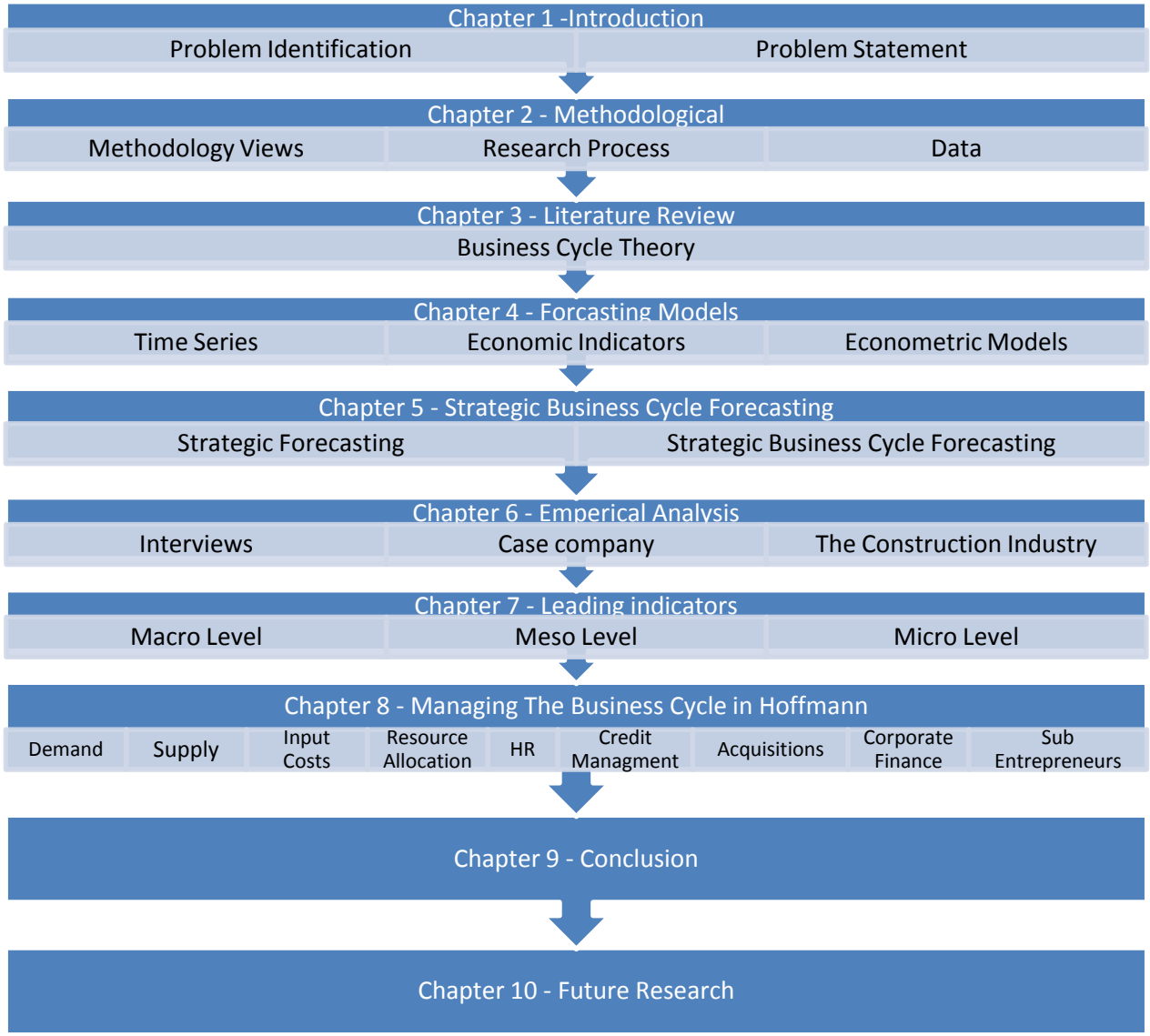
1.8 Thesis Structure

In this section, I will make a short run through of the outline of the thesis. Chapter one is an introduction, in which the background, motivation, problem and methodology are discussed. Chapter two describes the methodology used to research the problem in this thesis. Chapter three, four and five are the theoretical chapters of the thesis. First, an overview of business cycle theories is given. Then a presentation of forecasting models is given along with a critique of each one. Chapter five explains the concept of strategic business cycle forecasting and examines a case study of how business cycle forecasting can actually be applied. Chapter six is an empirical analysis of if and how Hoffmann employs business cycle forecasting, along with an examination of the

relationship between Hoffmann, the construction industry and the business cycle. Chapter seven is a discussion of possible leading indicators and their timing relationship to Hoffmann. Chapter eight is a discussion how Hoffmann can actually manage the business cycle and what rewards will come from doing so.

Chapter nine concludes the thesis by answering the problem statement and chapter ten gives an opinion on future research.

Figure 1.1 Thesis Structure



Source: Own creation

Chapter 2 – Methodology

Methodology is of great importance since the methods of research and how its interpretation depends on which methodological convictions one has. A researcher will always have assumptions about the world. These assumptions will influence the way he goes about doing research and collecting data. It is therefore important to clarify what assumptions are presupposed before the research process is initiated (ARBNOR & BJERKE, 2009).

The thesis can be divided into two parts. The first part is a literature review, in which I will examine research published by others in this area of study. This examination will be the foundation on which I base my arguments.

The second part will be an analysis of Hoffmann and the company's current and potential use of business cycle forecasting. Through a set of qualitative interviews with management, I will uncover their current methods. The insight into their current methods will allow me to comment on how, to what extent, and why these methods could be developed and improved.

In the following section, I will describe the research philosophy which I use throughout the thesis. It is not the intention of this thesis to go into a deep philosophical discussion. I only wish to describe the philosophy used in a brief manner.

2.1 Paradigm

A paradigm describes a specific set of ultimate presumptions of a given researcher in accordance with the environment, in which he operates (ARBNOR & BJERKE, 2009). This thesis uses the post-positivist paradigm or critical realism, as it is also called. Critical realism has some restrictions, yet it is much more open than other paradigms, which will be useful in the research process. Critical realism was originally created to break the tight hold that the positivist paradigm had on the scientific community. The critical realist believes that the world exists objectively on its own. Therefore it cannot be influenced by the researcher's actions or opinions. Furthermore, he believes that whatever observations are made about the world will be fundamentally flawed due to the researcher's subjectivity.

He will therefore use triangulation to cover several methods, thereby minimizing the possibility of error due to his own subjective view (Trochim, 2005). This method helps him collect useful

knowledge about the world. Critical realism also has the characteristic of viewing the world as summative. This helps the researcher make conclusions about the world by studying different aspects individually (ARBNOR & BJERKE, 2009). This fact makes critical realism a good choice for this thesis since I wish to answer one question through the answering of five sub-questions.

2.2 Ontology

In my thesis I use the ontology of critical realism. This ontology is described as limitedly realistic. It is done so, since it insists on portraying the world as realistically as possible, while acknowledging that the absolute truth cannot be found. Furthermore, this ontology makes it possible for me to make a clear conceptualization of the world (Nygaard, 2012).
According to Bhaskar, the world can be conceptualized into three domains, which make research possible. The three domains are the empirical, the actual and the real (Nygaard, 2012).

The empirical domain consists of everything we experience as individual persons. Experiences are created partly by intuition and partly by the concepts, theories, hypotheses and models that we have already stored in our memories. It is therefore not completely objective. How it is perceived depends on who represents it. I am influenced by all the research and knowledge I have acquired up till now in my case and my years at CBS. One's experiences are not created in a vacuum. They are created in relation to something outside oneself. Through our experiences we create knowledge. We create new concepts, theories, hypotheses and models. Bhaskar identifies this new knowledge as transitive objects. Our experiences can lead to new knowledge and therefore, they may function as transitive objects for the creation of knowledge. If our experiences are empirical, then what we experience must also be something real. In other words, all the things we experience must actually exist. From this, Bhaskar argues the existence of an actual domain, wherefrom we get our empirical experiences (Nygaard, 2012).

The actual domain consists of all known and unknown phenomena. As a critical realist I have to acknowledge that the absolute truth cannot be found. The world exists independently of my recognition of it. Bhaskar argues that in addition to transitive objects, there are intransitive objects. The intransitive objects refer to the something, which knowledge is created about. This something is not created by recognition from people. It exists whether or not we recognize it. It

has always been there and will always be there. How these intransitive objects are experienced depends on the individual person. Bhaskar argues that there is a world, different from the actual one that we experience. He therefore introduces the real domain (Nygaard, 2012).

The real domain consists of structures, powers and mechanisms that can create or modify phenomena. These structures, powers, and mechanisms exist whether or not we experience or recognize them. Mechanisms trigger the potential powers of structures that can be experienced indirectly by the effects they have on different phenomena. What the critical realist strives to achieve is trying to create knowledge about these structures', powers' and mechanisms' ability to create or modify phenomena (Nygaard, 2012).

Bhaskar explains that there is a philosophical premise in the ontology that one has to accept as a critical realist. He argues that the world and our experiences of the world are per definition out of sync. We do not experience it 1:1. We experience phenomena but cannot immediately detect what has created them. Society is an open system – it is not transparent and we, as researchers, do not have full insight in how a phenomenon appears and why (Nygaard, 2012).

To sum up, I do not expect to find the absolute truth about business cycle forecasting. However, I am confident that through a quantitative and qualitative analysis, I can make sound judgments that essentially come as close as possible to the truth.

2.3 Research Process

The thesis will make use of Claus Nygaard's five step research process.

The first step is to clarify the goal of the research. The problem is initially discussed in the problem identification and then clarified in the problem statement.

The second step is to locate the phenomenon that one seeks to research. In this thesis, I have located the phenomenon in the Danish business cycle.

The third step is to gather empirical data regarding the phenomenon. This will be done through a literature review and qualitative interviews with senior management at Hoffmann and other experts in the field and through a quantitative analysis of statistical data.

The fourth step is abduction of the empirical data. Here I will use my empirical experiences to try to connect the actual and the real domain, the goal being to create new knowledge about the area of study.

The fifth step will be to use the new knowledge created to present my hypothetical conclusions, which will answer my problem statement.

2.4 Case Study

A case study is one strategy that researches employ when seeking to give insight into a certain subject field. The rationale for employing this strategy lies in nature of the problem statement. The objective of the thesis is concerned with a particular situation, which makes a case study a natural choice of strategy. According to Robert K. Yin (2003), case studies are the preferred strategy when "How" and "Why" are the questions being asked.

2.5 Primary Data

2.5.1 Interviews

In the pursuit of information about the subject field, five qualitative interviews will be conducted. Two will be conducted with upper management at Hoffmann AS and three will be conducted with experts in the subject field. The purpose of these qualitative interviews is to uncover the worldviews of each participant and later to interpret these views thereby creating knowledge in the subject field (Kvale, 1997). The five interviews can be divided into two overall categories. Each category is intended to enlighten the subject field from different angles. The first category contains the two interviews with two financial officers at Hoffmann. These two persons are responsible for the finances of four out of five of Hoffmann's regions. The purpose of these two interviews is to acquire knowledge about the use of strategic business cycle forecasting in Hoffmann. Depending on the outcome, the information gathered will be crucial to what recommendations will be given. The second category includes the tree expert interviews. These interviews serve the purpose of enlightening the subject field as well as offering their opinions and recommendations.

All the interviews will be semi-structured, however with a difference in degrees between the two categories. The semi-structure means that certain boundaries will be forced onto the interviews. These boundaries help maintain focus on the predetermined objective of the interviews. In

practice these boundaries come in the form of predetermined questions that refer to a specific theme or subject. However, the semi structure lets the interviewer disregard these boundaries if he determines that further inquiry into an answer, given by the interviewee, is necessary (Brygman, 2012).

2.5.1.1 Arranging the interviews

The interview with Hoffmann employees were arranged through a personal contact. He arranged an introduction and the specifics of the interviews were arranged over mail. The three expert interviews were also arranged over mail. The contact information for Svend Jørgen Jensen and Tom Bundgaard has been procured by the thesis guidance councilor. The information for Finn Bo Frandsen has been located on the website of Dansk Byggeri.

2.5.1.2 Interview Design

Before each interview an interview guide is created. These guides are in accordance with the semi-structure described earlier. The guide functions as the boundaries the interviewer should stay within. Before creating each guide themes, subjects and possible questions are outlined (Kvale, 1997). Themes are created employing already ascertained information about both Hoffmann and the subject field, while always keeping in mind that they should facilitate the answering of the research questions. The themes and purpose of the interviews is outlined below.

Interview with Hanne Bille Krabbe and Rasmus Ankær Christensen

The purpose of these two interviews is to answer the third sub-questions. It is therefore descriptive knowledge about the company that is to be obtained through these interviews. However, the precise purpose of the interview will depend on the main question. Does Hoffmann employ any kind of forecasting? If the answer is yes, a string of questions will follow to try and uncover what these capabilities are, how they are employed, how effective they have been, and where changes could be made to further develop them. If the answer is no, a string of questions will follow to try to gather as much information about the company's strategic capabilities and way of thinking as possible. Furthermore, questions of why capabilities have not been developed would need to be asked. Is management able to see the usefulness in having such capabilities? Is it possible that there are some capabilities, of which management is unaware?

Interview with Finn Bo Frandsen

The purpose of this interview is to acquire knowledge about the industry's relationship to business cycle forecasting. Hoffmann is a member of Dansk Byggeri, it is therefore deemed valuable to interview this person. The objective being to gain information about the use of business cycle forecasting in the construction industry, as well as determining the usefulness of the trade organization, in acquiring forecasting capabilities. What is the construction industry's relationship to the business cycle? What kind of forecasting the trade association performed? If they could be helpful in the case that Hoffmann wanted to develop forecasting capabilities? How the industry perceives forecasting? These are some of the questions asked in the interview.

Interview with Svend Jørgen Jensen and Tom Bundgaard

The purpose of these two interviews is to gather knowledge about business cycles and the forecasting of such, from experts with many years of experience and great insights. The aim is to uncover as much information as possible, in the form of factual knowledge as well as the interviewees' personal opinions and their experiences.

2.5.1.3 Conducting interviews

The interviews are conducted by a single person and are to be recorded for data analysis. Under normal conditions it is recommended that there be at least to interviewers so that one may concentrate on conducting the interview and the other may concentrate on observing, taking notes and asking more detailed questions (Kvale, 1997). Unfortunately, circumstances prevented the participation of a second interviewer. Given how the information obtained through these qualitative interviews is to be employed, it has been deemed sufficient to record the interviews. Specifics about the conductance of each interview will be presented along with the results in chapter 6.

2.6 Secondary data

A large part of this thesis will rely on secondary data, collected from Hoffmann, industry organizations and databases such as Danmarks Statistik and Datastream. Since all primary data is obtained through qualitative interviews, secondary data becomes extremely important, the reason being that data obtained through interviews is only useful in a context. Secondary data helps provide that context. Without it, any conclusions one might draw from the interviews might

be interpreted as extremely biased, thereby rendering one unable to draw general conclusions. It is therefore important that all sources of secondary data undergo a certain amount of scrutiny to insure the reliability of the data. Data sources such as Danmarks Statistik is considered very reliable, however data from Hoffmann and industry organizations will have to be critically evaluated.

2.6.1 Technical considerations

2.6.1.1 Data Quality

It is important that there are adequate sources of secondary data and that these sources are accessible and of good quality. In this case quality will be determined by the frequency of measurement and accessibility. For example, monthly data is preferred over quarterly or yearly and the farther back a time series goes the higher the quality. Monthly data is preferred since it can be updated more regularly. The thesis will therefore whenever possible employ monthly data over quarterly or yearly. It is expected that Danmarks Statistik will be one of the major sources of secondary data. Since it is accessible to everyone no problem of accessibility is expected.

2.6.1.12 Growth Rates

When comparing data sets the thesis will rely on growth rates rather than real values. Growth rates have been chosen because they show changes in the datasets more clearly. Furthermore, growth rates have a tendency to lead actual values, showing a fall before a actual fall is observable from real values. When calculating growth rates the RoC approach is used. This approach measures the change in value by comparing present values with the value form the same period the month, quarter or year before. This approach is chosen rather than measuring values against the previous period. The reason why is that this approach is said to give a better understanding of economic activity (Niemira & Klein, 1994).

2.6.1.3 Moving average

The thesis makes use of moving averages in order to smooth out extreme fluctuations in datasets. Moving averages are preferred because these averages are updated as new information is received. The method should make trends easier to observe. The disadvantage of using moving averages is that there is a lag in comparison to the real data, depending on one's choice of moving average. Given the limitations of this thesis these lags have been accepted, however, should one

choose to strengthen these quantitative methods there are methods that could help solve this issue.

2.6.1.4 Graphs

The timing relationship between time series is depicted in charts. It is done so because this method is seen as an understandable and easy applicable way of depicting these relationships.

Chapter 3 – Literature Review

3.1 Business Cycle Theory

This section will give a summary of business cycle theories developed over the last 200 years. Briefly, it will describe the main concepts of each theory and present them in a chronological order. It is important to recognize that the list of theories does not include all theories developed through time. A select few have been chosen as the most important ones at any given time in history. Lastly, a short discussion will reveal what conclusions can be made.

3.2 Agricultural

While agriculture has constituted a declining percentage of a given nation's GDP, it is still one of the major sectors in economies around the world. The importance of this sector led to the so-called agricultural theories of the cycle. While they are extremely simple and not directly transferable to modern economy, these theories were some of the first attempts to explain the business cycle. One of the first theories was W. S. Jevon's "Sunspot theory". In his theory, Jevon argued "*that the chain of causation went from changes in the weather to meteorological conditions to agricultural crop production to business in general*" (Niemira & Klein, 1994). In his theory, he concluded that sunspots recur periodically, therefore generating a cycle of 10.5 years. While no one today would argue that sunspots could have this effect on business in general, what Jevon was attempting to describe might in present times be characterized as what we call major cycles (Niemira & Klein, 1994). His son H. S. Jevon later revisited his father's work, concluding that crop cycles had a 3.5-year duration. Economists later agreed that what he was trying to explain is what would contemporarily be called inventory (Niemira & Klein, 1994). Today, no one is arguing these views on crop cycle theory, or that they have such a profound effect on the general economy. However, in the discourse, in which these ideas were conceived, it made some sense since agriculture had a much more dominant position in business and economy (Knopp, 2010).

Taking this into account, Pigou asked a useful question: What is the economic consequence of an unusually large harvest? In his model, he demonstrated that the consequence of an unusually large harvest would likely be a decrease in agricultural income. Furthermore, he argued that if the agriculture sector played a large enough role in the economy, it would mean a decrease in the value of economic activity (Niemira & Klein, 1994). Here Pigou anticipated difficulties that would only much later be recognized as affecting agriculture adversely over cycles. The effects were the start of what we today know as subsidies that are widespread in agriculture, in most countries.

The statistician Mordecai Ezekial argues that agricultural crop cycles were not the cause of business cycles, but that the sector underwent more hardship in times of recession, compared to other industries. He developed what is known as the cobweb effect or exploding cobweb. In short, the cobweb effect describes the relationship of demand and supply in the agriculture sector. His work is the result of a recognition that demands for agricultural products are relatively inelastic. His model takes this fact into account as well as the fact that there is an entire crop cycle between the decision of how much to produce and the actual sale. Because demand is more inelastic than supply, the effort to adjust production so as to match available prices increases the distance to the market clearing price and hence creates a more unstable market (Niemira & Klein, 1994). This theory is based on two assumptions. Firstly: the products cannot be stored. If farmers were able to store their products they would have more control, thereby minimizing the effect of a sudden demand change. Secondly: farmers always plant according to last year's sale. Thereby, farmers are always adjusting their crops by looking backwards instead of forwards. Both assumptions cannot be seen as accurate in today's world. Technology has changed the circumstances under which agricultural products can be stored completely. And to think that farmers only rely on last year's sale when deciding how much to produce seems very naive (Niemira & Klein, 1994) (Knopp, 2010).

3.3 Psychological Theories

There are not many theories that attempt to explain business cycles based solely on psychological factors. However, many do take psychological factors into account. Haberler declares the following: "Expansion creates optimism which stimulates investment and intensifies expansion. Contraction creates pessimism, which increases contraction" (Niemira & Klein, 1994). This way of

thinking has gained a lot of traction in recent years, especially in regards to the stock market. So while psychological theories do not explain the phenomenon of business cycles, they can help explain the reasons why cycles develop as they do (Niemira & Klein, 1994).

3.4 Purely Monetary Theory

The English economist R. G. Hawtrey believed that cycles were a result of monetary factors because changes in the flow of money alone can account for the cycles we observe (Niemira & Klein, 1994). Hawtrey's theory revolves around the trader. He credits the trader and profit-seeking banks, too eager to give out loans in times of expansion, for an overstimulation of economies. Hawtrey concludes that changing the discount rate would be an adequate way of controlling these profit-seeking banks and their destabilizing activities (Niemira & Klein, 1994). Hawtrey's theory does seem slightly simple. The evolution of financial markets, financial instruments and regulation alone makes his theory somewhat outdated. However, Hawtrey's criticism of profit-seeking banks is in light of the recent financial crisis very on point. Unfortunately, the solution does not seem as simple as what he suggests (Niemira & Klein, 1994) (Knopp, 2010).

3.5 Price/Cost Relations

Wesley Clair Mitchell was an American economist who had a view on market instability and cycles that was probably the most widely accepted view in the time before Keynes and even today, it is accepted by many as an explanation of how market instability develops (Niemira & Klein, 1994).

Mitchell assumed that profits are the main goal of business entrepreneurs (Niemira & Klein, 1994). Most business agents would probably agree on this. Periods of expansion leads to an increase in business demand based on rising profit expectations. At some point this will lead to a shortage, thereby pushing prices up. As prices rise it puts a squeeze on profit margins. When profit growth fails to meet expectations, the expansion rate slows down. Ultimately, the expansion growth rate declines until the economy hits recession. A period of recession is dominated by cost-cutting measures taken by management. Cost-cutting should lead to an improved profit margin. The outlook of improved profit margins will then start a recovery period where investors once again dare to increase capital spending and hire new people. This is then the start of a new expansion period (Niemira & Klein, 1994). While this theory is very general it does give an explanation, which – to some extent – explains the development of business cycles and their ability to recur.

3.6 Inventory Cycle

Economist Lloyd Metzler developed a theory that attempts to explain short business cycles. His views are comparable with Hawtrey's, except for the fact that his theory is in no way monetary. However, he did blame agents of the business community and their self-defeating attempts to control inventories. He argued that entrepreneurs have a fixed notion of what their inventory levels should be. In times of expansion, the growth in demand will reduce the inventories. This will cause entrepreneurs to increase production in order to get inventories back to the desired levels. However, the increase in output will mean an increase in the workforce. An increase in the workforce will mean an increase in the overall income, the result being that inventories do not reach the desired levels. According to Metzler the turning point comes due to the marginal propensity to consume. At some point the increase in sales becomes smaller than the increase in income. Inventories will then eventually reach the desired levels. However, given the extra production capabilities inventories will grow larger than the desired level. Entrepreneurs will then seek to lower inventories, which will trigger the exact opposite effect (Niemira & Klein, 1994).

Metzler has been criticized for giving inventories too much importance in this context. While inventories are important, it seems unlikely that inventory levels would be of greater importance to entrepreneurs than profit-seeking. Furthermore, Metzler completely ignores the effect of expectations that many believe to be of much more importance than inventories (Niemira & Klein, 1994).

3.7 Overinvestment Theories

The characteristics of overinvestment theories are very similar to those of the purely monetary theories. The largest difference between the two is that the overinvestment theories relate the credit-expanding proclivities of the banking system to investment (Niemira & Klein, 1994). One of the greatest influences on these theories was Swedish economist Knut Wicksell. Wicksell was one of the first to explore what consequences the existence of an elastic monetary system would have on the classical view of equilibrium. His work implied the acceptance of Say's law of markets and the assumption of flexible prices and wages. This later resulted in the idea of full employment operation of the economy. The idea describes the long run natural state as one, in which all output

is purchased. Fluctuation is therefore at most considered a minor self-correcting phenomenon (Niemira & Klein, 1994).

Wicksell then introduced the idea of profit-seeking bankers. In his theory, he distinguishes between a natural rate of interest and a market rate of interest. At the natural rate the supply of savings would equal the amount of funds that could be borrowed (Niemira & Klein, 1994). He argued that at this natural rate, all expenditures not utilized by consumption would be saved and invested, leading to zero waste and sustainable market conditions. The market interest rate would, by profit-seeking bankers, be set below the natural rate. Investors then increase their activity, thereby expanding the economy to a state that is not sustainable, given the marginal propensity to consume (Niemira & Klein, 1994).

Wicksell's line of thought inspired others to look into the profit-seeking banking system and what impact it might have. One of the people who was inspired by Wicksell was the Austrian, Friedrich Hayek. Hayek asked an important question: "*Why is it that producer goods industries exhibit much greater amplitude over the cycle than consumer goods industries?"* (Niemira & Klein, 1994). Empirical research has shown that the volatility is greater in the early stages of production. Hayek argued, like Wicksell, that bankers give loans to entrepreneurs during periods of expansion, causing the market rate of interest to fall below the natural rate of interest. Hayek further argued that the availability of relatively inexpensive funds led entrepreneurs to invest in more capital spending. The increase would lead to a misallocation between capital goods and consumer goods. Hayek and others of what would later be known as the Austrian Business Cycle Theory (ABCT), believed that this misallocation was not sustainable and that a recession was inevitable but natural in order to reestablish a sustainable allocation between the two goods. Hayek was therefore completely against increased government spending in times of recession (Niemira & Klein, 1994).

Hayek's theory takes an interesting point of view. The impact of profit-seeking banks may now more than ever be of great importance. As we see banks becoming larger and larger to the extent of the term "too big to fail" being created. The topic of the profit-seeking bank is in no way

obsolete; however, Hayek's theory is too simplistic for today's world. There are too many issues that the theory does not take into account, such as profit expectations, technological changes etc. (Niemira & Klein, 1994). Furthermore, the view of interest rates as the sole motivation for instability is not realistic (Niemira & Klein, 1994). Another critique of the ABCT is of how it blames business cycles and false periods of expansion on banks, since business cycles were observed long before the creation of the banking industry. Furthermore, the theory expects entrepreneurs to be very naive in their investment decisions. For an entrepreneur to evaluate an investment according to only the present interest rate and with the expectation that the interest rate will not change over a longer period of time would be extremely naive (Niemira & Klein, 1994).

3.8 Under-consumption Theories

Among the oldest of theories explaining cyclical instability are the under-consumption theories. These theories illustrate, among other things, that earlier theories are occasionally more sophisticated than theories developed much later (Niemira & Klein, 1994). One of the economists who played an important role in developing theories in this particular area is one John A. Hobson. Hobson argues that when income in the economy rises, aggregate supply will outgrow aggregate demand. Hobson reaches this conclusion by arguing that as income increases, the marginal propensity to consume decreases. When marginal propensity to consume decreases companies have to cut production in order to meet demand. If they do not they end up with enormous inventories. Unfortunately, cutting production will result in lower income since people are often laid off when production goes down. This will then cause the marginal propensity to persist rising. Thus, the cycle keeps repeating itself (Knopp, 2010) (Niemira & Klein, 1994).

3.9 Keynesian Theory

Keynes is one of the most important economists of the twentieth century. While he did not develop his own theory in the area of business cycles, his impact on this topic was significant. At the time when Keynes began to take note of this topic, there were two cornerstone assumptions of classical and neoclassical thought. These assumptions were firstly Say's law of markets and secondly full employment. Keynes started by rejecting these two assumptions. Furthermore, he distanced himself from the traditional thought that savings and investments originate in the same sector of the economy. He argues that saving occurs when households decide to use less of its income on consumption, whereas investment is the province of entrepreneurs (Niemira & Klein,

1994). In classical economic markets, forces would equate savings and investments through the interest rate. Keynes focuses on the effectiveness of demand. He argues that demand comes in three forms: Consumers who demand consumer goods (C); firms that demand investment goods (I), and governments that demand public goods. Keynes found that the equilibrium income Y is equal to C+I or C+ savings (S). Furthermore, he finds that consumption is rather stable over the course of a cycle, since consumption mostly depends on income itself. Investment on the other hand is the volatile of the two. According to Keynes, the reason for this was that since the interest rate is known to investors, investment decisions depend on whether the investors believe that the investment will generate sufficient profits to pay off loan payments (Niemira & Klein, 1994) (Skousen, The Making of Modern Economics: The Lives and Ideas of Great Thinkers, 2. edition, 2009).

One of his major insights was that either the equilibrium income could be measured as income or output or it did not require the use of all available resources. He was of course referring to the level of employment. He argues that while the level of employment cannot be greater than full this is no reason to expect that it has to be equal to full. According to Keynes, business cycles were mainly the result of changing levels in private investment (Niemira & Klein, 1994) (Skousen, The Making of Modern Economics: The Lives and Ideas of Great Thinkers, 2. edition, 2009).

3.10 Rational Expectations

Rational expectations' theory was developed by John Muth but is best known as a result of the work of Robert Lucas. The approach builds on several fundamental assumptions. It is assumed that markets clear rapidly and that all available information is used efficiently, though not all information is known. Only, all information available is taken into account when making decisions. Agents are, therefore, not systematically wrong (Niemira & Klein, 1994). This stands in contrast to adaptive expectations where it is generally assumed that the future will look somewhat like the past – however, changing as one's expectations change when a past mistake is realized. Lucas assigns the blame of instability to the fact that agents have incomplete information (Knopp, 2010).

One consequence of the rational expectations' movement has been the idea of the equilibrium business cycle view. This view considers business cycles a perfectly normal part of an adjustment

process in the economy. A business cycle is therefore not something that requires interference. This view of the business cycle would make fiscal and monetary policies, among other things, ineffective. The only effects of this could be that agents misinterpret announced policy changes, and even these effects would only be temporary (Niemira & Klein, 1994).

Given the accessibility of information in today's world, one may find it odd that mistakes are still made if one believes in rational expectations. There have been empirical tests of the view but the results are inconclusive. Some studies have supported this view, yet most economists would say that the view should not be taken too literally. Furthermore, they argue that it does not really explain business cycles (Niemira & Klein, 1994).

3.11 Supply-side Theories

One of the most influential economists preaching the effects of supply-side theories was Arthur Laffer. Essentially, the theories of this sort were based on an alternative version of Say's law of markets. The fundamental idea of this view was that entrepreneurs should be facilitated in their efforts to increase aggregated supply. In Laffer's opinion this meant the best way to achieve stable growth would be for entrepreneurs to keep investing, thereby, leading to an increase in aggregated supply. However, he saw the corporate tax rate as a significant obstacle in the effort to increase aggregated supply. His argument being that the incentive to work decreases as tax rates increase. Furthermore, he claimed that very high tax rates would yield no more tax revenues than very low tax rates. While this is definitely true in the extremes, it is much harder to argue with a tax rate of more moderate levels, because how does one quantify the disincentive of an increasing tax rate (Niemira & Klein, 1994)?

Keynes was originally in favor of supporting supply in order to create growth. However, he later stated that the most significant improvements lay on the demand side. The critique being that supply-side theories regard fluctuations in cost of investment as more important than fluctuations in expected rates of return. However, some acknowledge that circumstances can create an environment where this may be true (Niemira & Klein, 1994).

3.12 Real Business Cycle Theory

Real business cycle theory (RBC theory) describes models where business cycle fluctuations can be accounted for to some extent in real life. The RBC theory perceives periods of growth and periods of contraction as the efficient response to exogenous changes in the real economic environment. That is, the level of national output necessarily maximizes expected utility, and government should therefore concentrate on long-run structural policy changes and not intervene through discretionary fiscal or monetary policy designed to actively smooth out economic short-term fluctuations (Niemira & Klein, 1994).

The RBC theory argues that business cycles are real and that they are not a product of markets' failure to clear. Instead, business cycles are understood as a reflection of the most efficient operation of the economy, given how the economy is structured. This interpretation of markets is one of the main differences between RBC theory and the Keynesian theory. In fact, the RBC theory rejects Keynesian economics and any other theory that argues the effectiveness of monetary policies, thereby going against mainstream economics (Niemira & Klein, 1994) (Knopp, 2010).

Edward C. Prescott is one economist, who has advocated the employment of RBC theory. His work on this subject has received much criticism by among other Lawrence H. Summers (1986), who criticizes the RBC theory on four major points. Firstly, that the theory employs incorrect parameters. Secondly, Summers states that there is an absence of independent evidence for the technology shocks that supposedly causes the business cycle in the RBC theory, and he accuses the theory of notably being unable to point to technological causes for observed recessions. Thirdly, Prescott's models ignore prices, and their predictions on asset prices are rejected by 100 years of data by Prescott's own work. Fourthly, Prescott ignores exchange failures (e.g., failures of factories to trade their goods for workers' labor), which are central to Keynesian accounts of the causes of the Great Depression, among other crises (Niemira & Klein, 1994) (Summers, 1986).

3.13 Discussion

When discussing the different theories above, it is quickly clear that all of the early models are somewhat unrealistic. Early on, there is a recognition of a pattern but theorists are clearly prevented by the limitations of their times from seeing the truth. Thus, they have a hard time

clarifying cause and effect of the business cycle. However, through the advancement of technology, insights into business cycles are rapidly becoming clearer. Especially the evolution of computer science has greatly enhanced the ability to research the topic. As a result, mainstream economists today can agree on a number of conditions.

One condition that has been widely accepted is the role of expectations. It is clear to most that expectations have a role in creating fluctuations in the economy. Therefore, it is deemed necessary to include variables that reflect expectations if forecasting is to be accurate. Another condition that is widely agreed upon is that the source of fluctuations can be found on both the demand-side and the supply-side. Throughout the evolution of business cycle theory, theories have been classified as either a demand-side theory or a supply-side theory. The evidence presented by each individual theory has left theorists with no choice but to accept both sides as possible sources of the business cycle. A condition that was rejected by many to begin with is the effect that monetary policies have on output. However, today most models do accept that monetary policies and money supply can affect output, though it only does so in the short run. Another example of a theory which theorists have come to agree upon regards the nature of unemployment. By acknowledging the statement that prices and wages are not perfectly flexible, theorists have also agreed that not all unemployment is voluntary. When Keynes first shared this notion, he was widely criticized. However, evidence still suggests that this is the case.

While theorists agree on certain aspects of business cycle theory, an explicit theory that all can agree on has still not been developed.

The aim of this review was to give a chronological overview of the development in business cycle theory while giving a critique of each theory. The knowledge acquired through this review should be viewed as a foundation for business cycle forecasting.

Chapter 4 – Forecasting Methods

4.1 Time Series

Time series forecasting is models that employ observed data to predict the future. The data employed have a natural time ordering. The natural time ordering is a property that makes this model a good choice when analyzing and forecasting business cycles (Shim, 2000). The most simple and naive model is where the value of a variable in the next period is forecasted to be the same as the value of a variable in the current period (Bechter & Rutner, 1978). For accurate results, the data used in the model must meet certain conditions. The data series must be stationary. This means that the data series must be adjusted for any seasonality or any trends (Shim, 2000).

Most regard time series analysis as a rather accurate tool for predicting short-term changes. However, the effectiveness of the analysis is in large part dependent on the circumstances, under which it is performed. The most accurate results will be achievable in stable environments without too much turbulence. Given the expectation that the world is becoming more and more turbulent and that this turbulence will affect if not determine the development in the global economy, the application of the model is at risk. However, under some circumstances, the model is expected to be rather accurate. This could be on a more firm-specific level in an industry that is less affected by global events and more stable in nature. The model, however, is not suitable for companies entering new markets, since there is no historic data to create a basis for an analysis.

4.2 Economic Indicators

Wesley C. Mitchell and Arthur F. Burns developed the economic indicator approach in the 1930's. Since then, it was further developed at the NBER. The approach is built around economic activity that seems to react the same way during cycles. These activities have been identified and categorized into three categories. The categories are leading, coinciding and lagging. Which category an indicator is placed in is determined by the timing of their movements.

Leading indicators have the properties of showing the way for the aggregated economy, hence the name leading. These indicators are the first to change direction when economic activity either rises or falls. Examples of leading indicators are average weekly hours, new orders and consumer

expectations. Coincident indicators give a representation of where the general economy is as of right now. They are a broad measure of the aggregated economy. Examples of coincident indicators are employment, production, personal income, and manufacturing and trade sales. In contrast to leading indicators, lagging indicators change direction after both the leading and the coincident indicators have already changed. Examples of lagging indicators are changes in unit labor costs, inventory-sales ratios and average duration of unemployment (The Conference Board, 2000).

According to the description given above, it is easy to understand why someone in the process of forecasting might focus on leading indicators and more or less disregard coincident and lagging indicators. However, it is important to analyze all three categories. The reason for this is that analyzing all three categories gives an overall picture of the entire business cycle as a whole. Furthermore, there is a confirmation to be gained by identifying the turning points in the business cycle (The Conference Board, 2000).

In order to ensure the credibility of an indicator, every one of them is subjected to half dozen economic and statistical tests. These tests check to see if the indicators meet the following criteria:

- *Conformity – the series must conform well to the business cycle.*
- *Consistent timing – the series must exhibit a consistent timing pattern over time as a leading, coinciding or lagging indicator.*
- *Economic significance – cyclical timing must be economically logical.*
- *Statistical adequacy – data must be collected and processed in a statistically reliable way.*
- *Smoothness – month-to-month movements must not be too erratic.*
- *Frequency – the series must be published on a reasonably prompt schedule (The Conference Board, 2000).*

Tests have shown that no one indicator is able to meet every one of the criteria mentioned above. Therefore, it is too risky to rely on one single indicator.

This is why composite indexes have been created. The composite indexes emphasize the cyclical patterns, while at the same time de-emphasizing the volatility of one indicator (The Conference Board, 2000). A composite index is made by summarizing the change in each indicator, while at the same time taking the importance and volatility of a specific indicator into account (Niemira & Klein, 1994). An index is made for each of the three categories of indicators – leading, coinciding, lagging – and contains all the most reliable indicators.

While the composite index is regarded as a relatively good indicator, The Conference Board has found it appropriate to create another index. Given that the composite index is a weighted average of each indicator in its portfolio, it does not take the changes happening into account. In the attempt to further generate useful information, The Conference Board has created the diffusion index. The diffusion index can be used to assess how extensive the movements in the indexes are. This type of index employs the same data as the composite index, however its aim is to give information about why the composite index is either increasing or decreasing. The index indicates the percentage of the increase of underlying indicators at a given point in time. If the diffusion index has a value of 100, all underlying indicators are expected to rise (The Conference Board, 2001, Niemira and Klein, 1994).

The economic indicator method has applicable advantages but it also lacks certainty and is very subjective. The method relies on an assumption that certain economic activities will act the same way through every cycle. While history has shown that certain activities do in fact posses this ability, we also believe that the world is changing faster and more drastically every day. This creates great uncertainty regarding the use of the past to predict the future. However, as of now the method does seem to generate useful information to a certain extent. Forecasting using only one economic indicator by most be considered too risky. The composite index is therefore a much better tool. It eliminates some of the drastic movements that a single indicator can have due to circumstances that are completely irrelevant. However, while the composite index reduces risk in regards to drastic movements, it is also created on a very subjective platform since the importance of every indicator is estimated and given a value. The level of subjectivity reduces the usefulness of the index as a forecasting tool.

Furthermore, composite indicators have a tendency to be overly sensitive to random changes. This creates the risk of forecasting non-existing turning points (Niemira & Klein, 1994). Indexes do not move continuously up through an expansion period, nor do they move continuously down in a contraction period. For this reason, one can use the 2/3 months rule in order to create more certainty. The rule is simple: the more continuous months an increase or decrease is observed the more reliable the index. Thus waiting for three consecutive months of either an increase or a decrease before acting on the information will reduce the risk of acting on a non-existing turning point. However, for every month one waits, the possible gains of the forecast deteriorates. It is therefore a tradeoff between certainty and profit (Niemira & Klein, 1994). This is a tradeoff that a company has to consider carefully if thinking about using composite indexes as forecasting tools.

This “wait and see” rule is easy to use and does not require much of the user – both good qualities when companies have to use it. However, it might be too simplistic. The Conference Board suggests the 3 D’s approach. They argue that by looking at what they call the 3 D’s, one can obtain a more reliable result. The 3 D’s stand for duration, depth and diffusion of the movement. The longer a weakness continues, the more profound it becomes; and the more widespread it becomes. Most likely, a recession will occur (The Conference Board, 2000). This approach is also relatively simple to use, and while it is not without deficiencies, it provides some guidelines to interpret and summarize the complex set of interactions and linkages among the cyclical indicators (The Conference Board, 2000). Each of the three D’s could be used separately, however it is recommended to always use them in conjunction because they complement each other in a way that reduces the overall risk.

The composite index, and the three D’s approach to it, is overall considered a good forecasting method. Since it is relatively easy to use, its applicability in companies is far greater than that of methods that are more sophisticated. Furthermore, the amount of resources needed is relatively small compared to other methods.

4.3 Econometric Methods

A short description of the models and their usefulness is given so that econometric models can be recommended as a possible forecasting tool if deemed appropriate in the case of Hoffmann.

The idea of econometric forecasting models is based on an economic model, a theory of how different factors in the economy interact with one another. They then measure past relationships among such variables as consumer spending, household income, tax rates, interest rates, employment and others, trying to forecast how changes in some variables will affect the future course of other variables (Hymans, 2008). The models become very complex, containing up to hundreds of equations.

4.3.1 Regression Analysis

Regression analysis is a statistical process for estimating the relationship between variables. Included in this type of analysis are techniques for analyzing several variables, where the focus is on the relationship between one dependent variable and one or more independent variables. The properties of regression analysis is to explain the change in the dependent variable, when one of the independent variables varies, while others are fixed. This enables the user to identify which variables have the strongest influence on the dependent variable (Shim, 2000). A practical example of the use could be in the case of analyzing which variables have the strongest influence on the GDP. Regression analysis builds upon a set of assumptions. These assumptions are listed below.

- *The sample is representative of the population for the inference prediction.*
- *The error is a random variable with a mean of zero conditional on the explanatory variables.*
- *The independent variables are measured with no error.*
- *The predictors are linearly independent.*
- *The errors are uncorrelated.*
- *The variance of the error is constant across observations. (Shim, 2000)*

If the assumptions are not met, the results of the analysis cannot be trusted. In real world scenarios, the assumptions almost never hold true, and while this should render the model useless, statisticians have accepted that the assumptions can be relaxed to a certain degree. This allows for the use of regression analysis, though there will be a great deal of uncertainty in the

results (Armstrong, Illusions in Regression Analysis, 2012). However, the results can still be used to a certain degree. For example, they can indicate which relationships between variables should be further analyzed.

Regression analysis is a tool that under some circumstances can give very accurate results. Furthermore, given the statistical nature of the analysis, the results will be unbiased, even though the variables employed will be selected by people (Armstrong, Illusions in Regression Analysis, 2012). The ability to deliver an unbiased result is a strong quality. However, the results can also lead to very wrong conclusions. This method is widely used by central banks among others. It is a method that requires special knowledge in statistics and is therefore not easily used by people without statistical experience, even though many programs have been created to facilitate its application.

Chapter 5 – Strategic Business Cycle Forecasting

Strategic business cycle forecasting is a subsection of the overall subject of strategic forecasting. It is one of three were the two others are futures' research and strategic warning. These three make out the concept of strategic forecasting (Duus, 2007).

5.1 Strategic Forecasting

Armstrong (2001) argues that forecasting is used in order to minimize the uncertainty of the future (Armstrong, Principles of Forecasting: A Handbook for Researchers and Practitioners, 2001). Hanke & Reitsch (1998) describe forecasting as being an educated guess about the future. Furthermore, they argue that managers should use prediction models rather than act on intuition (Reitsch & Hanke, 1998).

Capon & Hulbert (1985) were the first to conceptualize the concept of strategic forecasting as an independent concept. Forecasting and strategic planning are concepts that existed prior to this, but according to Capon & Hulbert, strategic forecasting should be seen as neither one nor the other. They define strategic forecasting as fundamentally different from both traditional forecasting and strategic planning (Duus, 2007). Capon &Hulbert argue that strategic forecasting seeks to enlighten the user in terms of alternative courses of action, whereas strategic planning

deals with the process of choosing from these alternative courses. Therefore, what they call strategic forecasting does not fall under the concept of strategic planning. They argue in addition to this that traditional forecasting is made on a lower operational level, often in the form of simple projections. Their concept is much wider and the forecasting takes place on one of the highest levels in management (Duus, 2007). The main points in their view are listed as follows.

- *One's efforts should be concentrated on elements in the environment that will structurally change and not on simple projections.*
- *The time period should be long. However, how long will depend on the industry.*
- *Forecasts should be dependent, meaning that one has to ask what if?*
- *Qualitative and quantitative methods should be combined.*
- *Exact predictions are impossible and unnecessary. One only needs to have more information than one's competitors.*
- *Obtained information should be communicated throughout the company to ensure its use (Duus, 2007).*

Duus (2007) defines strategic forecasting as the study and application of methods, theories and techniques that support long-term analysis of a company's remote environment in regards to the strategic implementation of innovative activities. The major difference being that strategic forecasting compared to more traditional forecasting and market research, mainly concentrates on the operational and tactical levels regarding ones near environment (Duus, 2007).

5.2 Strategic Business Cycle Forecasting

Strategic business cycle forecasting as described earlier is a subsection of strategic forecasting. This subsection concentrates on employing methods of analyzing and forecasting the business cycle in order to initiate strategic activities. However, it is not a very well defined subject in regards to the decision making process. Presently, only a few large companies and research institutes along with some financial analysts employ the concept in their work or research (Duus, 2007).

5.2.1 Managing the Business Cycle

Peter Navarro has in 2009 published an article called "Recession-proofing you organization" which is an update to his article "Principles of a Master Cyclist" from 2004. In this article he argues that companies can actively manage the impact of business cycles using three steps. His theory is based

on a large scale case study starting in 2000. The case study was an extensive research into how well performing companies had taken advantage of the cyclical behavior in the economy. Navarro argues that managers need to forget about the myth of "the new economy" in which recession is an obsolete phenomenon and instead focus on using business cycles to create competitive advantage.

In Navarro's first step he describes the development and deployment of a forecasting capability. He emphasizes the importance of teaching all executives within the company how to forecast instead of assigning the responsibilities to an external group of economists. Navarro argues that incorporating such capabilities into executives does not have to be neither time consuming nor exhausting. According to Navarro the first important tool an executive should learn is the GDP forecasting equation. Using this equation will give executives a good idea of where the business cycle is heading. The GDP growth rate is determined by four factors, consumption, business investment, net exports and government spending. Executives can apply leading indicators such as consumer confidence, retail sales and Institute for Supply Management index as the components in the GDP forecasting equation. Navarro further suggests that "*executives should follow the stock market trend and monitor the shape of the bond markets yield curve*" (Navarro, Recession-Proofing Your Organization, 2009). Other research has found that these two tools do have predictive powers. While they are not absolute, the last two recessions were signaled by bearish turning points in the stock market. Yield curves have accurately predicted 6 out of the last 7 recessions. It is Navarro's belief that these tools can not only anticipate shifts in the business cycle but also allow companies to enhance their economic and financial market literacy.

Navarro calls the second step applying well-timed strategies and tactics. In Navarro's second step he explains what a company can do, in different parts of the company, to create competitive advantage if it is aware of where in the business cycle it is. His first topic is human resource management. Navarro finds that a company can, in anticipation of a downturn, gain an advantage by trimming the workforce. Downturns lead to more unemployment, therefore, also lower wages and a larger pool of applicants to choose from. Trimming the workforce before the downturn, while others continue to hire at high wages, lets the company only choose the best employees at a

discount rate. Following this logic the company should begin to hire again as soon as they feel an upturn coming. Coming into a period of expansion the company will have the right workforce at lower wages. While this makes sense it may not be possible for all companies to practice. Navarro's studies are primarily made on large companies with thousands of employees.

The next topic Navarro discusses is marketing. Navarro argues that a company should boost marketing expenditures in anticipation of a downturn. This is done in order to hopefully increase sales and thereby decrease inventories. Marketing can then as most companies do be decreased in order to save funds in bad times. However, Navarro also argues that there might be a tactical advantage to boosting marketing expenses in a contraction period. If all competitors are cutting marketing expenses in order to save funds, increasing one's own marketing expenses could result in stealing market shares from competitors. However, it is not as simple as it sounds. While studies show that this is possible it is dependent on the company's ability to offer the right product mix at the time. Marketing efforts should in times of contraction be focused on the company's less expensive goods. Since income is usually lower in these periods that will push consumers in the direction of less expensive goods. Combining increased marketing and a strategic product mix could lead to a competitive advantage over those competitors whose only focus is only cost minimizing. However, such a strategy assumes that the company has the liquidity to finance such a tactical move.

According to Navarro many companies also fail to set prices efficiently in times of recession. Many companies set prices higher in order to offset a decrease in revenue because of lower demand. He argues that because of the price elasticity of demand, companies should lower prices in times of recession.

Navarro goes on to discuss capital expansion and modernization. Navarro argues that a company, can by timing capital expansion and modernization right, reap significant rewards. By forecasting the business cycle a company can ahead of a recession decrease capital expenditures. Thus, when recession hits the company does not have any significant debt to pay off. This improves the cash flow that decreases as demand shrinks. However, once in a recession a company should think

about increasing capital expenditures and modernization. By increasing capital expenditures the company should be the first to market with new products that make use of the latest innovations and styles, thereby, giving them the best product on the market. Furthermore, cost of capital and cost of labor are generally lower in these periods. Times of recession are also a good time to modernize or replace ones equipment and production facilities, since the opportunity costs of lost capacity is lower than when in an expansion period.

Navarro comments in short that in regards to acquisitions and divestitures a company should follow a buy low, sell high strategy. In his opinion business cycle forecasting gives executives better information of when the right time to sell and buy is.

He goes on to comment on inventory management. Navarro argues that companies can, in anticipation of a recession, benefit from decreasing inventories. Thereby, not leaving the company with large stockpiles bought at premium prices, to be sold at a discount rate as demand decreases. Accordingly, managers should in anticipation of an expansion scale up inventories, thereby, buying at relative low prices that can later be sold at relative high prices once the expansion starts.

The last area, in which Navarro sees strategic gains of doing business cycle forecasting, is in corporate finance and credit risk management. The spread between long-term and short-term debt will vary over the course of the cycle. In times of recession governmental monetary policies will lower short-term borrowing rates in order to stabilize the economy, thereby, increasing the spread. These same policies will then result in a decrease of the spread in times of expansion. A strategic corporate finance team will therefore structure the firm's short-to-long-term debt and debt-to-equity ratio accordingly, thereby, minimizing the firm's capital costs. Lastly, during recessions the default risk rises. This implies that companies should, in anticipation of a recession, tighten credit and reduce receivables. Once a recession is over and the economy is on track again the default risk falls. Companies can then relax credit management, thereby, encouraging consumers to buy.

The third and last step in Navarro's findings is called; "Buliding a recession-proof master cyclist organization". Navarro advocates four major structural aspects that an organization has to consider. The first of which is an overall strong business cycle orientation. According to Navarro companies have to recognize the importance of business cycles and more importantly see them as a source of competitive advantage. This attitude has to flow through the whole company, so that the business cycle is reflected upon before making any strategic decisions. Furthermore, managers and executives should at all times seek information from every source available in regards to the business cycle.

The second aspect is the literacy of executives on the topics of macroeconomics and financial markets. If executives do not understand the basic concepts and tools of economics and financial management, they will not be able to interpret data, generated by forecasting, correctly. Potentially, causing more harm than good.

The third aspect, Navarro describes as a facilitative organizational structure. The organizational structure has to facilitate the gathering of information needed to forecast in a timely manner. Furthermore, it has to facilitate the process of getting the right information to the right people inside the organization. Critical information becomes worthless if not given to the right people in time for them to act on it.

The last aspect in the organization that has to be addressed in order for a company to become recession proof, Navarro describes as a supportive organizational culture. It is not enough that top executives agree upon the importance of paying attention to business cycles. It has to be part of the culture in the company. Every employee has to believe that the future success of the company, in large part, depends on how business cycles are managed.

Chapter 6 - Empirical Analysis

6.1 Interviews

6.1.1 Interview with Rasmus Ankær Christensen and Hanne Krabbe

The interviews with Rasmus Ankær Christensen and Hanne Krabbe were as discussed earlier both semi-structured interviews, following the same interview guide. In this case this structure has been chosen since it facilitates faster and more comparative interviews. Comparing the results of each interview gives credibility to the information gathered. An employee might to some extent lie to make the company look better or worse. An employee could also simply not be aware of all conditions in the company. Furthermore, the company is divided into 5 regions. It was therefore determined that two interviews should be conducted with identical questions. In the case where the answers to the question do not match, the data has to be considered less reliable. Answers to questions regarding the culture or perception for example can produce a very different picture depending on the interviewee since it is a very subjective topic.

The interviews were conducted at Hoffmann's headquarters in the offices of the two interviewees respectively. The interview with Rasmus Ankær Christensen was the first and lasted thirty-nine minutes. The interview with Hanne Krabbe lasted forty-two minutes

The interview guide was constructed in a way that would first uncover whether or not Hoffmann has forecasting capabilities and if so how extensive these are. Three paths of questions were then designed. Which path would be taken would depend on the answers to the first question. The three paths can be labeled the "Yes we do", the "Some" and the "Not at all". It was important to have designed these paths in advance given the need for different questions depending on the first answers. From the initial inquiry into forecasting capabilities the interview inquired how strategizing is performed at Hoffmann. Furthermore, questions about the culture, unofficial habits and the impact of the financial crises were discussed. The interview guide can be seen in appendix A. It was followed casually allowing both the interviewee and the interviewer to deviate if deemed appropriate. It was expected, information could be unveiled that would lead to new questions not prepared in the guide and therefore aloud. Given the semi-structure of the interview this did not diminish the quality of the interview.

Results

At present Hoffmann does not possess any comprehensive strategic forecasting capabilities. They do not have any employee or department whose function it is to analyze and develop economic indicators, turning point or any other forecasting model. (Christensen: 04.40) (Krabbe: 01.00). However they do regularly hold strategic meetings in senior management (Krabbe: 02.05).

The tendency in Hoffmann and in the construction business in general is that management is very short sighted. When considering the future, management takes into account developments that will occur within one year (Christensen: 01.40). At Hoffmann they live by the motto "cash is king" (Christensen: 16.13).

On all desks in the company you will find Børsen and Licitationen. These papers are read on a daily basis in order to keep employees informed on the state of the aggregated economy as well as the industry (Christensen: 03.50). However, it seems that it is far from everyone who actually reads these newspapers on a daily basis (Krabbe: 14.40).

An important source of information on current and developing market conditions is personal networks and relationships. Furthermore, Hoffmann relies heavily on correspondence with partners, suppliers and clients for critical information about the market as well as leads to new sales (Christensen: 04.30, 08:12) (Krabbe: 05.38). Any relevant information then travels up the management ladder until it reaches the right person (Christensen: 07.10).

Top management does also get business cycle reports from industry organizations such as Dansk Byggeri (Christensen: 02.20). However, the time spent on big reports is rather limited. A common approach to such reports is to pull key figures, but an in depth analysis is unlikely (Christensen: 13.07).

Information obtained is used to assess how different sectors are moving so that Hoffmann can employ the right resources in the right sectors at the right time (Christensen: 05.26).

In regards to strategic planning Hoffmann recently received a prize for their ability to include and engage employees on all levels in this process. One of the ways where in employees are able to contribute to strategic planning is at seminars held, where employees work in groups on strategic issues (Christensen: 06.29). However according to Krabbe, strategy is not that well communicated throughout the company (Krabbe: 20.17). Furthermore, each region is in large isolated from its respective counterparts (Krabbe: 16:41)

Liquidity is strictly managed according to present market conditions. The financial crisis of 2007 has especially contributed to an increase in awareness (Christensen: 19.00) (Krabbe: 12.31).

Prices are set according to market conditions and do vary depending on the level of activity in the industry (Christensen: 21.48). At the moment they seem to be relatively stable (Krabbe: 13.15).

There have been large cutbacks, for example there is no longer an actual marketing or HR department. These functions are now handled by a kind of cross-functions department that also handles some sales along with other functions (Krabbe: 07.23) (Krabbe: 26.26).

Strategic thinking is focused primarily on revenue and profit (Krabbe: 02.24)

Production equipment is bought when needed to take on specific types of jobs (Krabbe: 08.30).

According to Krabbe, the attitude of workers changes depending on market conditions. At the moment resources are scarce because of many large projects and workers are aware of this. Analogously, in the aftermath of 2007 workers attitudes are quite different (Krabbe: 17.35).

Krabbe is of the belief that they have learned from the experience of the financial crisis. She contributes this belief to the increased focus on liquidity and their strategic efforts described in their 2015 and now 2020 plans (Krabbe: 30.10)

6.1.2 Interview with Finn Bo Frandsen

The interview with senior analyst Finn Bo Frandsen was conducted at the headquarters of Dansk Byggeri in Copenhagen. The interview took 53 minutes excluding a brief informal introduction of

the interviewer, the topic and the goal that were not recorded. This interview was also conducted as a semi-structured interview. The interview guide was constructed so questions asked could be grouped into four categories where each category regards an aspect of forecasting. The first category of questions was in regards to the technical details of forecasting done by Dansk Byggeri. The second category of questions regarded how the results of forecasting are presented to the trade association's members. The third category was an inquiry into the capabilities and methods needed to produce a report such as the "Konjunkturanalyse februar 2014" published by dansk byggeri. The fourth group of questions was in regards to Frandsen's evaluation of present forecasting capabilities in companies within the construction industry and his opinion on the usefulness of such capabilities.

All questions can be seen in Appendix A. The interview followed the interview guide for the most part, but did also deviate at times. This was not seen as a problem since the questions in the guide are not regarded as the only important information. The interviewee was encouraged to go into greater detail if he felt it was of value. Given the many years of experience of the interviewee it was expected that he might have insights that could not be anticipated and questions could therefore not be formulated in advance.

Results

During the interview Finn Bo Frandsen supplied a written notation that explains what factors are considered in the forecasting report along with a copy of the report for 2014. The notation and report will be referenced if needed. The interview did inquire into specifics as to how forecasting is done in specifics but will not be presented here. Instead I will refer to the notation and the report unless the interview provides additional information that is found in neither the notation nor the report.

The interview with Finn Bo Frandsen showed that Dansk Byggeri does some forecasting in the form of a yearly report along with updates as needed (Frandsen: 1.27). Furthermore they do an analysis of all major governmental initiatives that have an impact on the industry (Frandsen: 2.00). The results and the report are widely available to all their members including Hoffmann.

The data used in the forecast is supplied by Danmarks Statistik (Frandsen: 4.29). Dansk Byggeri does not conduct any of its own empirical research.

According to Frandsen (2.25) what factors impact the industry is different from sector to sector within the industry. For an example residential construction is at a historically low level as a result of the financial crises (Frandsen: 2.48). The residential sector is extremely dependent on real wages and therefore the overall economic environment. When real wages are low and the uncertainty about ones job security is high, the effects will be an almost non-existing urge to move into better homes. Thereby, effectively eliminating all demand for new residential construction (Frandsen: 2.48, 4.30, 5.16). Furthermore, inflation is at such a low level that it has no impact on debt, meaning that the debt you have today is the same debt you will have tomorrow (Frandsen: 5.02).

Frandsen is of the opinion that companies should not burden themselves with the work necessary to create forecasts. Instead they should rely on their trade associations for these analyses. He argues that many years of experience are necessary in order to make quality forecasts (Frandsen: 9.17). One example where experience is important is in data gathering. Data quality in the industry is overall not very good and a lot of the indicators that are looked at actually lag, because there are great delays in the regional reporting (Frandsen: 13.15). Experience gives him and his coworkers the ability to adjust the numbers appropriately.

Urbanization is playing a large role in allocating all demand to the big cities, primarily Copenhagen (Frandsen 3.24). This has the effect that prices fall everywhere else in the country and only rise in Copenhagen (Frandsen: 3.30)

According to Frandsen (8.08) the interest from members in his work is increasing. The increased interest stems not only from large corporations but also from smaller companies. The interest increases in the fall and spring period, which Frandsen explains as being due to budgeting reports. Furthermore, Frandsen (16.00) describes top management in companies as having knowledge about the business cycle to a certain degree.

Frandsen and Dansk Byggeri do not believe that forecasting more than two years ahead on an industry level, can be made with a significant amount of certainty. According to him it becomes too much guessing if looking farther ahead. However, projects initiated by the government are often of the size 5-10 years. For an example they know that the metro construction will increase activity until 2018. Furthermore these projects are politically decided meaning there is a long open process up to a decision is made. It is therefore possible to predict further than 2 years within some sectors to a certain degree (Frandsen: 24.00).

6.1.3 Interview with Svend Jørgen Jensen

The purpose of this interview with Svend Jørgen Jensen was more of an explorative nature than the previous three interviews. Jensen was expected to have a deep understanding of business cycles and how to forecast these. The hope was that his insight could be applied to the case of Hoffmann. The interview took place in Jensen's office at Demetra in Silkeborg. It was intended to be semi-structured, however, it turned out as more of a semi-restrictive open-ended interview instead. During the interview it was quickly realized that the interview guide prepared in advance would not be sufficient to cover all the information that the interviewee was willing to disclose. The number of times where the interview deviated from the interview guide quickly rose. While this gave less structure to the interview it provided a great deal of information. Some was beyond the scope of this thesis but much of it served as a great inspiration and much of it was also extremely valuable. The interview lasted one hour and thirty minutes.

Results

The interview with Jensen covered areas that lie far beyond the scope of this paper. It also became very technical as he at times describes his models in great detail. What is presented, are the points that have been found useful in regards to answering the problem statement and illuminating the subject field.

Jensen's models build on a variety of thinkers, however, his emphasis lies on the economic indicator approach developed by Burns and Mitchell. He is completely confident in this model and believes that all future cycles can be forecasted with it. His belief has been greatly criticized in the

past but is gaining more and more traction today. Among others, Jensen also applies the theories of Joseph Schumpeters, Geoffrey H. Morre and Victor Zarnowitz.

When looking for growth cycles Jensen has created his own models for smoothing out curves in order to show only the cycles. Jensen's models use a centralized moving average of 12 and 26 months (Jensen: 26.00). This is a model he himself has created over the course of many years. According to him no one else uses such models.

Jensen is very skeptical of the media, trade organizations and the banking industry's ability to forecast. These are places many will go to get information about where the economy is heading. He argues that everyone has an agenda so objectivity is very hard to come by, as he says "no one ever forecasts a deep crisis". While some may anticipate a correction in the market, they will always utter this opinion in the mildest form possible. In his opinion these outlets of information will always give a subjective view and is therefore somewhat useless (Jensen: 27.30).

In his opinion those how do forecast, especially, bankers do not look far enough backwards (Jensen: 1.08.00). They may look at 20 or 30 years, but to get the most extreme scenarios one has to look much further back. He himself uses numbers that go all the way back to the 18th century.

When working with economic indicators the best place to find the data needed is, in Jensen's opinion, the conference board. This is also where he gets the data for his models. However, data from the companies own finances may also be used as indicators. For example, the growth rate in revenue can typically be used as a leading indicator (Jensen: 33.12)..

One of the strengths of the indicator approach is that the indicators and the method is the same no matter which countries you apply it to (Jensen: 40.12).

A weakness of the composite indexes is their relationship to monetary policies. If the indicators are very sensitive to monetary policies, they might indicate a false turning point because monetary policies are short-term solutions, which will change at some point. Leading indicators that are

responsive to monetary policies might therefore indicate a turning point before the economy has actually recovered (Jensen: 00.44.00)

In regards to how a company such as Hoffmann should go about doing forecasting, Jensen suggests looking at the overall business cycle first and then at the construction cycle to see if there is a connection which he is sure there is (49.40). Furthermore Jensen argues that it would be informative to see if the revenue follows the business cycle and the construction cycle. Also what the relationship between growth in revenue and the cycle is. While he thinks that many top managers see their growth rate fall, which indicates a economic downturn, they are comforted by media and other sources on how everything is going great. They do not understand the implication that the information gives nor are they equipped with the tools needed to act on this information (Jensen: 01.15.12).

Companies that posses the ability to understand cycles and are able to forecast correctly, the most important thing for a company is in his opinion to be counter cyclical. He demonstrates this by arguing that when they see they have reached a peak, the company knows that it will have to trim the organization due to lower demand. Analogously, the company can invest in new capacity at the bottom in order to maximize gains from the coming upswing (Jensen: 50.50).

If a company such as Hoffmann wants do forecast using economic indicators, they need one analyst who is able to update the numbers and give a report. Jensen estimates that it would be a part time job. (Jensen: 01.12.00) It is then the responsibility of senior management to take the information and use it actively in their strategic decisions (Jensen: 01.17.00).

6.1.4 Interview with Tom Bundgaard

The interview with Tom Bundgaard took place in his closed office at Karios Commodities. The interview had a length of one hour and twenty-one minutes. It was structured as a semi-structured interview. However, learning from the experience with Svend Jørgen Jensen the interview guide was constructed using more general questions. By choosing more general questions, Bundgaard was given more freedom to elaborate, giving the interview a more deep

understanding of the topic while still maintaining control of the interview and what areas it should cover.

At certain points in the interview a more conversational style is adopted as Bundgaard describes different points in great detail. The purpose of the thesis had ahead of the interview been described, on the request of the interviewee, so while certain key questions would be asked, Bundgaard was expected to speak on what he considered to be most relevant in regards to the thesis and its objective.

Results

Tom Bundgaard works with technical analysis and fundamental analysis of the commodities market. He claims there are great insights to be made from business cycle analysis and forecasting. However, he says that it is meaningless to do so if one does not understand how macro economics function. He claims that macro economic factors have an impact on all markets and all businesses. The development in macro economics is the same as the business cycle. Understanding the underlying drivers of the business cycle and how each cycle is reoccurring is necessary in order to do any other forecasting (Bundgaard: 04.30).

Bundgaard argues there are two major benefits of understanding and forecasting the business cycle, related to this thesis. The first is regarding demand (Bundgaard: 05.55). For most companies demand will follow the slope of the business cycle. Understanding the company's relationship to the business cycle will therefore give decision makers important information about the future level of demand. While he thinks many managers understand that macroeconomic events have an impact on demand, the biggest problem lies in them utilizing this information. He argues that in simple terms a company should have two strategies prepared. One for when the business cycle is in an upwards trend and another for when it is in a downwards trend (Bundgaard: 52.00). All other strategic decisions should be conditioned on these two strategies. This is a general idea and the practical implications will be very different depending on the company, industry and the specific cycle. To this point Bundgaard adds that it is necessary to monitor the business cycle closely, and

the earlier one can identify a turning point the better it is for the company, since this will inform them that the economic climate is about to change and they therefore need to change strategies.

The other major benefit in Bundgaard's view is related to input cost (Bundgaard: 08.40). Using a construction company such as Hoffmann as an example he explains that they will have to buy large quantities of materials when taking on a project. The prices of these materials are very volatile. This means that a company has to buy the materials as soon as an offer is accepted. If they do not the materials might be much more expensive at the time where they are needed, making a project unprofitable (Bundgaard: 09.30). However, then they have to store it since many projects first start many months after having signed a contract.

He explains there are two ways a company such as Hoffmann may manage this risk. One is to make the offer price dependent on commodity prices (Bundgaard: 14.59) and the other is to hedge the risk (Bundgaard: 15.08). In his opinion the first is a relative useless strategy. Hedging is a good tool that eliminates the risk. However, it is unlucky having bought at a fixed price only to see prices fall shortly after. He sees a giant potential in being able to asses future trends in such prices. Fortunately, the ability to forecast commodity prices is incorporated in the ability to forecast business cycles, because commodity prices follow a certain trend during the business cycle (Bundgaard: 01.09.02).

6.2 Case Company

This section will briefly describe what kind of company Hoffmann is. It then moves on to analyzing the relationship between Hoffmann and business cycles

6.2.1 Hoffmann A/S

Hoffmann is a Danish construction company owned by the Norwegian company Veidekke. Hoffmann is the fourth largest construction company in Denmark. According to the income statement of 2012 Hoffmann had revenue of approximate 1.3 billion Danish kroner. At this time there was 448 people employed. Hoffman takes on a wide variety of projects. They take on what they call total enterprise projects, where they are in charge of the entire project from start to finish, as well as projects where they are only responsible for parts of the project. Their goal is to get in on projects as early as possible. They also operate in a wide variety of construction

segments, such as residential construction, commercial construction, renovation, road and sewage work and technical work. Basically they have competences in all sectors of the construction industry. They are, therefore, able to bid on all sorts of projects with few limitations. Hoffmann works on projects for private clients as well as governmental institutions.

Hoffmann has since 2010 been working on a 2015 strategy (Hoffmann A/S). The strategy focuses on redefining the company culture, processes and the way they do business. This year they were awarded Boligfonden Kubens process prize. They won for, among other things, involving employees in the strategy process. One of the key elements in the 2015 strategy is winning contracts on different parameters than price. Today 60 percent of contracts are won on other parameters than price. They have announced in their 2015 strategy that their goal is to win as much as 80 percent of their contracts on other parameters than price. Furthermore, they want to be more selective about the projects they bid on, only taking the ones that are most profitable. By focusing on total enterprise projects they achieve the most control, thereby, being able to better asses and plan a project. This is a important part of achieving their strategic goals (Hoffmann A/S).

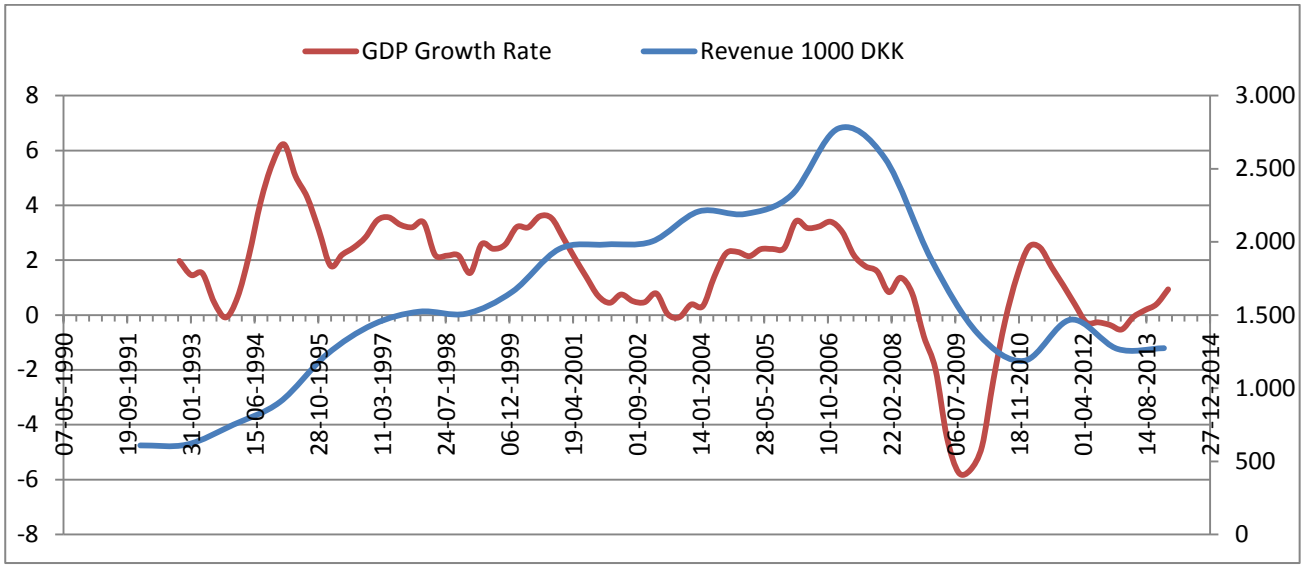
6.2.2 Relationship between Hoffmann and The Business Cycle

In this section the relationship between Hoffmann and the business cycle is analyzed. If an argument for doing business cycle forecasting is to be made, one first needs to stipulate that the company is affected by the business cycle in a way that makes business cycle forecasting valuable. Otherwise, it merely becomes an extra expense for the company. Given the industry that Hoffmann is in, it is expected that the business cycle will have a large impact on the financial situation.

The chart below shows the development in Hoffmann's revenue over the course of twenty-one years and the Danish GDP growth rate. During this time-period the Danish economy has had several periods of expansion as well as periods of contraction. This is depicted by the fluctuations in the GDP growth rate. For the assumption, that there is a relationship between Hoffmann's revenue and the business cycle to be deemed true, it is expected that when comparing the two graphs, a clear pattern will emerge. And that this pattern is seen consistently throughout the time-period in order to reduce the possibility of it being a onetime occurrence. When one compares the

two graphs there are indications of a pattern to be found. The revenue in Hoffmann has been in an upward trend since the early 90's, right up to the financial crises of 2007. However, there are periods of stagnation in their revenue. These periods coincide with periods of a decline in GDP growth. Furthermore, the periods where revenue increases coincide with periods of GDP growth. These observations suggest a relationship between growth in the aggregated economy and the revenue in Hoffmann.

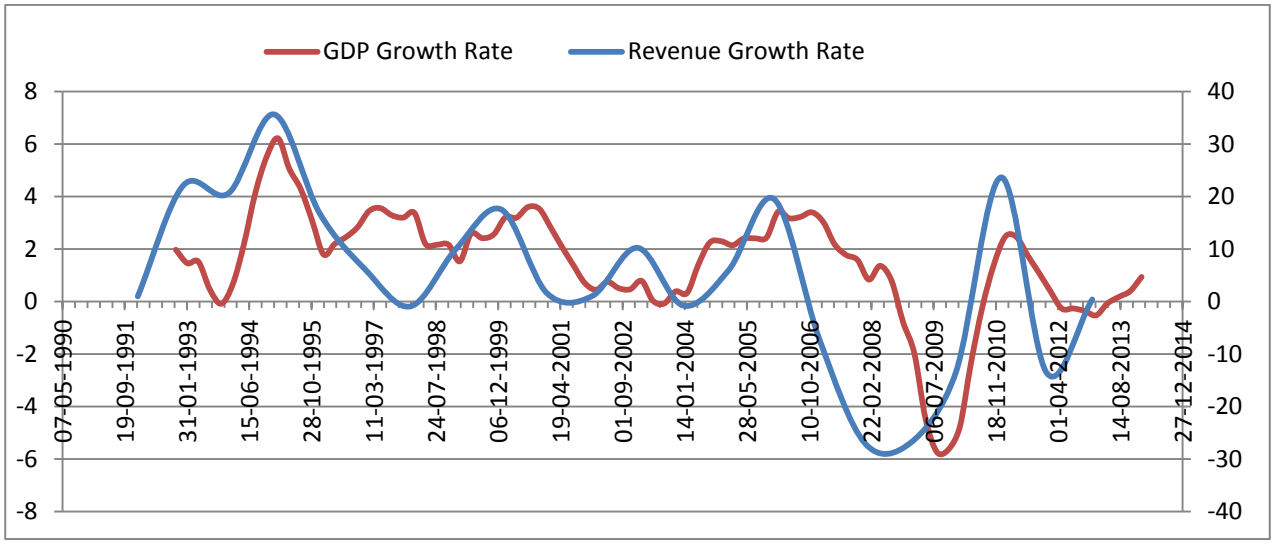
Figure 6.2.1 Danish GDP Growth Rate (left-axis), Hoffmann's Revenue (1000 DKK) (right-axis)



Source*: Statistikbanken – NAT01, Hoffmann's financial statement 1991-2013*

The depiction of Hoffmann's revenue in terms of a growth rate further clarifies the relationship between the aggregated economy and Hoffmann. Chart 6.2.2 indicates that revenue in Hoffmann follows the same cyclical pattern as the aggregated economy, only the cycle leads the aggregated economy by approximately one year.

Figure 6.2.2 Danish GDP Growth Rate (left-axis), growth rate in Hoffmann's revenue (right-axis)



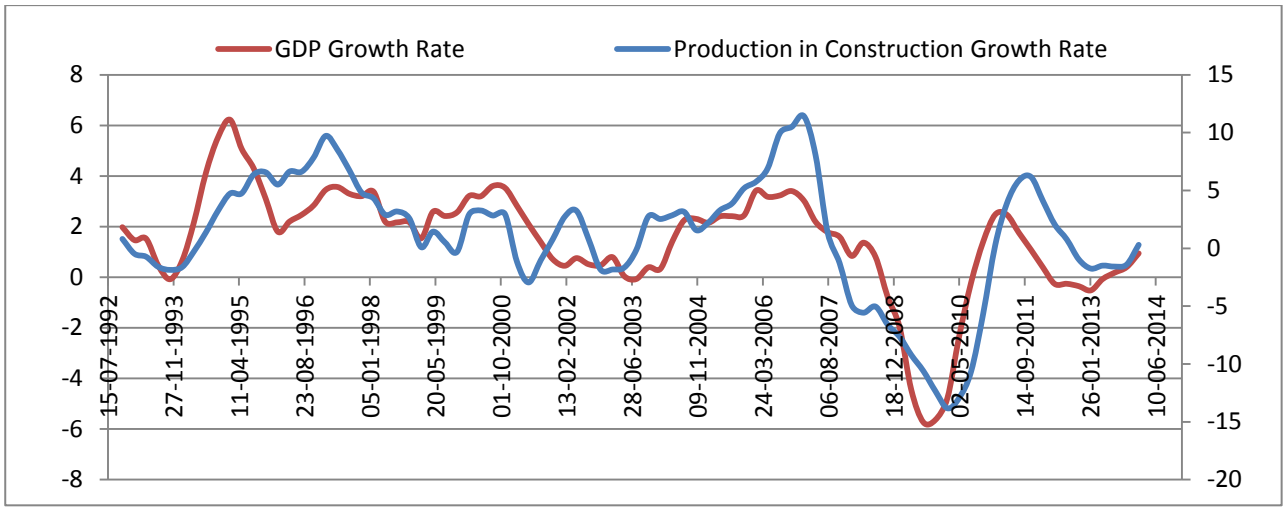
Source: Statistikbanken – NAT01, *Hoffmann's financial statement 1991-2013*

6.3 The Construction Industry

The construction industry is very much affected by the business cycle. It is one of the first sectors to feel the impact of downturns as well as upturns. This makes sense because when the economy is booming and companies and their employees are making a lot of money, both companies and employees will use this money, to enrich their lives. For companies this can mean a new fancy headquarters and for the employees it can mean a new house. Analogously, in times of financial distress and uncertainty about ones job security, no one dares to invest in a new and better home. By looking at past developments in the construction industry, one should be able to draw a conclusion about the relationship between the business cycle and the construction industry. Unfortunately, the industry is characterized by a lack of statistical information. This makes the analysis less reliable.

Chart 6.3.1 depicts the growth rate in the production in the construction industry, compared to the growth rate in the Danish GDP. This figure suggests a clear relationship between the two variables, which is in periods of economic growth production in construction increases, analogously in periods of less or no growth production in construction decreases.

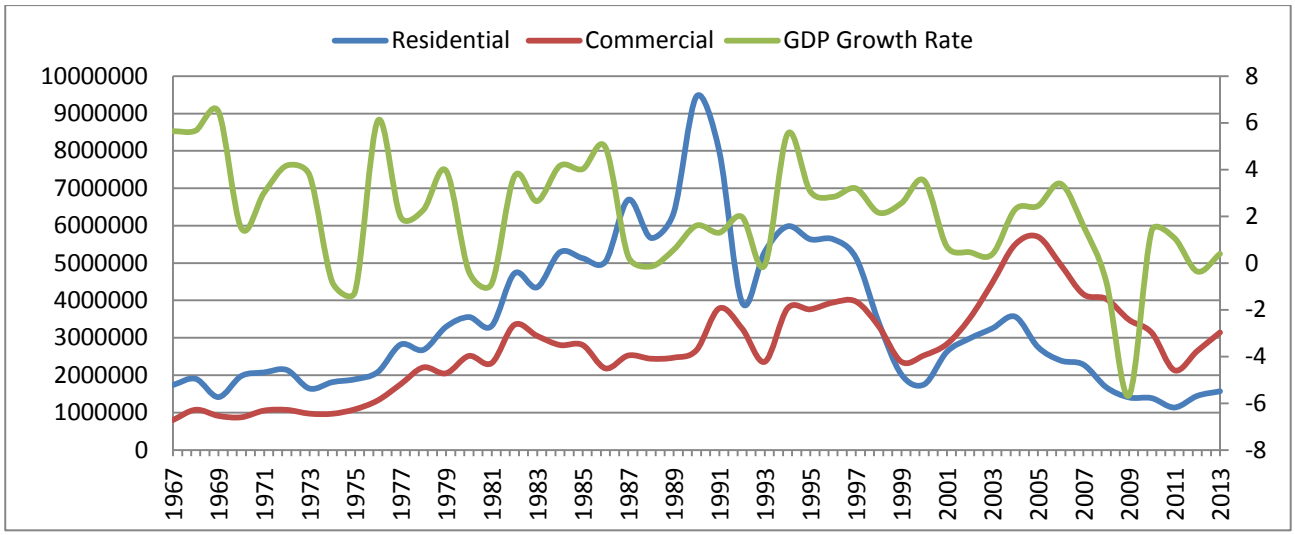
Figure 6.3.1 Danish GDP Growth Rate (left-axis), Production in the Construction Industry as a growth rate (chained 2005 prices, seasonally adjusted) (right-axis)



Source: Statistikbanken.dk - NAT01, NATK02N

The chart below shows how the level of activity in both residential construction and commercial construction in Denmark, measured in m^2, falls and rises with the growth rate in the Danish GDP. While there is some variety to the levels of the fluctuations, the graph shows that the turning-points occur very close to one another. This becomes very clear when looking at the situations where the growth rate comes close to zero or turns negative. A dramatic drop is exactly what is expected from a theoretical point of view, when the economy comes close to or goes into recession. The graph supports this expectation. However, as seen below activity does not necessarily drop drastically when small changes in the GDP growth rate happen.

Figure 6.3.2 Danish GDP Growth Rate (right-axis), Total Construction Started in Residential and Commercial Construction (m2) (left-axis)

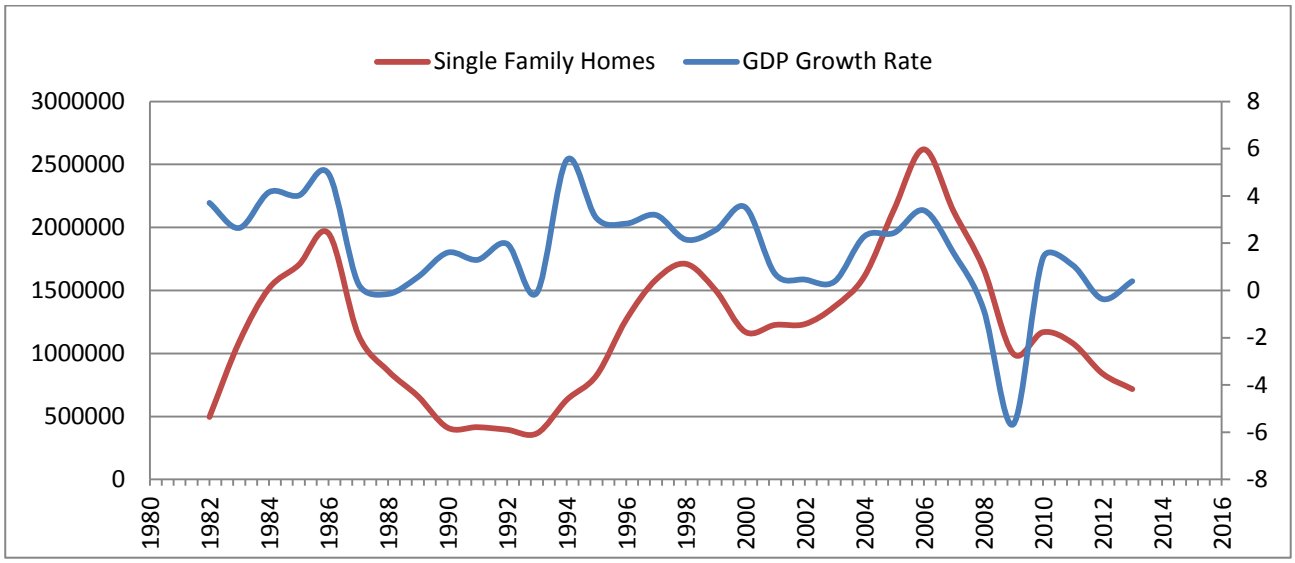


Source: Statistikbanken.dk, BYGV04, NAT01

The above section showed how the level of activity in both residential construction and commercial construction in general follow the general economy very closely. Since Hoffmann is an entrepreneur that operates in all sectors of the construction industry, the development in specific sectors will below be discussed. The reason for this is to identify if specific sectors within residential and commercial construction follow the same cycle or if they have different cycles.

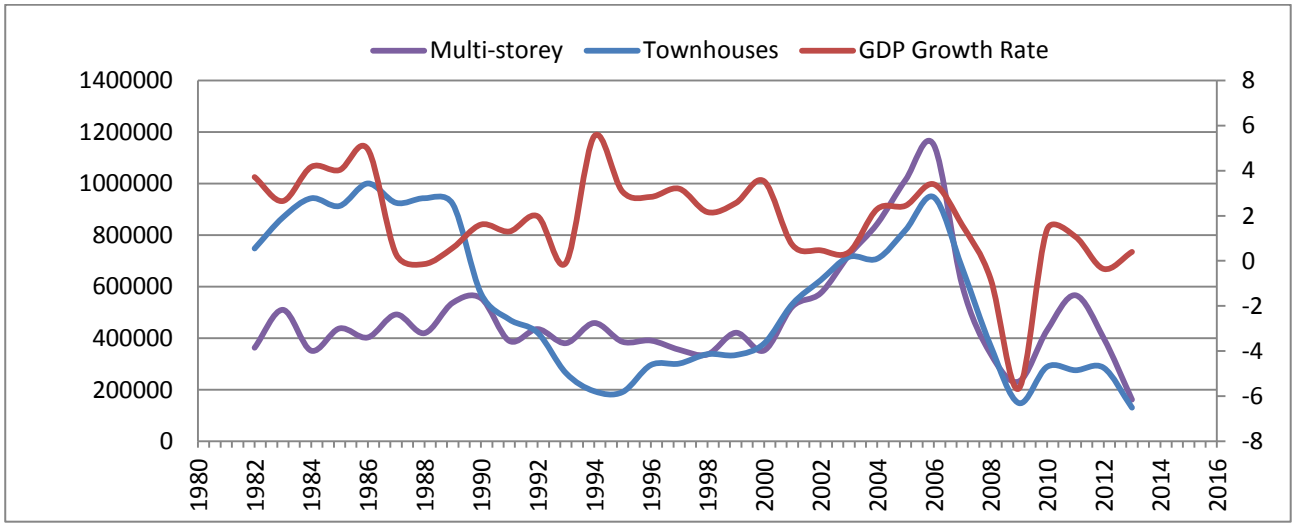
The chart below shows residential construction broken down into three categories, namely, single family homes, multi-storey and townhouses. The level of single family homes experiences a much greater change in percent than the other two categories. This is to be expected since single family homes are the most expensive and therefore associated with the biggest risk. The cycle in single family homes is also very close related to that of the Danish GDP. Multi-storey and townhouses are less volatile and while these sectors also hit a peak in 2007 and experienced a sudden drop afterwards they seem to follow the business cycle in a much smaller degree than single family homes.

Figure 6.3.3 Danish GDP Growth Rate (right-axis), Single Family Homes Permits (m2) (left-axis)



Source: Statistikbankem.dk – BYGV01, NAT01

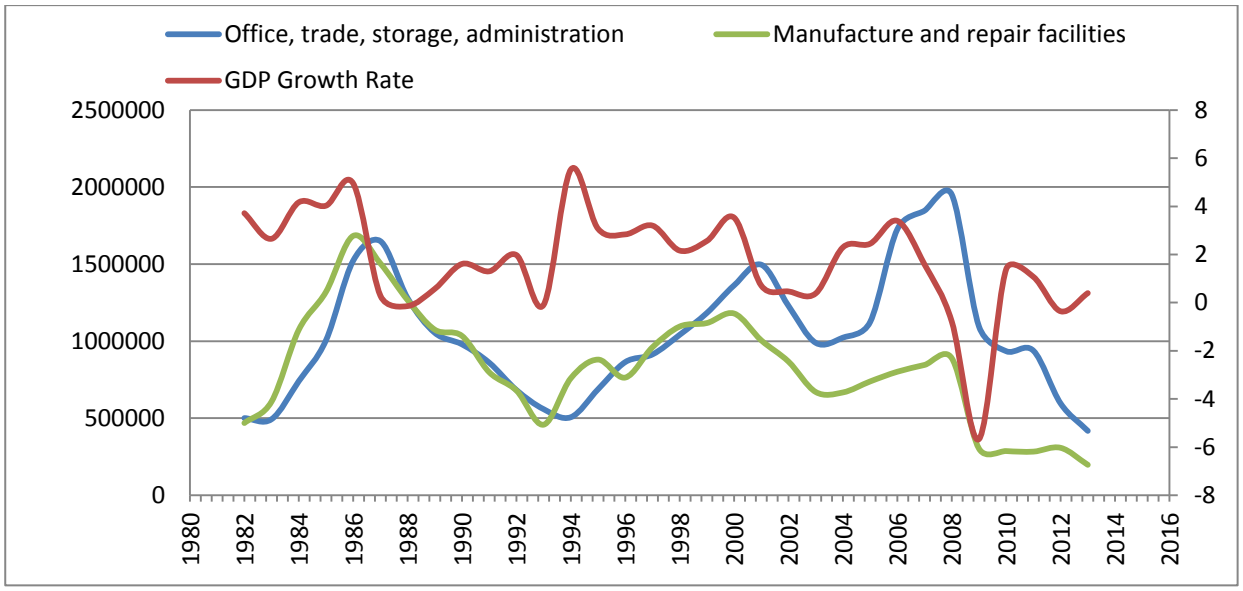
Figure 6.3.4 Danish GDP Growth Rate (right-axis), Multi-story Building Permits (m2) (left-axis), Townhouse Building Permits (m2) (left-axis)



Source: Statistikbanken – NAT01, BYGVO5A

The levels in commercial construction which includes construction projects such as offices, trade, storage, administration and manufacturing have a very similar development over time as it is seen in the graph below. Until 2000 the activity in both categories where almost identical and while construction of offices etc. increased much more in the expansion period up to 2007, the turning-points look to occur simultaneously.

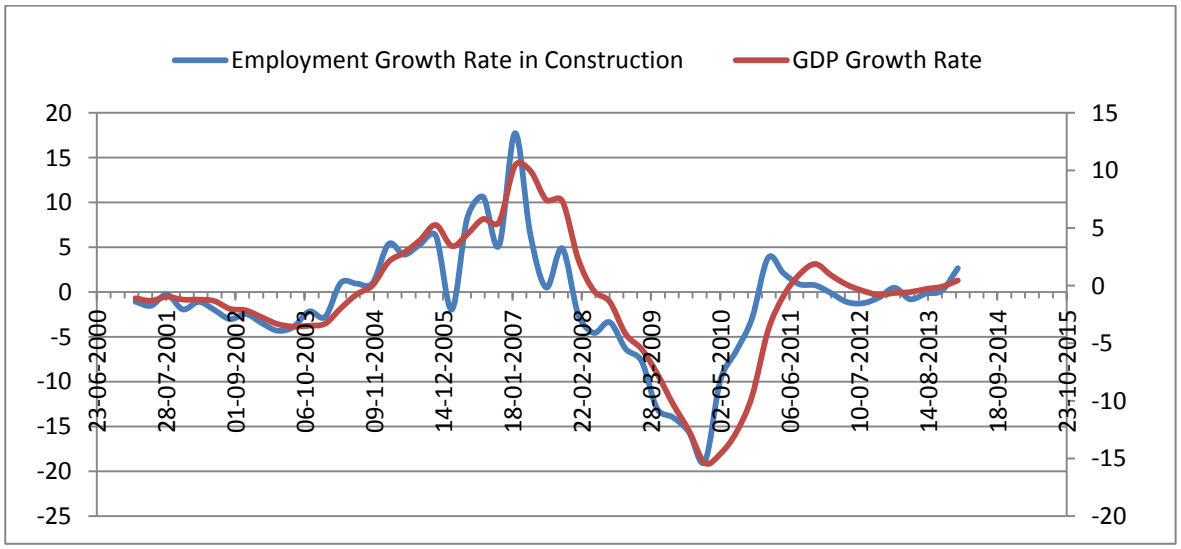
Figure 6.3.5 Danish GDP Growth Rate (right-axis), Building Permits (Office, Trade, Storage and Administration) and (Manufacturing and Repair Facilities) (m2) (left-axis)



Source: Statistikbanken.dk - BYGV01, NAT01

The graph in chart 6.3.6 depicts the employment growth rate adjusted for seasonality. The growth rate in employment further suggests a very close relationship between aggregated economic activity and the construction industry.

Figure 6.3.6 Danish GDP Growth Rate (right-axis), Employment Growth Rate in Construction (adjusted for seasonality) (left-axis)



Source: Statistikbanken.dk – BYG1, NAT01

Chapter 7 - Assessment of Possible Leading Indicators

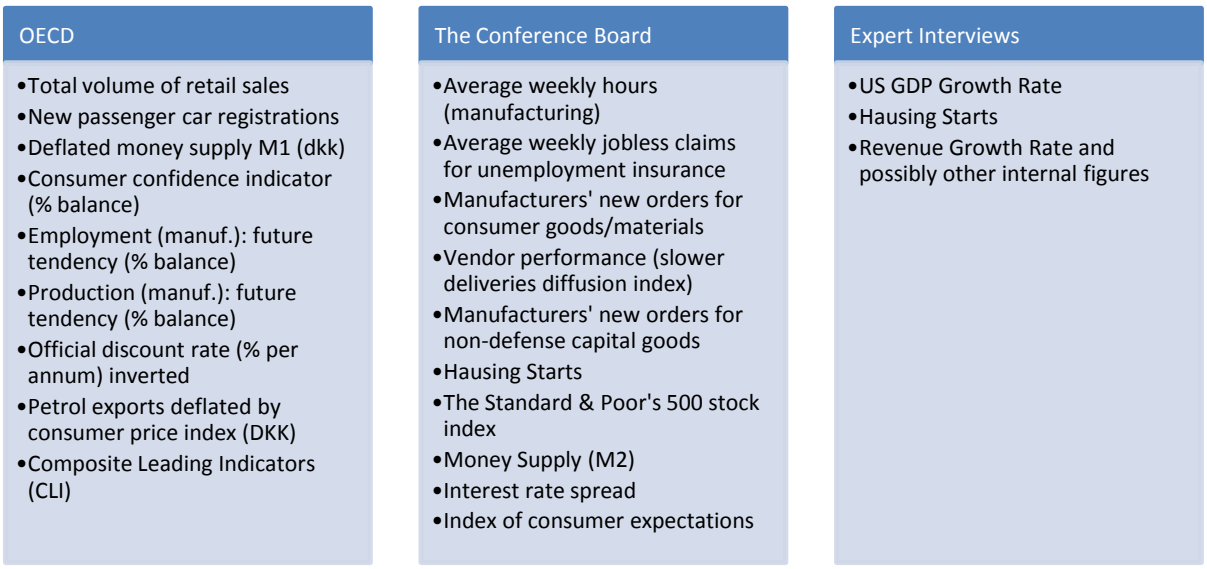
In this section an assessment of possible leading indicators on different economic levels will be conducted, with the purpose of demonstrating what indicators should be employed by Hoffmann.

In the previous chapter it was stipulated that the growth rate of Hoffmann's revenue has a close relationship to the growth rate in the Danish GDP. In the period described, it seems to follow the same trend, but with a short lead in timing of turning-points. By this logic one would expect that leading indicators of the Danish GDP will also either lead or coincide with the growth rate in Hoffmann's revenue, depending on the lead time of each indicator.

The approach to this realization has been to, first, discuss indicators on a macroeconomic level and analyze their relationship to Hoffmann's revenue. Then an identical procedure is used in a discussion of possible indicators on both an industry level and on a micro level. The list of indicators discussed is not exhaustive, but it has been created from the recommendations of the OECD, The Conference Board, Svend Jørgen Jensen and Tom Bundgaard.

Figure 7.1 gives an overview of the many leading indicators that have been suggested during the research of this thesis and the sources of each.

Figure 7.1 Overview of Leading Indicators Suggested by Research



Source: http://www.oecd.org/std/leading-indicators/CLI-components-and-turning-points.pdf, (The Conference Board, 2000)*, Interviews (Frandsen, Jensen, Bundgaard)*

In figure 7.2 the indicators that are included in the discussion are divided into their respective levels. Not all indicators that have been presented are included in the discussion. The thesis has evaluated each indicator on the parameters of their availability, accessibility, and the intuitive relationship to Hoffmann.

The figure illustrates that most indicators are on the macro level. The thesis focuses on these given the close relationship between GDP and revenue in Hoffmann. Furthermore, there presently exists a great deal of data in support of these indicators making the probability of their applicability higher.

Figure 7.2 Overview of Chosen Leading Indicators analyzed by Level

Macro/Economy	Meso/Industry	Micro/Company
•Total volume of retail sales •New passenger car registrations •Money supply M1 (dkk) •Consumer confidence indicator (% balance) •Composite Leading Indicators •US GDP •The yield curve •OMXC20 index •Industrial Production OECD	•Hausing starts •Purchases by industry	•Revenue growth rate •Orders growth rate •Inventory growth rate •Sales/inventory ratio

Source: Own creation

As described earlier a large part of the economic indicator approach is based on trial and error (Niemira & Klein, 1994). However, behind each choice is a rationale. The rationale of each indicator will be put forth before the historical success rate is analyzed.

7.1 Macro Level Indicators

7.1.1 Retail Sales

The total volume of retail sales is used as a component series in the CLI by The Conference Board, who applies it in regards to the US economy, as well as OECD who apply it in regards to the Danish

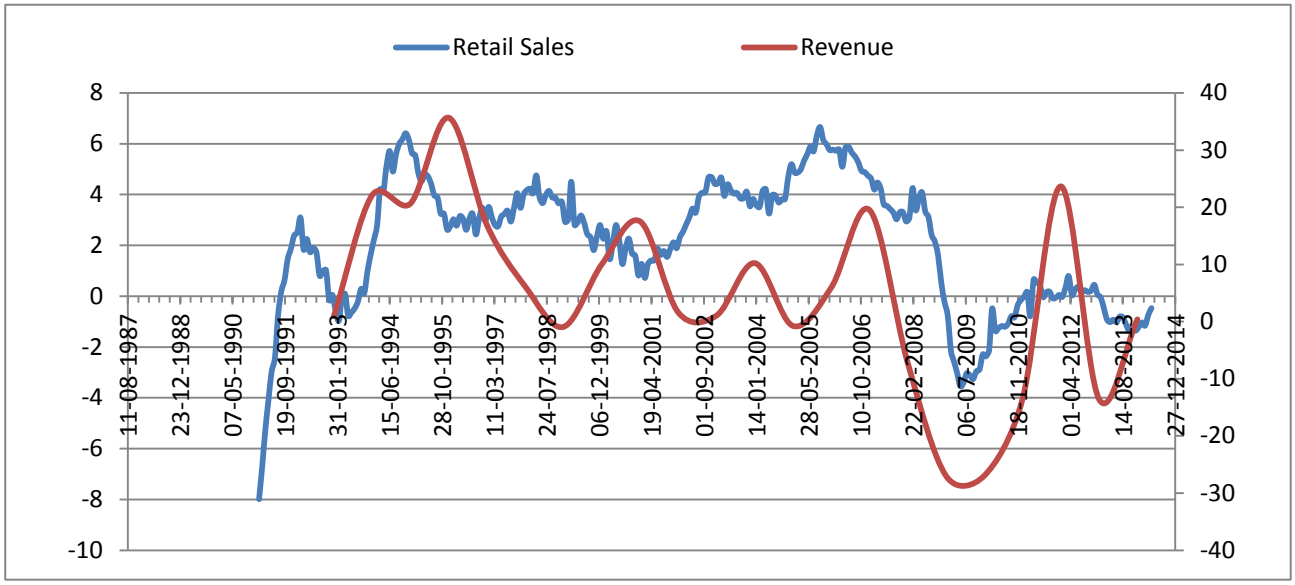
economy. The retail sales volume is thought to have leading capabilities because it has direct implications on GDP. Strong retail sales will directly increase GDP, since an increase in sales will increase production leading to more jobs, which then leads to an increase in total income. An unfortunate effect of debt financing is that it may in some scenarios delay the occurrence of a turning-point and make (The Conference Board, 2000).

Expecting retail sales to increase ahead of revenue in a construction company seems reasonable since one would expect that as people experience an increase in income, they will first spend it on less costly goods than a new house. However, one could argue the opposite would happen as income decreases, leading people to instantly drop any ambitions of moving in to a new home, before giving up smaller less costly goods.

Furthermore, some theorists have recently argued against the use of retail sales as a leading indicator, arguing that the sensitivity to changes in the economic environment is much greater in business-to-business indicators than in indicators in close to end consumer markets (Skousen, The structure of production, 1990) (Duus, 2007).

The chart below depicts the timing relationship between the growth rate in total volume in retail sales and revenue growth rate in Hoffmann. The chart indicates a somewhat consistent lead in turning-points. By comparing turning-points the chart suggests that retail sales have a long lead time of between one and two years. However, since the trough in 2009 the nature of the relationship has been less clear.

Figure 7.1.1 Retail Sales Growth Rate in Volume (12 months moving average) (left-axis), Hoffmann's Revenue Growth Rate (right-axis)



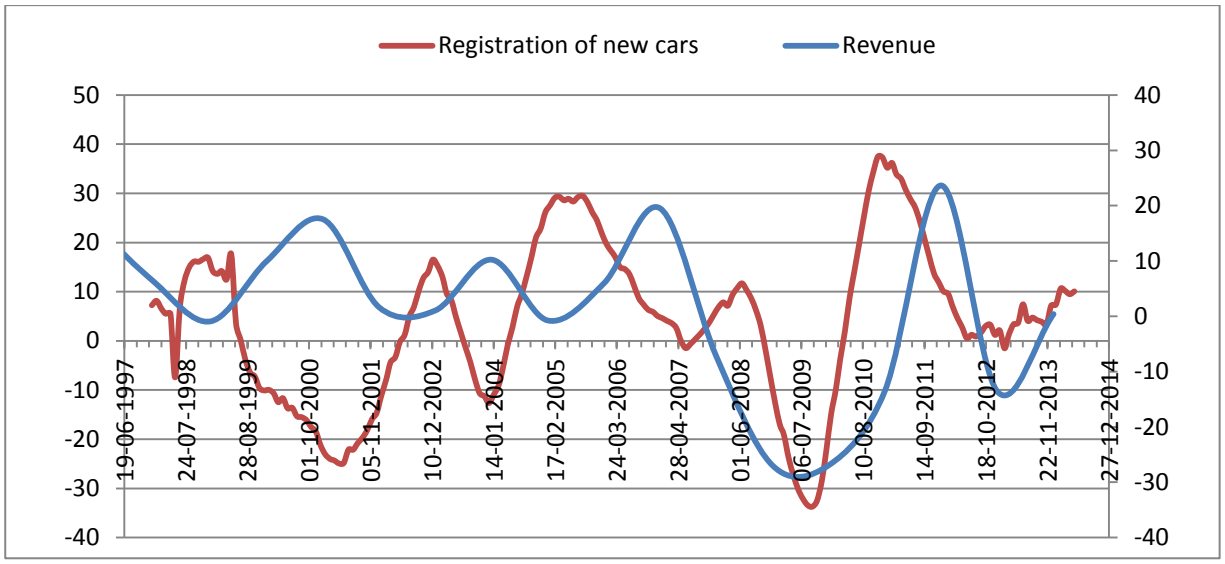
Source: Datastream - DKRETTO%F, Hoffmann's financial statement 1991-2013

7.1.2 Registration of New Cars

Using registration of new cars as an indicator is something the OECD has chosen to in some countries but in all. They do however apply it as a component series in the CLI for the Danish economy. The argument in support as well as against using registration of new cars is an indicator is homogeneous to that of retail sales.

Chart 7.1.2 depicts the timing relationship between the growth rates of new personal car registration and that of revenue in Hoffmann. Registration of new cars consistently leads revenue over the course of fifteen years, with the exception a false signal in 2007 and a small lag in 2008.

Figure 7.1.2 Registration of New Personal Cars in DK as Growth rate (12 months moving average) (left-axis), Hoffmann's Revenue Growth Rate (right-axis)

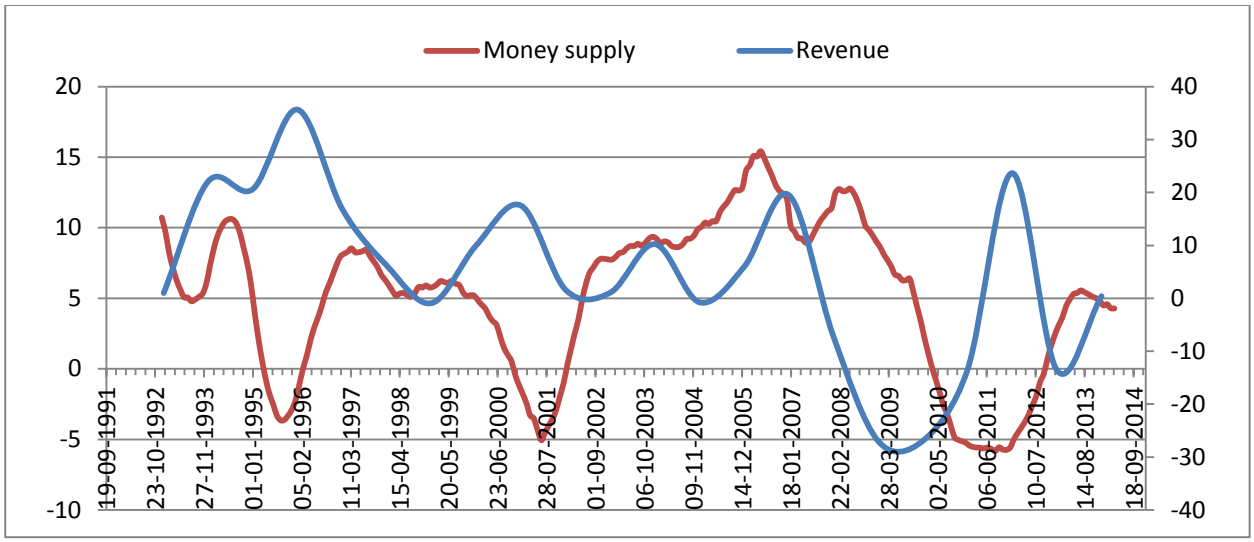


Source: Datastream – DKCAR…O, Hoffmann's financial statement 1991-2013

7.1.3 Money Supply

The money supply (M1) is a measure of monetary assets such as currency and checkable deposits. This measure shows the effects of monetary policy because the money supply is regulated by the Danish National Bank through the sales or purchasing of bonds. The money supply is considered a long leading indicator with a lead time of more than twelve months at peaks and six months at troughs (Moore & Lahiri, 1991).

Figure 7.1.3 Money supply (M1) (12 months moving average) (left-axis), Hoffmann's Revenue Growth Rate (right-axis)



Source: Datastream – DKM1….A, Hoffmann's financial statement 1991-2013

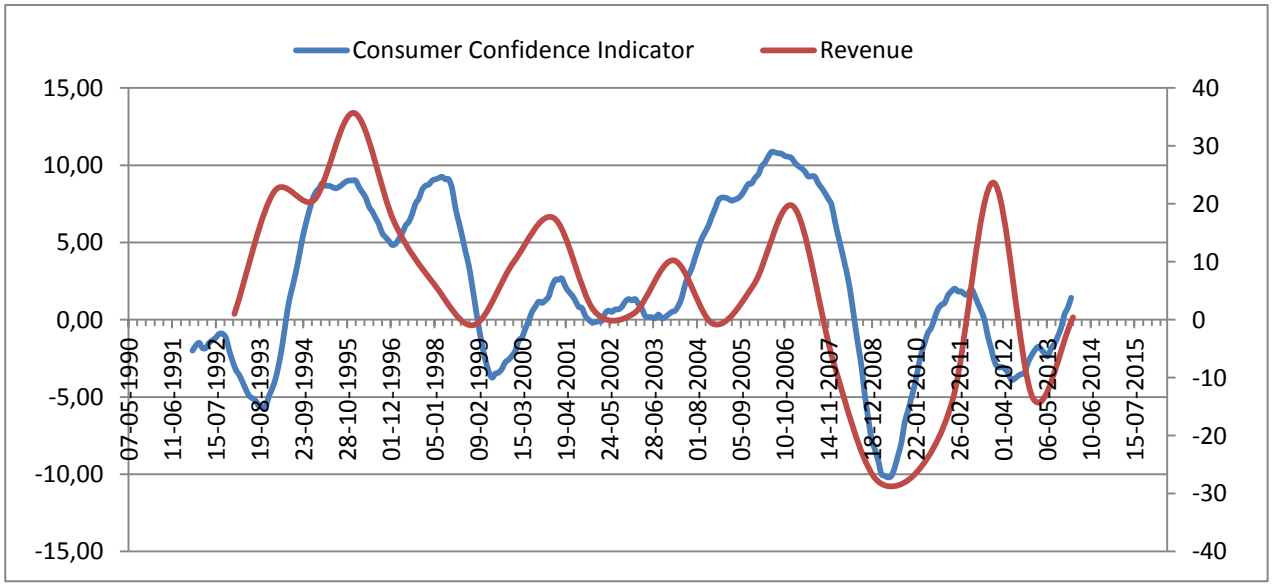
From figure 7.1.3 one can only conclude that there is no clear leading relationship between the money supply and revenue in Hoffmann. The trend in each curve is too different from one another, for there to be talk of a leading indicator.

7.1.4 Consumer Confidence

The consumer confidence indicator measures what the Danish people expect in the future. Since expectations for the future will have a large impact on how people spend their money presently, the indicator could have leading capabilities. Very few people are able to buy a new home without taking on debt. Assuming people are risk adverse in general they will only acquire debt when they think they are able to meet payments on that debt. Therefore, one could argue that expectations of the future have to be positive for people to buy new homes, thereby, increasing consumer confidence. A problem with applying consumer confidence in regards to Hoffmann is that a large part of their revenue is generated through non-residential construction.

Figure 7.1.4 depicting consumer confidence, does not indicate any consistent leading capabilities in relation to revenue in Hoffmann. There is no consistency to the timing relationship between turning-points. In some cases consumer confidence leads but in other it is the other way around.

Figure 7.1.4 Consumer Confidence Indicator (12 months moving average) (left-axis), Hoffmann's Revenue Growth Rate (right-axis)



Source: Statistikbanken.dk – FORV1, Hoffmann's financial statement 1991-2013

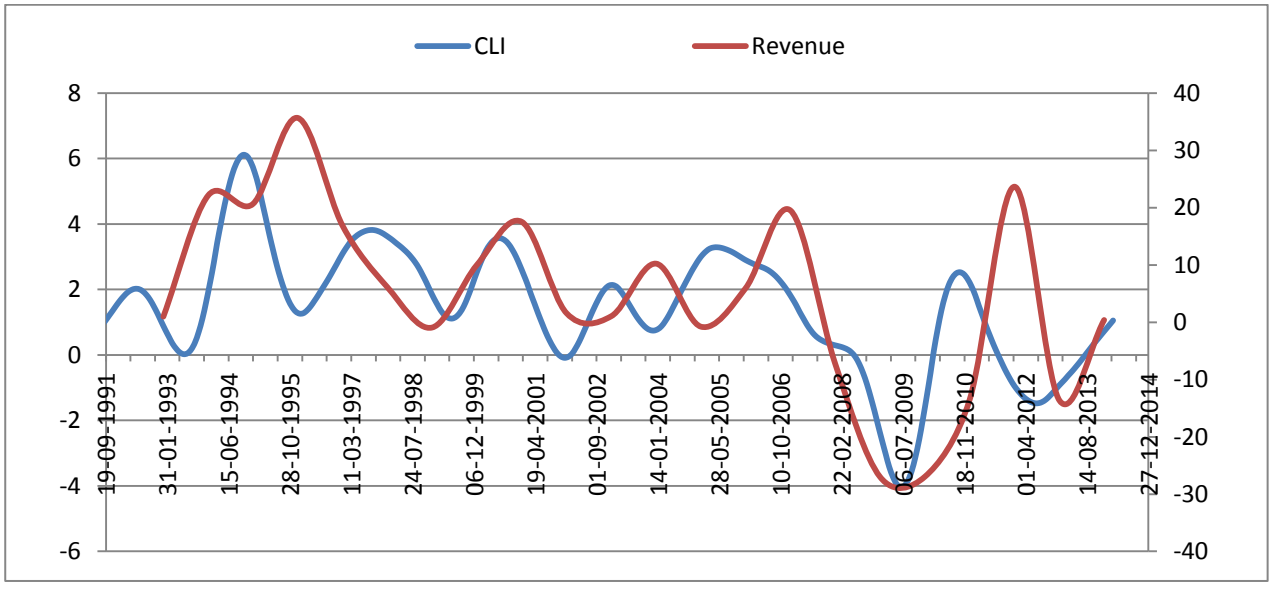
7.1.5 Composite Leading Indicator (CLI)

The chart below depicts a composite leading indicator for Denmark, created by the organization OECD. OECD uses the following component series in this composite indicator.

- Total volume of retail sales (2010=100)
- New passenger car registrations (number)
- Employment (manuf.): future tendency (% balance)
- Production (manuf.): future tendency (% balance)
- Official discount rate (% per annum) inverted
- Deflated money supply M1 (DKK)
- Petrol exports deflated by consumer price index (DKK)
- Consumer confidence indicator (% balance)

Comparing the CLI with the revenue in Hoffmann suggests a clear leading capability in the CLI. The timing relationship of the two is depicted in the chart below. From it the CLI can be said to lead revenue in Hoffmann with approximately six to eighteen months at peaks and six to twelve months at troughs.

Figure 7.1.5 Composite Leading Indicators DK (12 months moving average) (left-axis), Hoffmann's Revenue Growth Rate (right-axis)



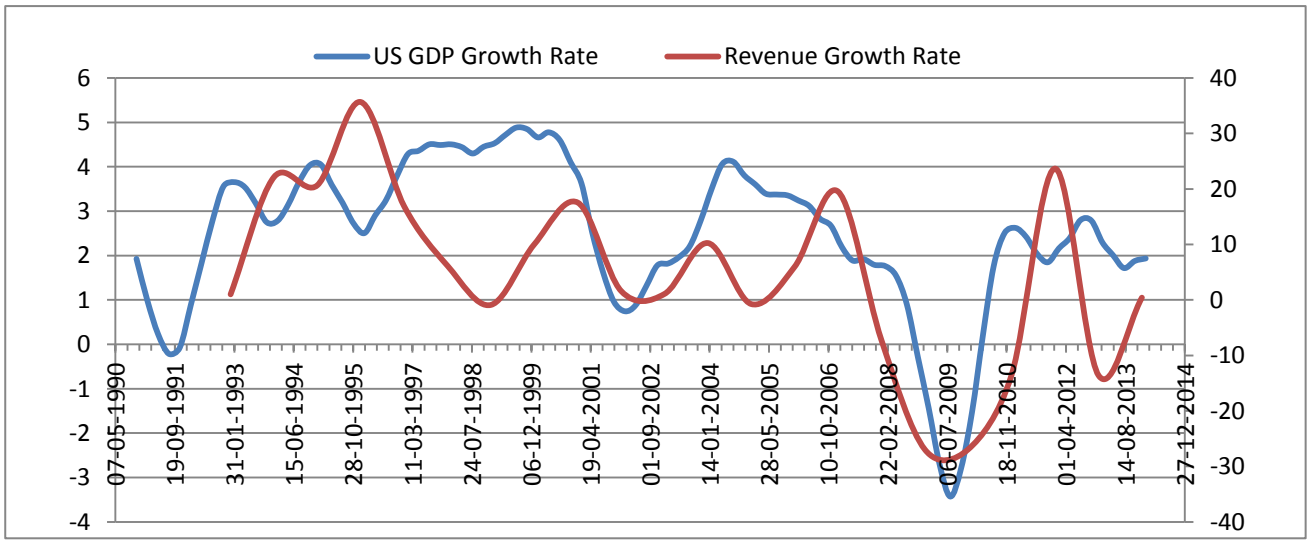
Source: http://stats.oecd.org/Index.aspx?DataSetCode=MEI_CLI, Hoffmann's financial statement 1991-2013

7.1.6 US GDP

In the interview with Svend Jørgen Jensen he suggested that the US economy in today's economic environment leads European economies and thereby also the Danish economy (Jensen: 40.15). This is because of its size and status in the world.

A comparison of the US economy and the revenue in Hoffmann indicates a relationship at what you could characterize as major turning-points. Turning-points that occur do to a major global crisis. However, it does not indicate any of the smaller turning-points that Hoffmann experiences, making it inadequate in this case.

Figure 7.1.6 Growth in US economy (12 quarters moving average) (right-axis), Hoffmann's Revenue Growth Rate (left-axis)



Source: http://stats.oecd.org/index.aspx?queryid=350#, Hoffmann's financial statement 1991-2013

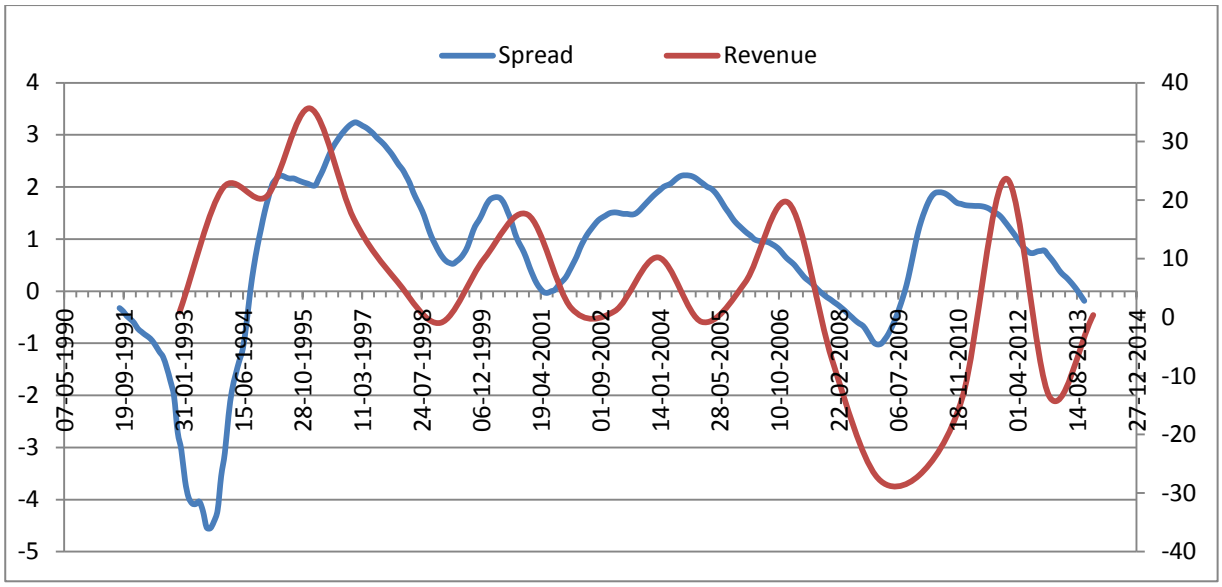
7.1.7 The Yield Curve

The yield curve or the interest rate spread as it is also called is regarded as a leading indicator. It is done so because it is felt to be a reliable indicator of the stance of monetary policy, rising when short-term interest rates are low relative to long-term interest rates and inflation expectations, and falling when short-term interest rates are high relative to long-term interest rates and inflation expectations (The Conference Board , 2001). It shows the spread between short-term

and long-term interest rates which in this case is the interest rate of a ten-year Danish treasury bond and a three-month Cibor rate.

The outcome of comparing the spread to the revenue growth rate in Hoffmann is inconclusive. The two curves follow the same trend, however the timing relationship between turning-points in each curve changes. In the first eight years, from 1992 – 2000, revenue leads the spread, but from 2000 till today, the opposite is the case. In this time period the spread leads revenue between twelve and twenty-four months at peaks. The lead time of troughs is not consistent.

Figure 7.1.7 Interest Rate Spread (Danish 10 year Treasury Bond and a 3 month Cibor Rate (12 month moving average) (left-axis), Hoffmann's Revenue Growth Rate (right-axis)



Source: Statistikbanken.dk – DNRENTM, Hoffmann's financial statement 1991-2013

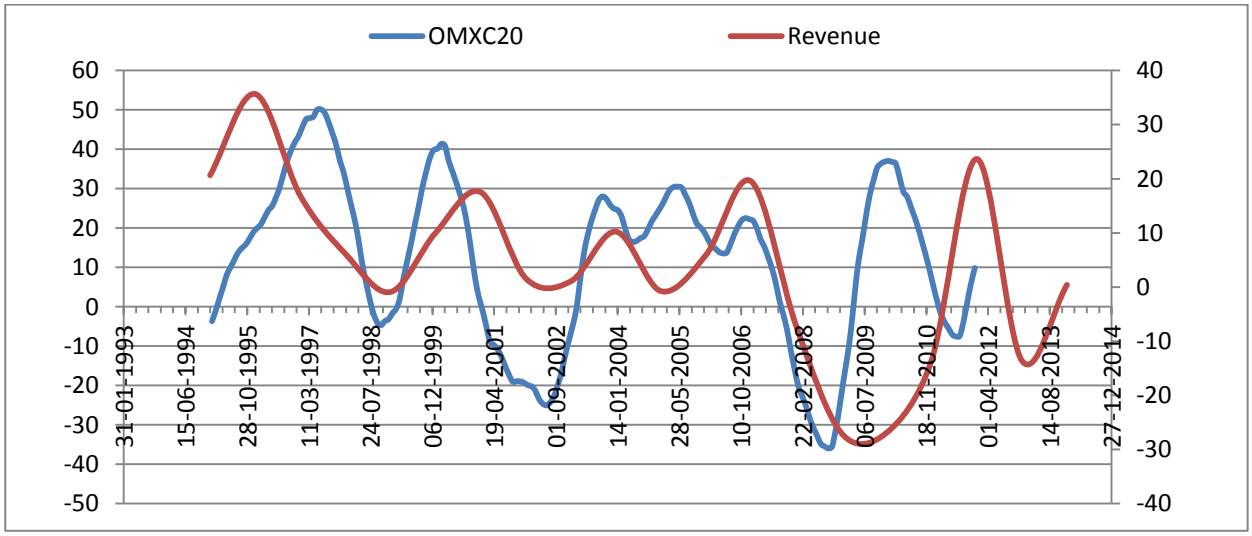
7.1.8 Stocks – OMXC20

Using the leading stock market index as a leading indicator makes sense because the stock price reflects investor expectation of the future profitability of that company. Furthermore, market participants often have more information than executives. As the leading index in the Danish stock market, the OMXC20 stock index has been chosen, today called the OMXC20CAP. Had this been the US the S&P 500 index would have been chosen instead.

A comparison of the revenue in Hoffmann with the OMXC20 index suggests that the stock market form the peak of 1999 has a leading relationship at peaks, with regards to Hoffmann's revenue.

The lead time has been between two and twelve months, with the exception of the most recent peak, where the lead time can be observed as approximately two years. The relationship between troughs is considered more coincident.

Figure 7.1.8 OMXC20 Growth Rate (12 month moving average) (left-axis), Hoffmann's Revenue Growth Rate (right-axis)



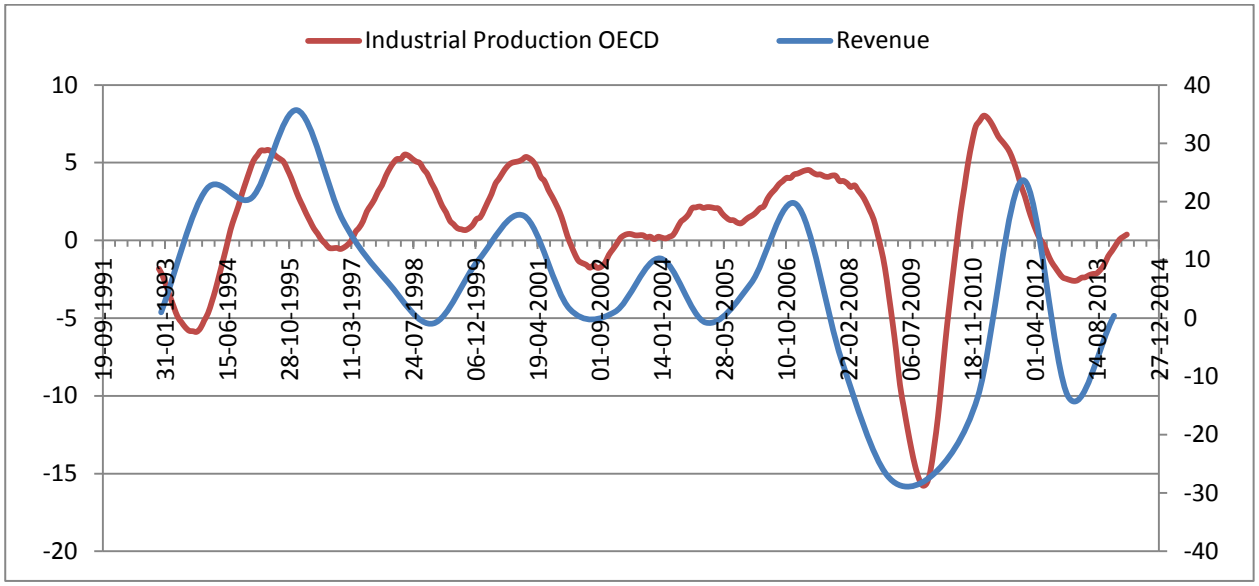
Source: Statistikbaken.dk – DNRENTM, Hoffmann's financial statement 1991-2013

7.1.9 Total Industrial Production in OECD

Industrial production has been chosen for the reason that an industrial production increase can lead to expansions that require new offices or production facilities. Furthermore, an increase in production means more jobs and higher job security, thereby, facilitating an increase in demand for new and better homes. The reason why industrial production in the Euro zone has been chosen is because of Denmark's small and open economy. International companies are therefore expected to have a large impact on the activity in Danish companies.

When comparing the timing relationship between industrial production and the revenue in Hoffmann, a clear leading relationship is not observable. Industrial production can be described as a coincident indicator with leading qualities, the argument being that it has the same trend and has at certain points in time experienced turning-points ahead of revenue, though without doing so consistently.

Figure 7.1.10 OECD Industrial production Growth Rate (12 months moving average) (left-axis), Hoffmann's Revenue Growth Rate (right-axis)



Source: Datastream - EKIPTOT.G, Hoffmann's financial statement 1991-2013

7.2 Meso Level Indicators

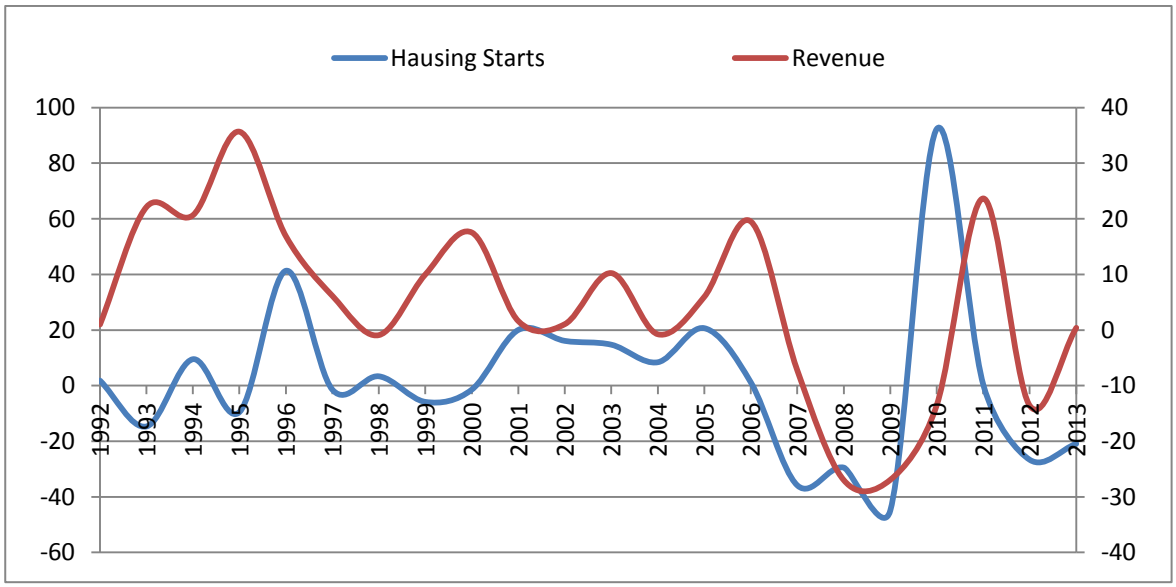
7.2.1 Housing Starts

Building permits are part of the official composite leading index created by The Conference Board. This alone suggests that it has leading capabilities. The indicator is measured by the number of permits issued for residential construction. Since permits have to be given by the local government before any construction can begin, one could say that getting the permit is the first stage of a construction project. Normally building will commence a few months later. Building permits are therefore expected to lead the industry by a few months. This time, however, might be shortened because according to Frandsen local Danish governmental institutions are rather slow in their reporting of building permits. If this is true the data will be off by the time it takes them to report an awarded permit. Permits will also in some cases expire due to circumstances that delayed or cancelled the project. This also makes the statistic less reliable as an indicator. Fortunately, the amount of permits cancelled is said to be relatively low.

Chart depicts the timing relationship between housing starts and revenue in Hoffmann. There is no indication that this indicator has a leading relationship with revenue in Hoffmann.

In recent years these numbers are released on a monthly basis which increases their quality and usefulness. However, seen as the historical track record is what the indicator is evaluated by, the yearly data have been applied here.

Figure 7.2.1 Housing Starts (yearly) (left-axis), Hoffmann's Revenue Growth Rate (right-axis)



Source: Statistikbanken.dk – BYGV99, Hoffmann's financial statement 1991-2013

7.2.2Input Levels

The levels of raw material such as steal, glass and concrete purchased by the industry, one could argue would be a good indicator on a meso level. Since these materials are needed to build, one would expect that companies will by more as they expect activity to increase. Thus, the level of raw materials purchased will indicate what expectations the industry has for the future. An argument in favor of such an indicator could be that other industry participants may have better information than one self. Unfortunately, these statistics do not exist for the construction industry farther back than 2012, making it impossible to test is as a leading indicator. However, note worthy due to the future application of the statistic.

7.3 Micro Level Indicators

This section attempts to investigate the possible application of figures and ratios in Hoffmann's own accounting as leading indicators that can forecast future developments in revenue. However, the fact that such accounting figures only have been provided on a yearly basis does diminish the

expected usefulness. The analysis is done in spite of this, in the hopes that findings will indicate a level of usefulness.

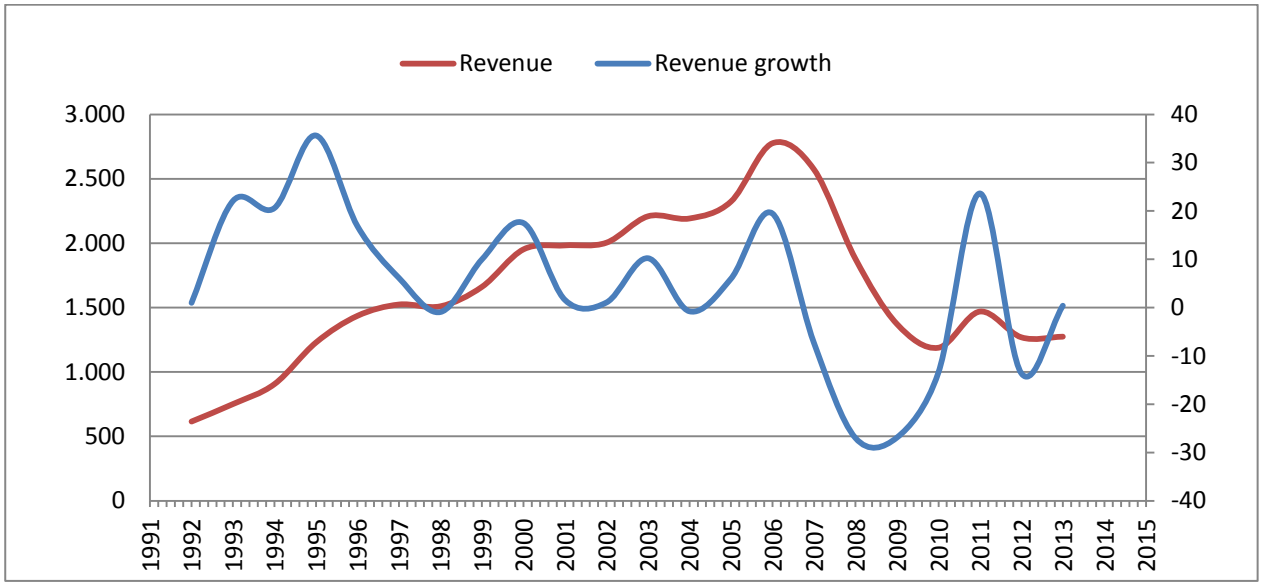
7.3.1 Growth Rate

Any time series can in principle be converted to a growth rate by the rate of change approach. The reason for applying such a method in search of leading indicators is that growth rates will decrease before actual values do. This implies that one can observe a turning-point in growth rates before it is observable in actual values. Below key accounting figures have been used to generate growth rates. The figures have been chosen on their expected sensitivity to changes in activity.

7.3.1.1 Revenue Growth Rate

Growth in revenue has been used in the comparison with other possible indicators on a macro and meso level. A comparison with the actual revenue of Hoffmann suggests that the growth rate itself is a good indicator. It is not have a long lead time but it does lead actual revenue. It is therefore most certainly a stat which should be monitored closely.

Figure 7.3.1.1 Hoffmann's Revenue (1000 DKK) (left-axis), Growth Rate in Hoffmann's Revenue (right-axis)



Source: Hoffmann's financial statement 1991-2013

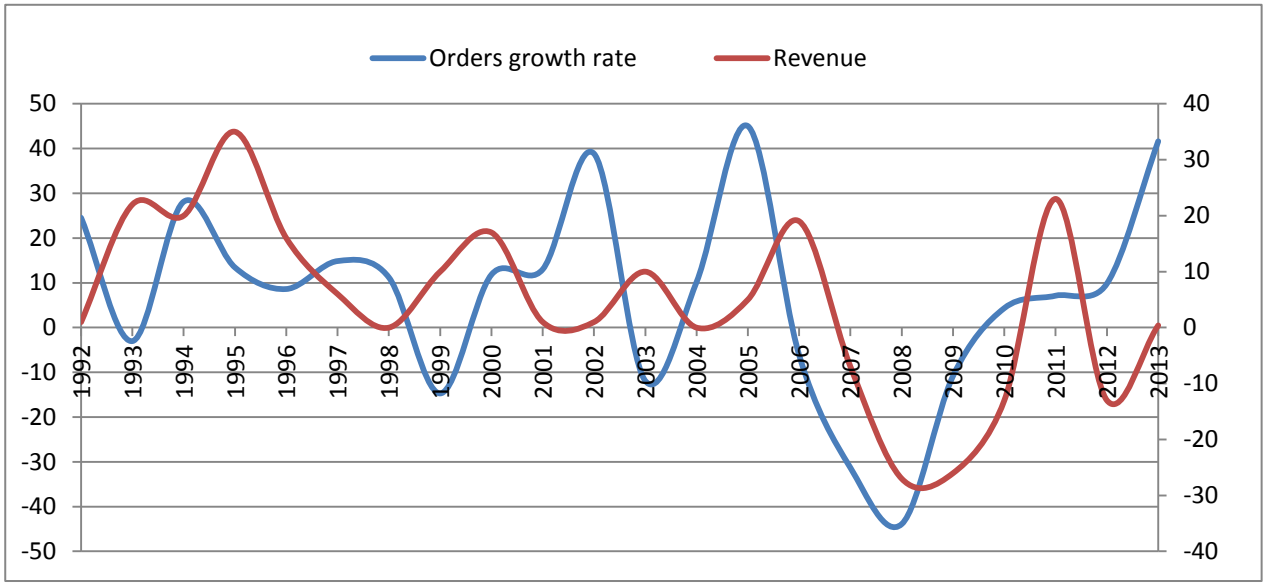
7.3.1.2 Orders Growth Rate

It makes good sense that an increase or decrease in orders will result in a homogenous change in revenue at a later point in time, if all orders are close to the same size. However, given that this is

not the case in Hoffmann, the rationale for using such a measurement as an indicator may be unwise.

From figure 7.3.1.2 the orders growth rate has an inconclusive relationship to that of revenue. No consistent lead capability is observed when comparing the two curves.

Figure 7.3.1.2 Orders Growth Rate (left-axis), Growth Rate in Hoffmann's Revenue (right-axis)



Source: Hoffmann's financial statement 1991-2013

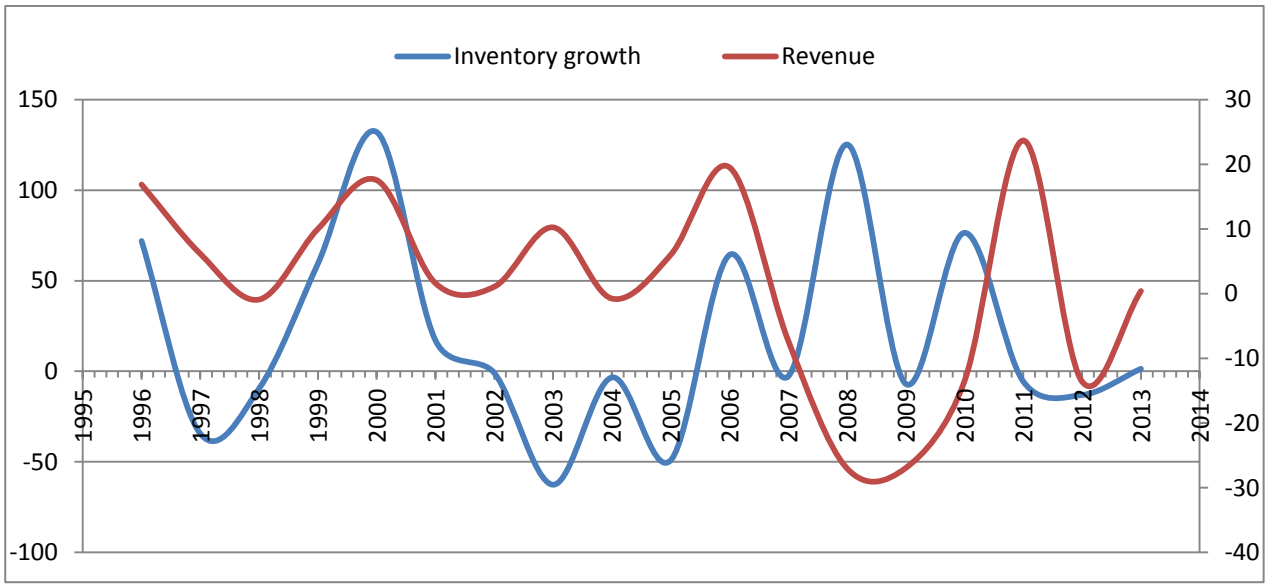
7.3.1.3 Inventory Growth Rate

Inventory growth rates could also be a possible indicator. In the last period of an expansion companies will typically produce to the full extent of their capacity. As activity starts to fall, more is produced than sold, which leads to a rise in inventory levels. Using a rate of change to analyze developments in inventory levels may give an indication of changes in activity, thereby, making it useful as a leading indicator.

A comparison of these two time series is different from the others that have come be before. It is so, in the sense that if they where coincident, one would expect a negative correlated relationship, meaning when revenue increases the inventory level should decrease. This is because increased activity will result in a large percent of inventory usage.

The graphical representation of the timing relationship between the two time series does not indicate any leading capabilities of the inventory growth rate.

Figure 7.3.1.3 Inventory Growth Rate in Hoffmann (left-axis), Growth Rate in Hoffmann's Revenue (right-axis)



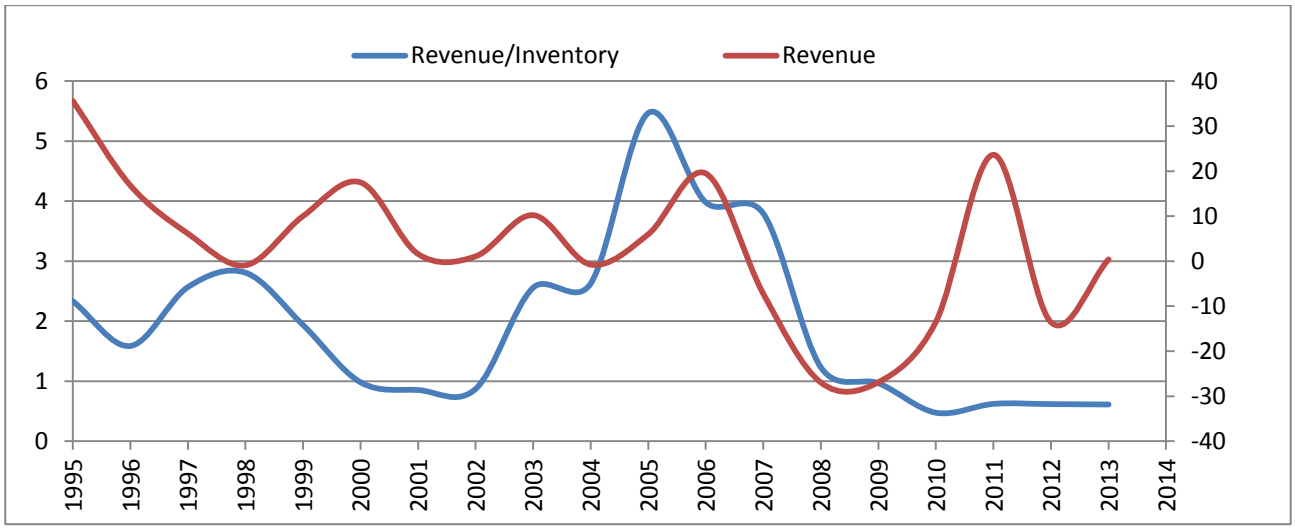
Source: Hoffmann's financial statement 1991-2013

7.3.2 Revenue/Inventory Ratio

It is expected that the ratio revenue divided by inventory will be extremely sensitive to changes in activity. The rationale behind this ratio, as a possible leading indicator, is the sensitive nature of such a ratio. Given its two components it should be more sensitive thereby expressing change in activity ahead of the individual components.

The chart below indicates a leading, and at times, a coincident relationship between the ratio and revenue. However, the most recent years undermine its historical track record by indicating no relationship, thereby, making it difficult to argue in support of this ratio as an indicator in the case of Hoffmann.

Figure 7.3.2 Revenue/Inventory Ratio (left-axis), Growth Rate in Hoffmann's Revenue (right-axis)



Source: Hoffmann's financial statement 1991-2013

7.4 Sub Conclusion

There were high expectations for the macro level indicators, from the beginning. This is because of the close relationship between Danish GDP growth and Hoffmann's revenue, as stipulated in chapter six. While no single indicator on the macro level has been identified as having a perfect leading quality in regards to Hoffmann's revenue, four of the indicators demonstrated leading qualities. The four indicators were retail sales, car registrations, the CLI and the OMXC20 index.

Permits for residential construction was expected to be leading, however, this is not the case in Hoffmann.

On the micro level the growth rate has been observed as being a good leading indicator, because of its ability to more clearly demonstrate a decrease in activity. Also the revenue over inventory has demonstrated leading qualities that should be analyzed further.

Chapter 8 – Managing the Business Cycle

This section will discuss in what way Hoffmann stands to gain from having forecasting capabilities and how these gains can be used strategically in an attempt to create a competitive advantage. The discussion is in large parts inspired by Peter Navarro's findings in his article "Recession-

proofing Your Organization" (2009) as well as the opinions of analysts Tom Bundgaard and Svend Jørgen Jensen.

8.1 Demand

Depending on what stage of the business cycle a company is in, macro economic developments will either increase demand or they will decrease demand in all industries. While many other factors also influence demand in the specific industry and in a specific company, macroeconomic developments will to some extent influence demand. The impact of macroeconomics on demand is of course very different in large international companies compared to small one man companies. As discussed earlier the construction industry is no exception, in fact it is extremely dependent on the economic climate.

The cyclicality of the business cycle gives a company such as Hoffmann the opportunity to anticipate the overall demand on a longer term. For example, a period of recession and very low demand is followed by a recovery and a new period of expansion and high demand, each of which has a certain length.

Understanding what impact macroeconomic developments have on ones demand is extremely important in strategic decision making, especially when one operates in an industry that is highly influenced by the activity in other industries. While the depth of a contraction or the height of an expansion may be hard to anticipate, a company with the right understanding of the business cycle knows that over the course of the next three to five years, the trend in demand, will either increase or decrease, depending on what stage the business cycle is currently in (Bundgaard).

An understanding of the business cycle will give important information to managers as to what sort of demand they should expect over the next few years, which will help them in their decision making process. While a understanding of the business cycle alone can be of great value, the ability to also forecast turning-points in such a cycle, will give managers adequate time to adjust the business in order to cope with a new level of demand, whether it be a sudden increase or decrease.

8.2 Supply

According to Hoffmann's 2015 strategy 80 percent of projects won should be won on other parameters than price. Should such strategy be successful it implies that Hoffmann can take a higher price than their competitors. However, the business cycle will still have a large effect on how prices should be set. When setting prices, demand for ones product is the largest component of how much one can charge. Another component is ones input cost, since selling without a profit is undesirable. Given that these components are all affected by the business cycle, analogously so should the price of one's products. The price of a project should therefore increase as demand and input cost increase and decrease as demand and input costs decrease. It would be beneficial for the company to know that a turning-point is approaching so that they may alter their price structure accordingly, thereby, avoiding a period of price mismatch that can result from a company taking too long to recognize new market conditions.

8.3 Input Costs

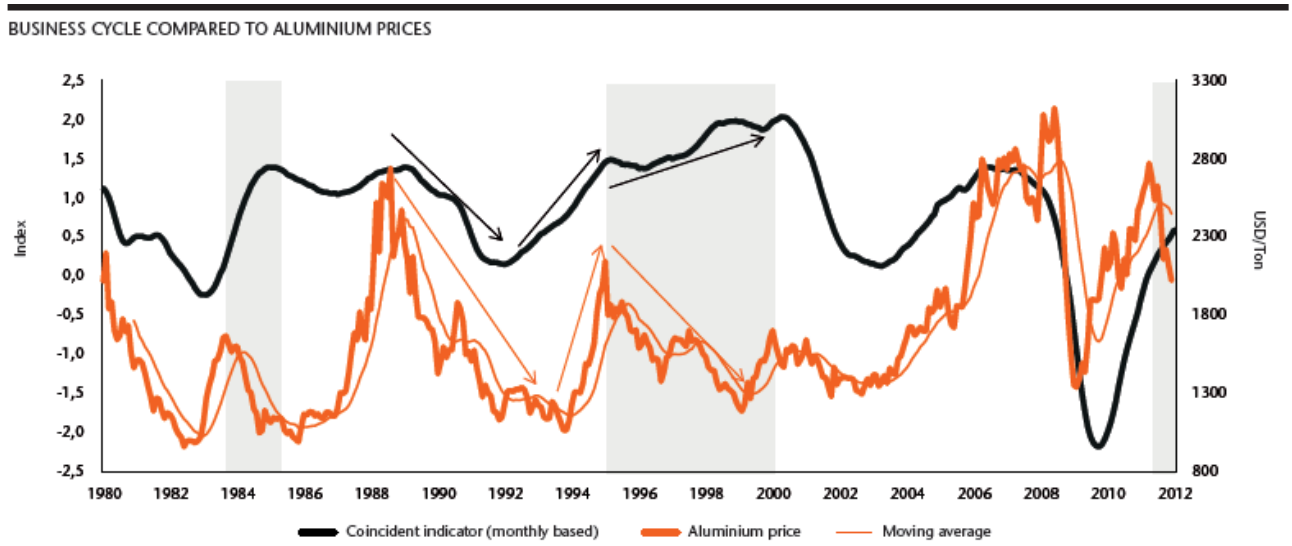
Large scale construction projects demand large scale resources such as steel, glass and concrete. The price volatility in such commodities is unfortunately very high. As seen in figure 8.3.2 the five year average volatility in steal prices is thirteen percent. When giving an offer on a large scale project such high volatility in input costs creates a great deal of uncertainty.

There are two obvious ways a company can manage this problem. One is to incorporate some kind of safeguard in the offer, such as making the price of the total offer dependent on movements in commodity prices. Such a contract would move risk from the seller to the buyer thereby eliminating the problem for the entrepreneur. While some buyers may be willing to take on such risk there will definitely also be those how are not willing to do so. These clients will want a fixed offer and not one that can suddenly increase drastically. The alternative solution is to hedge their input risk by locking the price of input material at the same time as an offer is accepted. While this eliminates the risk of losing money on a project, due to an increase in commodity prices, it also eliminates the possibility of the project becoming more lucrative due to falling commodity prices (Bundgaard).

If Hoffmann could anticipate the general movements of commodity prices over the next few years they could choose to lock prices down if they expect prices to increase or choose not to do so, if they expect prices to decrease.

During the different stages of the business cycle the price of different input costs such as steal, glass, concrete and other resources needed to build will increase and decrease. According to Tom Bundgaard there is evidence to suggest that commodity prices will follow a specific pattern during every cycle. He goes on to claim that an understanding of the business cycle combined with an understanding of the use of economic indicators can enable one to forecast future trends in commodity prices with a large amount of certainty. The chart below depicts an example with the price of aluminum. It shows that in general prices will follow the aggregated economy. This corresponds with general demand and supply theory. However, there are periods where the aggregated economy increases while prices decrease. This scenario can be seen in 1995. However, there is an explanation for such occurrences. After a recession supply levels in commodities will be very low. The low level of supply combined with an increase in demand will push prices up. As suppliers experience the increase in demand they will increase production. At some point production will reach a level that satisfies demand which will force prices down once more.

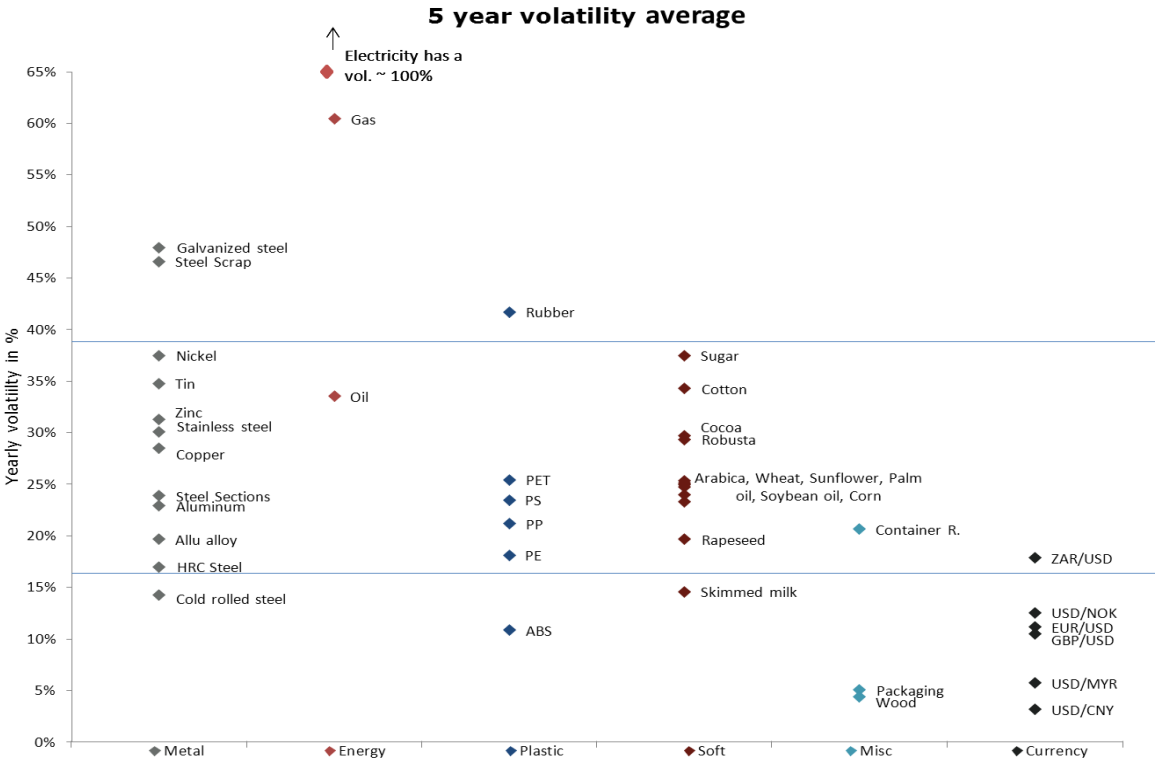
Figure 8.3.1 The US Business Cycle compared to Aluminum Prices



Source: http://www.kairoscommodities.com/commodities/metals/

If Hoffmann has an adequate understanding of the business cycle and an understanding of how to monitor economic indicators, it can with some certainty anticipate the overall movements of its input costs. Such predictive capabilities would be of great value in a company where profit margins on projects are in the single digits. The consequences of not having taken precautions to manage volatility in ones input cost can be catastrophic in the form of profits. Analogously, while less catastrophic it is unfortunate to see prices plummet moments after having locked prices down. While there is no guaranty that forecasts will hold true every time, there is enough significant statistical data to support the view (Bundgaard).

Figure 8.3.2 Five Year Volatility Average of Commodity Prices



Source: Karios Commodities (Bundgaard)

8.4 Resource Allocation

Hoffmann operates in all sectors of the construction industry. As shown in chapter six of this paper the different sectors within the industry behave differently during each stage of the business cycle. This implies that different capabilities are needed at different points in the business cycle. Forecasting the business cycle should generate information indicating when the business cycle will move into the next stage, enabling Hoffmann to allocate its resources accordingly. This regards

resources such as marketing expenditures, human resources, capital expenditures and the general focus of the company. Not having the right resources ready at the right time may cost Hoffmann to lose profitable projects to competitors. For example, periods of an increase in residential building will require one type of workforce, whereas sewage work will require a very different type of workforce.

8.5 HR

Knowing what stage of the business cycle one is in, can be a great advantage when considering employment of more people. If a company focuses on its incoming orders to determine what capacity is need, as Hoffmann does, the end of an expansion period right before the turning-point will encourage the employment of new people in order to increase capacity and take on more jobs. If the business environment changes shortly afterwards the company will probably have to reduce its number of employees because of the fall in activity. This is counterproductive for any company. An action that was supposed to increase profits will end up costing the company time and recourses. Fortunately, the employment of people and the dismissal of people in Denmark is relatively quick and cheap. However, the more quickly a company can adapt to the market conditions the better are the chances of delivering good results. If a company has too large a workforce in the final stage of an expansion period they will likely have to endure big firing rounds as activity falls. Such rounds are a bad signal to the markets and bad for moral in the company. Furthermore, having to dismiss people six months after they have been employed is an inconvenience for both parties.

As discussed earlier labor is cheaper when the economy is doing badly. Furthermore, most people prefer to stay in their current jobs, rather than look for new and better paying jobs as the economy gets better and other employment opportunities appear. This leads to the notion that Hoffmann would gain from hiring relatively cheap labor right before a turning-point. Furthermore, since unemployment will be higher the number of possible candidates to choose from will also be higher, increasing the chance of finding the right people.

8.6 Credit Management

Total enterprise projects in the private sector are some of the most valuable projects for Hoffmann. For example building a new headquarters for a large company is the type of project

Hoffmann finds attractive. It is reasonable to think that many of such large scale projects will be decided and started at the height of an expansion period. At a point where companies have experienced rapid growth and believe there is no end in sight, they may get the urge to move into new and more impressive locations. There is a certain amount of risk involved if Hoffmann takes on such a project. If the company placing the order is not strong enough financially a recession may, in a worst case scenario, drive them into bankruptcy. Leaving Hoffmann with a half built enterprise and no payment. However, if Hoffmann is aware of where in the business cycle they find themselves they can anticipate such a scenario and either structure a deal that reduces the risk or avoid the project all together.

Analogously they can loosen credit to companies when in the recovering phase since risk of bankruptcy is low, thereby, stimulating activity and reducing the need for layoffs. Tightening credit and reducing receivables in anticipation of a recession and loosening credit again in the recovery phase is therefore a useful tool to reduce risk and stabilize activity. Credit has been tightened during the financial crises of 2008 and there is a large focus on liquidity (Christensen), however, changes in credit are more a reaction to the economic environment than they are a strategic tool in forecasting.

8.7 Acquisitions

According to Christensen Hoffmann does acquire smaller companies from time to time (Christensen). When they acquire companies it is to either gain access to new markets or strengthen their position within existing markets. Timing does not seem to be an important factor in these decisions. It would be wise to consider the business cycle before making any new acquisitions. Acquiring a company to gain access to a new market only to see the market decline due to economic factors is not a sound investment. Nor is it a good investment to acquire a company to increase capacity in a specific market only to see activity in that market fall shortly after due to economic factors.

Not considering what stage of the business cycle one is in, can make good acquisition a bad investment simply because the timing is wrong. However, if the company is aware it can time its acquisitions so they get the capacity as markets are growing rather than declining. Furthermore,

they will most likely get a discount on companies bought in the recession stage since companies are valued lower in this phase of the business cycle.

8.8 Corporate Finance

Given that Hoffmann is one hundred percent equity financed the area of corporate finance becomes redundant in this case. While this capital structure has created a safety net through the last recession it may be strategically favorable to take on debt to expand in the anticipation of rising demand. Should Hoffmann choose to do so, business cycle forecasting will then be a strong tool in managing the debt-to-equity ratio. It enables the company to adjust its debt-to-equity ratio to changes in activity thereby reducing its financial risk.

8.9 Sub Entrepreneurs

As stated in their annual report 2012 Hoffmann aims to only employ their own craftsmen in situations where they believe it adds extra value. This means that they on many projects use external contractors. Sub entrepreneurs are often smaller, therefore, more vulnerable to sudden drops in orders that are a result of a crises or just the economy slowing down. Hoffmann states in its annual report 2012 that recourses have been allocated to identify the most reliable contractors as well as monitor the health of these companies. As the economy slows down the risk of bankruptcy will go up. Especially for smaller contractors that do not have the finances to endure a longer period of low activity. An awareness of the business cycle could help Hoffmann manage recourses allocated to monitoring these sub entrepreneurs. The need for monitoring will of course be most important as economic conditions worsen. Having the capabilities to foresee if a turning-point is near will enable Hoffmann to turn the level of resources, devoted to monitoring, up or down. Thereby reducing the risk of having one of their sub entrepreneurs go bankrupt in the middle of a project.

8.10 Sub Conclusion

The discussion provides a large variety of strategic actions that can be implemented, on the basis of forecasting results, in the case of Hoffmann. The strategic actions concern many aspects of the business. There is a strong expectation that the impact of different strategic actions will vary, depending on the company. In this case the impact is expected to be largest in regards to demand and input costs. This is due to the nature of the construction industry and the internal situation in Hoffmann. The implications of the discussion are that there are potential benefits to be gained in

all aspects of the business, and should therefore seek to utilize strategic business cycle forecasting to some degree. The degree to which they should choose to do so will depend can be argued and will depend on an assessment by management in regards to factors such as resources and organizational structure.

Chapter 9 - Conclusion

The objective of this thesis was to research how strategic business cycle forecasting can be utilized in a construction company using the Danish entrepreneur Hoffmann as an example. The findings indicate that strategic business cycle forecasting should be used to manage the business cycle, by forecasting using the economic indicator approach. It is the opinion of this thesis that doing so will create value for the company, however, how much value unfortunately requires more research.

The conclusion is based on the five research questions stated in the beginning. First the review of business cycle theory stipulated the fact that business cycle is a legitimate phenomenon that has a distinct impact on business activity. The stipulation of this fact serves as motivation for the search for possible ways of managing the phenomenon.

Possible ways of doing actual forecasting were then presented. The ability to use forecasting results strategically is of no value if one is not able to do credible forecasting in practice. After each model had been evaluated one model stood out as being both more reliable and applicable in the concrete case. It was the economic indicator approach that was seen as having the best qualities.

It was then stipulated how business cycle forecasting was to be applied in a strategic sense. It is done so on a theoretical level first, before applying it in the case of Hoffmann later in the thesis. It was concluded that the theoretical advantages would be many and vary in size. The overall conclusion being that companies would be able to adjust their business model according to coming changes in activity by acting counter cyclical.

After having decided that from a theoretical stand point the economic indicator approach would be the most relevant model for actual forecasting in this case, empirical research was done to investigate the actual applicability in regards to Hoffmann. Indicators suggested by OECD, The Conference Board, Svend Jørgen Jensen and Tom Bundgaard were presented. From these indicators some were sorted due to poor data quality. The results of comparing each indicator to that of revenue in Hoffmann, and doing so on a macro, meso and micro level, are optimistic. Some indicators were unusable, while others displayed promising results. It was the indicators on a macro level such as, the CLI, retail sales, car registration and the OMXC20 index that displayed most promising results, demonstrating lead times up two twenty-four months. No single indicator assessed had a lead that was consistent enough, for it to be singled out. The results of this assessment are therefore perceived as more of an inspiration and motivation for the further development of the approach in regards to Hoffmann.

Lastly, the thesis demonstrates how forecasting results should be applied strategically and what the possible benefits of doing so could be. The implications of this discussion are many and vary in value creation. From a theoretical point of view one may argue that the implications of strategic business cycle forecasting should be consistently employed throughout the business as described by Peter Navarro (Navarro, 2005). However, the thesis sees possibilities in a more selective approach where the method is implemented where its usefulness is highest.

Chapter 10 - Future Research

The implications of this thesis suggest that future research should be compiled in both a horizontal and vertical fashion. By horizontal is meant that it would be interesting to view results, from applying the same research on other companies in the construction industry. Thereby, uncovering if the results of this thesis are generally applicable to companies in the construction industry. By vertical is meant further research into the practical use of strategic business cycle forecasting in Hoffmann. The results of the thesis must be characterized as preliminary, in the sense that they do not give a detailed step by step guide of how to employ strategic business cycle forecasting. There are many possibilities in the economic indicator approach that are not covered in this thesis, such as other indicators, composite indexes of own creation, a more descriptive guide to actual

forecasting. Furthermore, the organizational implications of strategic business cycle forecasting also deserves to be analyzed, as it will have a large influence of the successful implementation of such an approach.

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