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**LAYOFF ANNOUNCEMENTS AND STOCK PRICE REACTIONS IN
FINLAND: VALUE VERSUS GROWTH**

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Pages: 72**ABSTRACT**

The purpose of this study is to research permanent layoff announcements' impact on stock prices and to compare the stock price reactions between growth and value stocks.

The data consist of 160 announcements for the disclosures of permanent layoffs with Finnish large and mid-size listed companies from the Nasdaq OMX Helsinki in the time period of January 2004 until June 2010. Event study methodology is used to examine the abnormal performance for permanent layoff announcements and the analysis of stock price reactions to permanent layoffs is divided into three different parts according to the cited reason for the layoff, the difference between growth and value in two different business cycles and whether the layoff and firm size have impact on the abnormal returns.

The stock price reaction to permanent layoffs is positive, but not statistically significant, for both declined demand and improved efficiency subsamples, when the abnormal performance is observed regarding the cited reason. Value stocks signal a more negative reaction in non-recessionary period of 2004-2007 and less positive reaction in the recessionary period of 2008-2010 than growth stocks.

KEYWORDS: Permanent layoffs, abnormal return, value stock, growth stock, event study

1. INTRODUCTION

Last few years have been times of great financial turmoil across the world and the global financial crisis has been hitting companies as well as economies hard during this time. Financial markets have seen enormous downfalls and people of all classes have lived in fear of a new Great Depression, a scene from history no one wants to experience all over again.

The matter of fact is that this global financial crisis ranging from 2007 until today has been the biggest slump in the global economy since the Great Depression of the 1930s. Governments are trying to boost their own economies by different measures, but until this day very few have succeeded in turning the direction. Stock markets remain to be very volatile and investors hope for the governments' actions to be effective. Bankruptcies, write-downs and unemployment have been every-day life all over the world and the media has reported these incidents daily or at least on a weekly basis. During a financial crisis or a recession layoffs usually increase, since companies have to perform cost-cutting or restructuring measures to cope with the economic environment. The on-going situation in the global economy is a good starting point for this thesis and it gives this study and the results presented a wider point of view.

A layoff can be defined as a temporary or permanent termination of an employee from the payroll of an organization (Cornfield 1983). The topic of layoff announcements was first brought up in the late-1970s and early 1980s and the impact of layoff announcements on various economic and social factors has been under research ever since.

The popularity for firms announcing layoffs has been increasing over the years since the 1980s and during the last decade layoffs have been America's export for the rest of the world making these actions more common in various countries. The different measures and outcomes of laying employees off are ranging from improved profits and post-announcement firm performance to negative stock market reactions and declined productivity, but one thing that is certain is that firms getting "lean and mean" see the action of layoff announcement as a powerful tool in the time of recession, as well as during an expansion of the economy. (Pfeffer 2010.)

Firms lay off workers for a variety of reasons. Layoffs may be a firm's way of optimally responding to demand shifts, to changes in its competitive position within the industry, or to financial distress. Moreover, layoffs are often a part of firm's downsizing, downscoping, or restructuring strategies. Stock price reactions to layoff announcements may differ depending on whether layoffs are permanent or temporary, small or large, a single announcement or part of a series of announcements, and positive or negative. (Lee 1997.)

In Finland, the on-going recession has doubled the amount of workers, who have been permanently laid off in the year 2009 and tripled the amount of workers, who are under co-determination negotiations, the negotiations for layoffs in companies, for the same period (Artto 2010). This study concentrates on researching the permanent layoff announcements' impact on stock prices in Finland and the current recession makes the topic of layoff announcements even more interesting.

Layoff announcements and their effect on the stock market are interesting issues in the financial world at the moment and this thesis is trying to provide proper insight in these matters by analyzing the stock reactions in the Finnish market. An important contribution of this study is to be the first of its kind to research the layoff announcements' impact separately on value and growth stocks. Not only is the topic of this study current, but one of the main objectives is also to provide new, remarkable evidence on the matter of permanent layoff announcements and stock price reactions.

1.1. Purpose of the study

The purpose of this study is to research permanent layoff announcements' impact on stock prices and to compare the stock price reactions between growth and value stocks. This study focuses on the stock market reaction for the final disclosure of permanent layoffs, indicating the announcement for the final decision of the company co-determination negotiations. Therefore, this study takes a different point of view in observing abnormal stock returns related to layoffs than many previous research studies. The new perspective is the analysis of possible differing reactions between growth and value stocks' reactions to per-

manent layoff announcements. This thesis also focuses on the information value of layoff announcements in general and post-announcement firm performance with respect to previous research studies. The data presented in the study is taken from the Finnish stock market and the Nasdaq OMX Helsinki Stock Exchange. The data consist of 160 announcements for permanent layoffs with Finnish large and mid-size listed companies in the time period of January 2004 until June 2010. The time period includes a non-recessionary period ranging from January 2004 until December 2007, as well as a recessionary period ranging from January 2008 until June 2010.

Permanent layoffs are regarded as actions which cause larger stock market reactions than temporary layoffs and permanent layoffs' impact on stock prices has not been researched too much in the Finnish market. Therefore, it is interesting to examine the stock price reaction to permanent layoffs in the Finnish market with also evidence from the recent recession in the financial markets. Research evidence states that value stocks outperform growth stocks on the long run and this value-growth effect is researched in this thesis from the perspective of permanent layoffs. The differences in value and growth stocks' reaction to permanent layoffs is tested in both recessionary and non-recessionary business cycles to find out whether the value stocks are more likely to react distressed in recessions or less proactive in non-recessions. This thesis is based on the following research questions regarding permanent layoffs and stock price reactions as indicated below:

- Q1: Do stock prices react to the disclosures of permanent layoff announcements?
- Q2: Does the stock price reaction to permanent layoff announcements' disclosure differ between growth and value stocks?
- Q3: Value stocks signal a less positive or more negative reaction to permanent layoff disclosures during different business cycles than growth stocks.

1.2. Contribution of the study

There are a few important contributions related with this thesis, which have not been researched in previous research studies. First of all, this study is based on Finnish market data with evidence from the latest recession. Researching stock price reactions to permanent layoffs in Finland in the course of the recessionary period of 2008–2010 is one of the contributions of this study. Secondly, this thesis takes the perspective of observing the differences of value and growth stock reactions to permanent layoffs in different business cycles. This has not been done in any of the previous research studies and, therefore, it can be held as a major contribution for further research.

1.3. Structure of the study

The structure of this study proceeds as follows. In chapter 2, previous research studies of layoff announcements are presented and the most important point of views and results from these papers are reviewed in order to build basis for further research in this thesis. Chapter 3 presents the theoretical framework involved in layoff announcements and stock price reactions. Also the theoretical framework for value and growth stocks is presented in chapter 3. The data and methodology for this study are reviewed in chapter 4 followed by the empirical results in chapter 5. The conclusions and implications for further research are presented in chapter 6.

2. PREVIOUS RESEARCH STUDIES

In this chapter, previous studies are examined more thoroughly and the main findings of these studies are presented to build basis for this thesis. There have been research papers on the subject of layoff announcements since the 1980s, but the most groundbreaking studies have been published in the 1990s and the research has been more consistent until this period. Many of the previous studies concentrate on the market reaction of the layoff announcements and the post-announcement firm performance, but also layoff characteristics have been studied in the previous research publications.

The results in previous studies are rather mixed and the findings need to be explained more closely. It is important to look over and understand the findings from the previous studies before proceeding to the theoretical framework and exploring further research. The three parts of this chapter consist of studies involving layoff announcements and the reaction in stock price, financial performance and the layoff characteristics (size, business cycle etc.). The effect of layoff announcements on value and growth stocks has not been studied before and, therefore, this matter is brought up more closely in the theoretical framework chapter along with the stock valuation theories.

2.1 Layoff announcements and stock price reactions

Worrell, Davidson and Sharma (1991) studied the reaction of the U.S. securities market to 194 layoff announcements from the years between 1979 and 1987. The study divided the reasons for the layoffs into two different categories: financial distress and restructuring. Evidence from the paper suggested that market reactions to layoffs were negative, especially during financial distress, and the announcements of large or permanent layoffs impacted a stronger stock reaction.

The study was groundbreaking in many ways and it presented a different approach than the studies that had been done before. When many previous studies focused on more social and psychological impacts of layoff announcements, this study brought in the strategic and financial impact of layoffs and examined the financial consequences of layoff announcements for firms. The

paper has been widely regarded as a basis study for researching layoffs and financial factors and the contributions of the paper can be seen as remarkable until this day. The focus of the paper was in bottom-line results of layoff announcements meaning the shareholder returns, which is an important part of the puzzle for this thesis as well. (Worrell, Davidson and Sharma 1991.)

Ursel and Armstrong-Stassen (1995) researched the reactions of shareholders to 137 layoff announcements by 57 Canadian firms over the recessionary time period of January 1989 until August 1992. The study found out that shareholders react negatively to layoff announcements in their company. The first announcement for layoffs in the company resulted in a larger negative reaction than the later announced layoffs. As in the research paper by Worrell et al. the large-scale layoffs were found to impact a stronger negative reaction than the announcements involving small percentage of the firms' workforce. The study concludes that the magnitude of the impact of announcements on stock prices is a function of two factors. In addition to the economic impact of the announcement event, also the degree to which the announcement has been anticipated by investors is taken into consideration (see Malatesta & Thompson 1985).

Ursel and Armstrong-Stassen (1995) provide many important aspects to understanding the relationship between layoffs and stock price returns. The study suggests a few additional ideas to the research paper by Worrell et al (1991). First of all, the study claims that the reactions to layoffs differ during recessionary and non-recessionary times. This point is important to understand, when the data in different research papers is taken from different business cycles. Downsizing during an economic downturn and upturn might have differing impacts on shareholders and the business cycles should be taken into consideration. The business cycles are taken into closer review later in this thesis.

Second suggestion pointed out by Ursel and Armstrong-Stassen is that the distinction between layoffs due to financial distress and those due to restructuring needs to be further questioned. This suggestion brings into question, if the information contents in the firms' official announcements are reliable and furthermore, if the country standards for transparency in business communications are trustworthy. Layoff announcements provide new information for investors and shareholders and the way in which the reasons for the layoff are stated give the observing groups the perceptions for either good or bad news.

The information content of layoffs is presented more thoroughly in the following chapters of this thesis.

Thirdly, Ursel and Armstrong-Stassen make clear that there's a certain difference between observing multiple announcements and only one announcement by the sample firms. This is an important suggestion, when the same firm announces multiple layoff announcements and the effects of these layoffs need to be analyzed in the sample time period of the research. An analysis on the effect of multiple layoff announcements by the same firm compared against the single announcement effect is presented later in this thesis.

In the study by Lin and Rozeff (1993) the adjustment of stock prices to real variables was taken into closer observation. The study tested the relation of stockholder wealth to so called cost-cutting measures. Different operational announcements and their effect on stock prices were tested and in addition to layoffs, also operation closings and pay cuts were included in the sample. The paper consisted of over 1800 announcements of large U.S. firms over the time period of 1979-1985, which included two recessions. The cost-cutting announcements tend to occur after the stocks of the companies have experienced significant price declines of 12% to 35% and since the sample time period includes two recessionary periods, we can notice a certain pattern leading to the announcements. Poor business conditions indicating an economic downturn lead to plummeting stock prices, which lead the market to anticipate the firms to announce operational cost-cutting measures, f. ex. layoffs. (Lin & Rozeff 1993.)

Lin and Rozeff find the operational announcements to cause a negative market reaction and the results are consistent with Ursel and Armstrong-Stassen (1995) that announcements impact the stock market negatively and the announcements are somewhat anticipated by investors. Another similarity with these two previously presented papers is that the first cost-cutting event in a wider sequence of events surprises the market more than subsequent events.

Lin and Rozeff (1993) divided the operational measures into two competing hypotheses that were supposed to predict the effects of cost-cutting on shareholder wealth: the pure efficiency and the decreased demand hypothesis. The pure efficiency hypothesis expected that stock prices would increase after a

cost-cutting event, which would improve efficiency and cash flows, but since the operational announcements resulted in only decreased stock price reactions, the decreased demand was the hypothesis that was found effective. Significant evidence was found for only the decreased demand hypothesis indicating cost-cutting to be “bad news,” but not for the pure efficiency hypothesis.

The declined demand and enhanced efficiency hypotheses can be seen in various other studies as well. Palmon, Sun and Tang (1997) sort out the reasons for the layoff into positive and negative by dividing the reasons into improved efficiency and declined demand subsamples. The paper uses a data sample of 140 layoff announcements from the U.S. markets taken from the years between 1982 and 1990. The basis for the study comes from the assumption that the reason cited for the layoffs in the firm’s announcement has an effect on the stock price reaction. Palmon et al. document an association between the cited reasons in layoff announcements and abnormal stock returns around layoff announcement dates.

One of the hypotheses used in the study by Palmon et al. (1997) indicated that the returns on equities should be negative for the firms announcing adverse market condition and positive for the firms that cite improving efficiency as a reason for the layoffs. The most important finding in this study was that both positive and negative stock price reactions to layoff announcements exist for the used sample data. Previous studies had reported mainly negative stock price reactions to layoffs and the finding of a significant positive stock price reaction proved essential for the later research studies.

Both positive and negative reaction to layoff announcements were also found in the study by Kashefi and McKee (2002). The study consisted of a sample of 174 layoff announcements involving U.S. companies between 1992 and 1998, during a time period of continuing economic expansion and low unemployment. Consistent with the previously presented study by Palmon et al. (1997), Kashefi and McKee found significant abnormal stock price returns for both restructuring (proactive) and financial distress (reactive) sample groups. Layoff decisions induced by a restructuring strategy were found to cause positive stock price returns and layoffs that were motivated to reduce costs and increase profit margins, perhaps in anticipation of declining sales, caused negative stock price returns. In comparison to studies by Worrell et al. (1991) and Palmon et al. (1997),

Kashefi and McKee establish a higher magnitude for both positive and negative market reactions to layoff announcements and the paper suggests that the magnitude of the stock price impact is more profound in the 1990s. This may implicate that the magnitude of the stock price impact to layoffs changes over time, when layoffs become even more widespread and the flexibility in the labor market increases in different countries.

Farber and Hallock (2009) studied the changing relationship between layoff announcements¹ and stock prices during a 30-year period ranging from 1970 until 1999 and the study consisted of a very large sample of 4273 layoff announcements from 1160 large firms in the U.S. Clear evidence was found that the relationship between layoff announcements and stock prices has become less negative over time. One explanation for this finding was that, over the last three decades, layoff announcements designed to improve efficiency have become more common relative to the announcements designed to cope with decreased demand.

Research evidence shows that there are differences in the stock price reactions between countries. According to Lee (1997), the disparities can potentially be a result of different effects of national culture on market structure, organizational form, and the effectiveness of differing strategies favored in each country. Lee (1997) studied the differences between the United States and Japan and obtained data from 300 U.S. and 73 Japanese firms' layoff announcements from the time period ranging from 1990 until 1994. The study reports that stock price reactions are negative in both U.S. and Japan and the investors in both countries clearly view layoffs negatively. Therefore, the study suggests that both proactive and reactive layoff announcements cause negative stock returns in the market. Proactive layoff announcement is described as a way of restructuring and maintaining the competitiveness of the firm in a changing economic and strategic environment. On the other hand, reactive layoff announcement is regarded as a result of poor performance of the firm and as a signal to the investors that the firm is trying to turnaround the direction of the business. Not surprisingly, reactive layoff announcements were found to yield significantly more negative returns than proactive ones, but the positive stock price reaction similar to the study by Palmon et al. (1997) was not to be found. (Lee 1997.)

¹ referred in the study by Farber & Hallock (2009) as reductions in force (RIFs)

Negative stock market reaction to layoff announcements seems to be effective in the United Kingdom's (UK) markets, even though, UK firms' layoff announcements and the impact on stock prices has not been researched as much as the U.S. markets. McKnight, Lowrie and Coles (2002) found evidence that the UK markets generally react negatively to layoff announcements and that the sensitivity of investor reactions to layoffs may be more pronounced in the UK than the U.S. Significant research results were found to support the hypothesis that firms announcing reactive layoffs caused negative stock price reactions and this finding is consistent with previous studies.

Similar results were found in the study by Hillier, Marshall, McColgan and Werema (2007), where the causes and consequences of employee layoff decisions were examined within a sample of 322 layoff announcements issued by UK firms between the years 1990 and 2000. The research paper concentrated on permanent layoffs, which comprised at least 0,1% of the firm's outstanding workforce. The results of the study suggest that poor operating performance and stock price performance, increased gearing and threats to managerial control precede employee layoffs. These suggestions point out that firms, which lay off employees in the UK are driven to this measure under the influence of poor business conditions. This finding is consistent with the previously reviewed study by Lin & Rozeff (1993). The stock price reaction to layoff announcements in the UK is found to be significantly negative after reactive layoff announcements, such as responds to loss making activities and plant closures. Layoffs that are proactive, such as those related to reorganizations and cost-cutting, elicit only a minimal and not significant stock price response in the UK markets.

Most studies on the stock price reaction to layoff announcements concentrate on the short-term market reaction and very few research papers have taken the aspect of long-term stock price performance following the announcement period. Brown and Ridgewell (1998) investigated the long-term effect of layoffs on shareholder wealth and found significant positive stock returns on firms announcing layoffs on the long-run. The final data sample consisted of 64 layoff announcements from the U.S. market between the years 1980 and 1991 and the long-term stock performance was observed up to 500 days after the initial layoff announcement. Even though, the study agreed on previous studies with the short-term negative market reaction around the announcement date, the main findings of the study indicated that investors typically misinterpret the an-

nouncement of layoffs as a signal that the firm is on a decline. Therefore, the study suggested that investors view the event as a “sell” signal for the stocks. The study concluded that investors can earn excess returns for prolonged periods of time by investing in firms after layoff announcements. (Brown & Ridgewell 1998.)

The study by Brown and Ridgewell (1998) provides an interesting aspect into the range of studies about layoff announcements, but observing the long-term stock performance is problematic to say the least. The different business cycles of the economy affect the stock returns and the cyclicity might have a large impact on the study results. Business cycles are observed in the following parts of this chapter.

A wide range of studies suggest that layoff announcements have a significant, negative reaction to stock prices and this indicates that layoffs are seen more as a way of responding to financial distress rather than as an optimal way of coping with the economic environment (Lee 1997). Investors seem to consider layoffs as an action, which indicates uncertainty for the future performance of the announcing companies. Whether the layoffs are good or bad for the firm’s future prospects, further review for the previous studies is needed. In the next part of this chapter, layoff announcements and post-announcement firm performance are taken into closer observation.

2.2 Layoff announcements and financial performance

Layoffs and post-announcement financial performance have been under review in various studies and the results are again rather mixed. Since the research evidence seems to be puzzling, this area of study needs closer observation and the different results and point of views on financial performance from previous studies are presented in this part of the chapter.

Investors consider layoffs as credible signals of future performance. Layoff decision can be associated with either an increase or a decrease in firm value. Layoff decision induced by adverse market conditions, such as demand declines or input price increases, should indicate declines in sales and profitability

and since layoffs convey new information on adverse market conditions, there should be a negative reaction in firm values and stock prices. Layoff decisions that result from unexpected efficiency gains (or plans for efficiency improvements) should be associated with increased sales, improved profitability measures and, therefore, higher firm values and positive stock price reactions. The cited reasons for layoffs are useful signals for investors, because these reasons are associated with the expected changes in profitability measures in the years following the announcement. (Palmon et al. 1997.)

One hypothesis used in the previously presented study by Palmon et al. (1997) suggested that firms that cite an adverse market condition as a reason for layoffs have worse future profitability and sales measures than those for firms citing improved efficiency as a reason. Profit margin, real sales and return on assets (ROA) and equity (ROE) were observed for a six year period, three years prior to and three years after the firms' layoff announcements, and significant evidence was found to indicate that firms citing improved efficiency outperformed the declining demand subsample in all four profitability and sales measures in the years following the announcement. Therefore, the cited reason for layoffs can be considered as a credible signal of future performance for shareholders.

According to Elayan, Swales, Maris and Scott (1998) the market reaction to layoff announcements depends on the information set available to shareholders and on the financial performance of the firm before the announcement. The study consisted of 646 U.S. layoff announcements from the time period of 1979-1991. Besides the market reaction, one of the main objectives of the study was to examine the effectiveness of the layoff and whether it increases the efficiency of the firm and its labor force.

The immediate market reaction to corporate layoffs around the announcement date shows how investors have interpreted the information in the announcement itself, but it's often difficult or misleading to judge the effectiveness of the layoff and the following firm performance in general by just this information. If the firm's management acts in the best interest of shareholders, it will proceed with a layoff if the present value of the expected cash savings associated with the layoff exceeds the present value of the cash benefits associated with keeping the workers. If investors misinterpret how the layoff will affect the firm's value,

stock prices may decline at the announcement, even if the decision to lay off employees has a positive net present value and it is an effective method to increase the efficiency of the firm. (Elayan et al. 1998.)

In the study by Elayan et al. (1998) three measures were used to examine the effectiveness of the layoffs and the time frame consisted of a 5-year period (two years prior to and two years after the announcement year). Firm's return on equity was compared against industry-average in the post-announcement period relative to the pre-announcement period to measure the efficiency of the firm. Net income per employee ratio was used to measure the contribution of the employee to the profitability of the firm and sales per employee ratio to measure the contribution of the employee to total sales. The results suggested that corporate layoffs increased the efficiency of the firms significantly as measured by return on equity and seemed to affect the labor force in a similar way according to the net income per employee and sales per employee ratios over the post-announcement period.

Similar results were also found by Chen, Mehrotra, Sivakumar and Yu (2001). The study based on 349 layoff announcements from the U.S. market between the time period of 1990-1995. Clear evidence was found that layoff firms' financial performance improved in the years following the layoff. Operating performance, profit margins and labor productivity (sales per employee) were accelerated in the three subsequent years after the layoff announcements and these measures were on a higher level with the layoff firms than with their industry peers.

Chalos and Chen (2002) studied the market reaction and post-announcement financial performance through different employee downsizing strategies of the Fortune 500 firms in the U.S. during the years 1993-1995. All together, the sample consisted of 365 firms, which downsized almost one million people over the three-year period. The financial performance was tested in the sample group by examining different financial ratios² in a three-year post-announcement period.

² The five tested financial ratios consisted of operating cash flow/number of employees (OPCF), cost of goods sold/number of employees (COGS), sales/number of employees (SALES), long term debt/assets (DEBT) and income before extraordinary items /assets (ROA).

The employee downsizing strategies were divided into revenue refocusing, cost cutting and plant closing strategies (see DeWitt 1998). Revenue refocusing emphasizes the firm's core competencies. Unprofitable and unrelated products, as well as units and divisions beyond the firm's area of expertise, are all candidates for divestiture, which indicates at least partial layoffs for the firms. A cost cutting strategy maintains the firm's product scope and focuses on productivity gains and cost reduction. The study suggested that cost reduction often occurs with a temporal lag because of institutional politics, lack of knowledge and/or poor management. Cost reduction may be indiscriminate or at worst misplaced and short-term cost savings may be realized at the expense of long-term profitability. Third downsizing strategy, plant closure, may be efficient, when firms have over-invested in plant capacity or if closure eliminates inefficiently scaled plants. In the long-term, future cash flows may increase due to fewer employees and less property, factories and equipment relative to output. (Chalos & Chen 2002.)

The study by Chalos and Chen (2002) concluded that revenue refocusing and cost cutting downsizing strategies improved the financial performance of the sample firms in the three-year period following the announcements. Plant closing strategy did not have a significant improvement in the financial performance. Evidence revealed that revenue refocusing firms improved financial performance to a greater extent than cost cutting firms over the three-year post-announcement period. The research results in the study suggested the plant closing to be purely a reactive downsizing strategy, confirmed by subsequent financial performance in which plant closing firms significantly underperformed both revenue refocusing and cost cutting firms.

2.3 Layoff characteristics

There are various characteristics that should be taken into consideration, when firms' layoff announcements are reviewed. In this part of the chapter some of the important factors of layoffs are presented to build basis for further research in this thesis. Some of the following characteristics have been partly described within previously reviewed research papers, but this part focuses more closely on these factors. The proactive/reactive and the cited reasons for layoffs have

been thoroughly presented in the previous parts of this chapter, so these characteristics are not included in this part.

2.3.1 Business cycle

Since the layoffs have become more popular over the past decades, layoffs are not considered to be only tools for economic downturns, but also for the times of economic expansion. It is assumed that layoffs and their causes are a function of the business cycle (Elayan et al. 1998). It is important to take notice of the business cycle when observing layoffs from different sample periods. Farber and Hallock (2009) reported that the number of layoff announcements seems to follow the business cycle quite closely. In the study, the number of layoff announcements was compared with the annual unemployment rate in the U.S. between 1970 and 1999, and this indicated that layoffs were on a higher level during recessionary periods and on a lower level during non-recessionary periods.

The study by Ursel and Armstrong-Stassen (1995), which was previously reviewed in this chapter, considered that different business cycles affect the reactions of layoffs in different ways. The study suggested that layoffs during recessions may be viewed positively, as a sign that companies are attempting to reduce costs, whereas layoffs in non-recessions may indicate that the firm is in serious difficulty.

On the other hand, the study by Elayan et al. (1998) regarded that the firms announcing layoffs during economic contraction expect lower earnings and bad performance, which can be viewed negatively. In addition, the study concluded that layoffs during the period of expansion of business activities may be considered as an attempt to increase the firms' efficiency. This contradicts the point of view of Ursel and Armstrong-Stassen (1995) and gives further information about the mixed results in different research papers. Therefore, it can be concluded that there cannot be a generalized outcome for layoffs in different business cycles, but the focus is on the announced reason for layoffs regardless of the business cycle (see Palmon et al. 1997). The differing amount of layoff announcements in different cycles of the economy is the second point of view, which should be focused on, since recessions tend to increase layoff announcements.

2.3.2 Size and industry type

It has been stated in many previous studies that the magnitude of the layoff is directly related to the magnitude of the market reaction (Worrell et al. 1991; Ursel & Armstrong-Stassen 1995; Lee 1997). In other words, it can be noted that the larger the amount of employees laid off compared to the company's entire workforce, the larger the market reaction to the layoff announcement. According to Lee (1997), the magnitude of a layoff conveys a signal about the severity of the firm's problems. Additionally, larger layoffs accompany additional costs including severance pay entitlements, high unemployment taxes, and extended health benefits (Lee 1997).

Large companies that announce layoffs tend to have a larger stock price reaction than small companies (Worrell et al. 1991). This might be due to the fact that large company stocks are more intensely followed in the stock market and the trading volumes of these stocks are larger than with small company stocks.

The market reaction to layoff announcement may depend on the nature of the industry group in which the firm is operating and whether the firm belongs to a manufacturing or a service industry. A service firm relies more heavily on human capital than physical capital. This implies that an alteration in human capital should have a greater effect on the value of the service firms relative to non-service firms. (Elayan et al. 1998.)

For companies, which have a large proportion of human capital in the workforce, it is clearly more difficult to lay off workers, since workers with more competence and skills are more valuable for the company. The nature of the industry group for a service firm differs from that of a manufacturing firm. The industry differences of layoffs are important to understand within research studies and the diversification of firms into human and physical capital should be clearly taken notice of in further research.

2.3.3 Permanent and temporary layoffs

Permanent layoffs impact a larger stock price reaction than temporary layoffs. Permanent layoffs indicate enduring changes in the workforce and the firm's competitive environment and temporary layoffs indicate changes that might be

affected by seasonal demand shifts and reactions to sudden events in the firm's economic circumstances. It is clear that permanent layoffs have a larger reaction in the firm value and stock price, since permanent layoffs are largely the result of long-term changes in a firm, while temporary layoffs represent an alternative to quick cost-cutting. (Worrell et al. 1991; Lee 1997; Elayan et al. 1998.)

2.3.4 Single announcement vs. multiple announcements

It is reported in the previous research studies that the first layoff announcement or a single layoff announcement has the largest impact in the stock price reaction and the subsequent or following layoffs result in relatively smaller reactions (Ursel & Armstrong-Stassen 1995; Lee 1997; Elayan et al. 1998). Multiple announcements may signal that the firm's earlier layoffs were insufficient to generate a turnaround in the firm's performance and, therefore, the subsequent layoff announcements indicate a need for further restructuring (Lee 1997).

Firms with a recent history of layoffs, as evidenced by multiple layoff announcements during the sample period, are expected to be associated with less announcement effect than firms with a single layoff announcement (Elayan et al 1998). The industry type must be taken into notice, when the sample is observed for single or multiple announcements and the previously presented views of human and physical capital in the layoff firms are important points to keep in mind.

2.4 Summary – layoff announcements and stock price reactions

The table below (Table 1.) indicates that many of the previous research studies on layoff announcements and stock price reactions have found negative reactions to these actions. Table 1. shows the nature of the short-term stock price reactions around the announcement day which have been found in the research papers reviewed in this chapter.

Table 1. Stock price reactions to layoff announcements in previous studies.

Author(s)	Market	Sample period	Sample size	Cited reasons	Positive reaction	Negative reaction
Worrell, Davidson & Sharma (1991)	U.S.	1979-1987	194	Financial distress Restructuring		X X
Lin & Rozeff (1993)	U.S.	1978-1985	383	Declined demand Pure efficiency		X
Ursel & Armstrong-Stassen (1995)	Canada	1989-1992	137			X
Palmon, Sun & Tang (1997)	U.S.	1982-1990	646	Declined demand Improved efficiency	X	X
Kashefi & McKee (2002)	U.S.	1992-1998	174	Financial distress Restructuring	X	X
Lee (1997)	U.S./Japan	1990-1994	373	Financial distress Restructuring		X X
Brown & Ridgewell (1998)	U.S.	1980-1991	64			X
Elayan, Swales, Maris & Scott (1998)	U.S.	1979-1991	646	Declined demand Efficiency		X X
Chalos & Chen (2002)	U.S.	1993-1995	365	Revenue refocusing Cost cutting Plant closing	X	X X
Chen, Mehrotra, Sivakumar & Yu (2001)	U.S.	1990-1995	349	Declined demand Restructuring		X X
McKnight, Lowrie & Coles (2002)	U.K.	1980-1984, 1990-1995	235	Proactive Reactive		X X
Hillier, Marshall, McColgan & Werema (2007)	U.K.	1990-2000	322	Proactive Reactive	X	X

3. THEORETICAL FRAMEWORK

This chapter is based on the theoretical framework, which can be observed in the case of layoffs and stock prices. Layoffs present new information for the market and stock prices react to this information. The information content of layoff announcements and the role of information in the financial markets are important to understand before proceeding to further research. This chapter also presents the basic theories and studies on stock valuation and the line of research on value and growth stocks is observed as well to build more basis for the research results reviewed in the following chapters.

3.1 The role of information in the financial markets

Ever since Maurice Kendall proposed the theory of random walk in 1953, the role of information in the capital markets has been studied in a growing extent. The random walk theory suggests that there cannot be a predictable pattern in stock prices, which means that the stock prices are as likely to go up as they are to go down on any particular day, regardless of past performance. Therefore, the future movements of the stock prices cannot be predicted by their past movements.

If stock prices are given all available information, it must be that they increase or decrease only in response to new information. New information, by definition, must be unpredictable. If it could be predicted, then the prediction would be part of today's information. Thus stock prices that change in response to new (unpredictable) information also must move unpredictably. This is the essence of the argument that stock prices should follow random walk, that is, that price changes should be random and unpredictable. (Bodie, Kane & Marcus 2009: 345.)

In the case of layoff announcements, the new information can be regarded as the company's announcement itself and the following reaction in the company's stock price to a positive or negative direction is the reflection of new information in the financial markets.

The information set in the financial markets is not mutual for all kinds of investors, but this information and the quality of information varies between the professional and not-professional investors. This means that the market prices are not established by the consensus of all investors, but the marginal investors who actively trade in the markets. These well-informed and intelligent professionals exploit all available information, which is up-to-date and thoroughly processed before the initial trades, and lead the market to operate relatively efficiently. (Haugen 1997: 642-643.)

This leads to the subject known in the research and the economic world as the efficient markets, markets where all information is efficiently priced in the securities.

3.1.1 Efficient Market Hypothesis

One of the most important theories concerning the information value of the financial markets is *the Efficient Market Hypothesis (EMH)*, which was commonly introduced by Eugene Fama in 1965. An efficient market is defined as a market where there are large numbers of rational, profit-maximizing investors actively competing, with each trying to predict future market values of individual securities, and where important current information is almost freely available to all market participants. In an efficient market, competition among the many intelligent participants leads to a situation where, at any point in time, actual prices of individual securities already reflect the effects of information based both on events that have already occurred and on events, which the market expects to take place in the future.

As stated, a market in which prices always “fully reflect” available information is called efficient. The market efficiency can be divided into three different forms of efficiency. These three subsets of relevant information for the adjustment of security prices are *the weak, semi-strong and strong form of market efficiency*. (Fama 1970.)

The three levels of market efficiency are distinguished by the degree of information reflected in security prices. In the first level, the weak form of market efficiency, prices reflect the information contained in the record of past prices (historical information). If the markets are efficient in the weak sense, then it is im-

possible to make consistently superior profits by studying past returns. Prices will follow a random walk. The second level of efficiency, the semi-strong form of market efficiency, requires that prices reflect not just past prices but all other published information. If the markets are efficient in this sense, then prices will adjust immediately to public information such as the announcement of last quarter's earnings, a new issue of stock, a proposal to merge two companies, and so on. (Brealey & Myers 2003: 351.)

Finally, the strong form of market efficiency states that stock prices reflect all information relevant to the firm, even including information available only to company insiders (Bodie et al. 2009: 349).

The strong form of the efficient market hypothesis takes the notion of market efficiency to the ultimate extreme. Under this form, those who acquire inside or private information act on it, buying or selling the stock. Their actions affect the price of the stock, and the price quickly adjusts to reflect the inside information. (Haugen 1997: 644.) The following figure (Figure 1.) shows how the different forms of market efficiency include all relevant information content in the market.

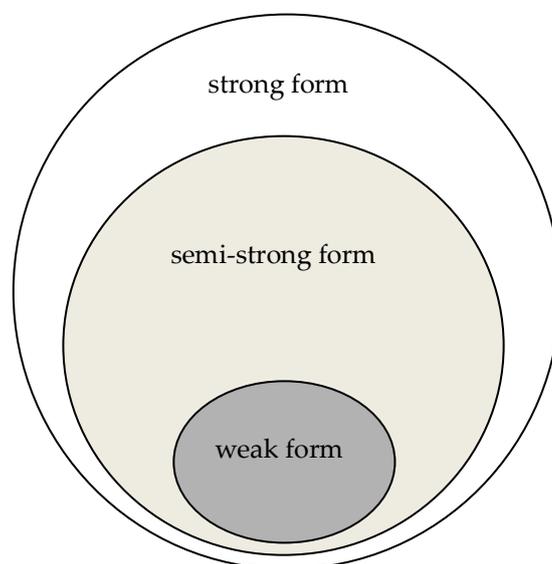


Figure 1. Three different forms of market efficiency.

The notion of informationally efficient markets leads to a powerful research methodology. If security prices reflect all currently available information, then

price changes must reflect new information. Therefore, it seems that one should be able to measure the importance of an event of interest by examining price changes during the period in which the event occurs. *An event study* describes a technique of empirical financial research that enables an observer to assess the impact of a particular event on a firm's stock price. Isolating the part of a stock price movement that is attributable to a specific event is not a trivial exercise. (Bodie et al. 2009: 353-354.)

An important term used in various research studies is the term of *abnormal return*. The general approach for an event study starts with a proxy for what the stock's return would have been in the absence of the event. The abnormal return due to the event is estimated as the difference between the stock's actual return and this benchmark. (Bodie et al. 2009: 354.)

Event studies produce useful evidence on how stock prices respond to information (Fama 1998). In the wide range of studies of layoff announcements and stock price reactions, most of the empirical results and study evidence have been examined with event studies. More closely, the studies have contracted a so called event window, in which the initial announcement or part of a series of announcements for layoffs and the following stock price reaction have been observed under a specified time-frame. The event study methodology and further terminology will be examined later in this thesis.

3.1.2 Testing the forms of market efficiency

Early tests of efficient markets were tests of the weak form. Could speculators find trends in past prices that would enable them to earn abnormal profits? This is essentially a test of the efficacy of technical analysis, discerning trends in stock prices. The tests for the weak form of market efficiency try to observe a pattern in the past prices for stocks. (Bodie et al. 2009: 349, 359.)

Fundamental analysis uses a much wider range of information than technical analysis. Investigations of the efficacy of fundamental analysis ask whether publicly available information beyond the trading history of a security can be used to improve investment performance, and therefore are tests of semi-strong form market efficiency. Fundamental analysis uses earnings and dividend

prospects of the firm, expectations of future interest rates, and risk evaluation of the firm to determine proper stock prices. (Bodie et al. 2009: 350,361.)

The testing of strong form market efficiency is more problematic, since insider trading is legally prohibited and closely monitored in the course of law. It would not be surprising if insiders were able to make superior profits trading in their firm's stock. Insider information and the possible trades made by insiders are regulated and limited in the markets and, therefore, it is not expected that the markets would be strong form efficient. (Bodie et al. 2009:365-366.)

If the markets would fully reflect all available information, various types of investment analysis would become ineffective in discriminating between profitable and unprofitable investments. It is important to understand the following assumptions on the testing of the different forms of market efficiency. If the weak form of market efficiency is valid, technical analysis or charting becomes ineffective. There is no information in the past series which is useful in predicting the future and the stock prices have settled to a level which reflects all the useful information embedded in past stock prices. (Haugen 1997: 644.)

If the semi-strong form of the efficient market hypothesis is in effect, the fundamental analysis as well as technical analysis is useless in predicting future stock prices. All published information is fully reflected in the stock prices and there's a need for uncovering or purchasing of private information to unveil the future directions for the stocks. In the case of strong form market efficiency, those who acquire inside information act on it and quickly force the price to reflect the information. Allegedly, the initial acquisition of new pieces of this information is largely a matter of chance, and since stock prices already reflect the existing inventory of inside information, efforts to seek out inside information to beat the market are ill-advised. (Haugen 1997: 644.)

These assumptions partly claim that all analysis for predicting future prices is useless and even the professional investors should closely follow a rather passive than active investing strategy. All assumptions aside, the financial markets are only partly efficient and the efficient market hypothesis provides only a theoretical framework for understanding the role of information in the financial markets.

The market efficiency and the information content in the financial markets can be examined also in the case of layoff announcements and stock prices. According to Ursel and Armstrong-Stassen (1995), a company's prior history with layoffs can lead to investor anticipation for a forthcoming layoff announcement. For example, a forest industry company with an active layoff history can lead the investors to observe the historical stock prices around the company's layoff announcements and draw conclusions from the previous stock price reactions to anticipate a negative or a positive stock price reaction to the forthcoming announcement. Also the financial figures can be observed for the company to speculate the stock price performance following a layoff announcement. Prior historical information leads the investors to anticipate or analyze the future movements and this proves a test for the weak and semi-strong form of market efficiency, since technical and fundamental analysis can be assigned for the basis of the investment decision.

Worrell et al. (1991) report information leakages on layoff announcements and stock price reactions to this information before the initial layoff announcement and conclude that the market adjusts efficiently to this information. Filbeck and Webb (2001) report information asymmetries in layoffs and stock price reactions indicating that managerial, insider ownership relative to firm size may guide the investor's perceptions of layoff announcements. Therefore, the study suggests that small firms' layoff announcements contain a larger amount of new information than those of large firms, and results indicate a stronger reaction to this information.

Even though, the markets are stated to be only relatively efficient, the markets are efficient enough to reflect the new information into the stock prices in the weak and semi-strong form (Fama 1970). This thesis focuses on the new information presented in company layoff announcements and how these events affect the stock prices.

3.2 Stock valuation

On the basis of the previously presented efficient market hypothesis, it can be concluded that the finding of undervalued securities is hardly easy. It is the on-

going search for mispriced securities that maintains a nearly efficient market. The purpose of fundamental analysis is to identify stocks that are mispriced relative to some measure of “true” value that can be derived from observable financial data. (Bodie et al. 2009: 586.) This part of the chapter focuses on the basic stock valuation techniques used in the fundamental analysis. The stock valuation models presented in this part of the chapter are the dividend discount model and free cash flow model. The stock valuation ratios presented here are the price-to-earnings, price-to-book and price-to-cash flow ratios. These ratios build basis for reviewing the differences between value and growth stocks in the end of this part.

3.2.1 Stock valuation models

A valuation model identifies the features of a firm’s operations that generate returns so that forecasting those features amounts to forecasting returns. And it shows how to convert a forecast into a valuation that anticipates abnormal returns. A valuation model is a thinking tool for understanding the business, management’s strategic plan, and the likely result of that plan. And it translates these features into what is of ultimate interest to the investor, expected returns and the value of the investment. Valuation models provide the design for fundamental analysis. (Penman 2001: 96.)

The stock valuation models are based on the calculation of present values of the future cash flows that investors are expected to earn from the investment. The basic idea is to pay attention to the time value of money. The return of the investment depends on the future cash flows of the company and, therefore, investor does not know for certain, what this return is going to be. (Nikkinen, Rothovius & Sahlström 2005: 148.)

Predicting these future cash flows of the stock are one of the most important tasks, when the stock valuation models are applied (Nikkinen et al. 2005: 149). Because these cash flows are expected in the future, they are adjusted by a *discount rate* to reflect not only the time value of money but also the riskiness of the cash flows (Sharpe, Alexander & Bailey 1995: 568-569).

The cash payoff to owners of common stocks comes in two forms, cash dividends and capital gains or losses. At each point in time all stocks in an equiva-

lent risk class are priced to offer the same expected return. Suppose that the current price of a share is P_0 , that the expected price at the end of a year is P_1 , and that the expected dividend per share is D_1 . The rate of return that investors expect from this share over the next year is defined as the expected dividend per share D_1 plus the expected price appreciation per share $P_1 - P_0$, all divided by the price at the start of the year P_0 . (Brealey & Myers 2003: 61-62.) The following equation (1) shows how the expected return, r , is formed.

$$(1) \quad r = \frac{D_1 + P_1 - P_0}{P_0}$$

Because the cash flows associated with an investment in any particular common stock are the dividends that are expected to be paid throughout the future on the shares purchased, the models suggested by this method of valuation are often known as *dividend discount models* (Sharpe et al. 1995: 570). A simple dividend discount model can be described as follows in the equation (2). The model in the equation (2) states that the value of the stock, P_0 , is the present value of the company's future dividends, D_t , discounted with the expected (required) rate of return, r (Nikkinen et al. 2005: 150).

$$(2) \quad P_0 = \frac{D_1}{1+r} + \frac{D_2}{(1+r)^2} + \frac{D_3}{(1+r)^3} + \dots$$

In order to use this equation, the investor must forecast all future dividends. Because a common stock does not have a fixed lifetime, this suggests that an infinitely long stream of dividends must be forecast. Although this may seem to be an impossible task, with the addition of certain assumptions, the equation can be made usable. These assumptions center on dividend growth rates. The different types of tractable dividend discount models reflect different sets of assumptions about dividend growth rates. (Sharpe et al. 1995: 571.)

One assumption that could be made about future dividends is that they will remain at a fixed amount. This is equivalent to assuming that all the dividend growth rates are zero. This model is often referred to as the *zero-growth model*. (Sharpe et al. 1995: 571.)

If it assumed that the amount of dividends is fixed and, therefore, the growth rate is zero, the equation (2) can be contracted to the following equation (3). (Nikkinen et al. 2005: 150.)

$$(3) \quad P_0 = \frac{D}{r}$$

The *constant growth model* assumes that dividends will grow from period to period at the same rate forever (Sharpe et al. 1995: 573). The dividends will grow at a constant rate, g , in the future and the equation (4) can be formed as follows (Nikkinen et al. 2005: 150).

$$(4) \quad P_0 = \frac{D_1}{r - g}$$

According to the equation (4), the stock price can be derived with dividing the next year's dividends with the difference between the expected return and the dividend growth rate. Even though, the growth rate for dividends is rarely constant, this model gives important evidence how different factors affect the stock price. An increase in the expected return decreases the stock price and, to the same extent, an increase in the growth rate increases the stock price. (Nikkinen et al. 2005: 150.)

There's certain problems with using dividend discount models, even though, the models are highly applicable in stock valuation. The biggest problems with these models are caused by the fact that the dividend policies in different com-

panies vary across industries and sectors and that the faster growing companies usually give smaller dividends in the near future related to the stock price. The estimation of dividends for faster growth companies is problematic and increases the uncertainty related with the future valuation. (Nikkinen et al. 2005: 151.)

An alternative approach to the dividend discount model values the firm using free cash flow, that is, cash flow available to the firm or its equityholders net of capital expenditures. This approach is particularly useful for firms that pay no dividends, for which the dividend discount model would be difficult to implement. These *free cash flow models* may be applied to any firm and can provide useful insights about the firm value beyond the dividend discount models. (Bodie et al. 2009: 611-612.)

The following equation (5) describes the free cash flow available to equityholders (Bodie et al. 2009:612).

$$(5) \quad FCF = EBIT(1 - t_c) + D - CE - NWC - IE(1 - t_c) + Debt_+,$$

where

- EBIT= Earnings before interest and taxes
- t_c = the corporate tax rate
- D= Depreciation
- CE= Capital expenditures
- NWC= increase in net working capital
- IE= Interest expense
- Debt₊= Increases in net debt

After defining the free cash flow to equity, the market value of the equity can be calculated by discounting the present values of free cash flows with the required returns for each year. The equation for the market value of the equity, P_E , can be described as follows. (Nikkinen et al. 2005: 153.)

$$(6) \quad P_E = \frac{FCF_1}{1+r} + \frac{FCF_2}{(1+r)^2} + \frac{FCF_3}{(1+r)^3} + \dots$$

In practice, the free cash flow model is applicable in the same way as the previously presented dividend discount model. First, the future cash flows are forecasted, and then the cash flows are assumed to grow at a constant rate forever. There are certain problems with using free cash flow models as well. Especially, in the case of fast-growing companies, whose free cash flows may be negative for long periods, the forecasting is difficult and hard to manage. Similar problems can be noticed in the companies with large investment projects, when the amount of free cash flow varies considerably between different years. Therefore, the free cash flow model functions most efficiently, when it can be assumed that the company's free cash flows are constantly growing from year to year and the investment projects stay at relatively constant levels in the forthcoming years. (Nikkinen et al. 2005: 153-154.)

3.2.2 Stock valuation ratios

The *price-to-earnings ratio* (equation 7) is the ratio of price per share to company earnings per share, commonly called the *P/E ratio* (Bodie et al. 2009: 604). The price-to-earnings ratio is computed on the basis of earnings available for distribution to common stockholders, that is, after deducting operating expenses, depreciation, taxes, and interest from net revenue (Haugen 1997: 607-608).

$$(7) \quad \frac{P}{E} = \frac{\text{price}}{\text{earnings}}$$

The P/E ratio is considered to be one of the most common stock valuation tools and it provides important knowledge for investors about the firm's future prospects. The P/E ratio might serve as a useful indicator of expectations of growth opportunities and the differences in expected growth opportunities are

responsible for differences in P/E ratios across firms. The P/E ratio actually is a reflection of the market's optimism concerning a firm's growth prospects. The P/E ratios are commonly taken as proxies for the expected growth in dividends or earnings. (Bodie et al. 2009: 604, 606.)

As in other stock valuation techniques, also the P/E ratio has some pitfalls. First, it is to be considered that the denominator in the P/E ratio is accounting earnings, which are influenced by somewhat arbitrary accounting rules such as the use of historical cost in depreciation and inventory valuation. In times of high inflation, historic cost depreciation and inventory costs will tend to under-represent true economic values, because the replacement cost of both goods and capital equipment will rise with the general level of prices. (Bodie et al. 2009: 607-608.)

Earnings management is the practice of using flexibility in accounting rules to improve the apparent profitability of the firm (Bodie et al. 2009: 608). This means that the earnings might be speculated to look better to improve the firm's figures in the eyes of the investors.

Another confounding factor in the use of P/E ratios is related to the business cycle. The reported earnings can fluctuate dramatically around a trend line over the business cycle and current accounting earnings can differ considerably from future economic earnings. Because ownership of the stock conveys the right to future as well as current earnings, the ratio of price to most recent earnings can vary substantially over the business cycle, as accounting earnings and the trend value of economic earnings diverge by greater and lesser amounts. (Bodie et al. 2009: 609.)

Another stock valuation ratio observed in this thesis is the *price-to-book ratio*³ (P/B –ratio). This is the ratio of price per share divided by book value per share (Bodie et al. 2009: 611). The P/B ratio is a commonly used comparative valuation ratio and it is used in a similar way as P/E ratio in stock valuation. The stock price represents the investors' assessments of future prospects, while its book value represents accountants' representation of its past costs; the greater a com-

³ Also known as the market-to-book ratio

pany's prospects for future growth, the greater should be the ratio of its future prospects to its embedded costs (Capaul, Rowley & Sharpe 1993).

Book value per share is stockholders' book equity divided by the number of shares outstanding. Book equity equals common stock plus retained earnings – the net amount that the firm has received from stockholders or reinvested on their behalf. (Brealey & Myers 2003: 830.)

Using the book value in stock valuation is based on the idea that firm's value is at least the value of equity in the firm. There are some difficulties in the price-to-book ratio as well. The forecasting of the exact value of a firm is difficult, when matters, such as patents, technological competence and human capital should be taken into consideration in the valuation. (Nikkinen et al. 2005: 143.)

The third stock valuation ratio reviewed is the *price-to-cash-flow* ratio (P/CF ratio). This is the ratio of price per share divided by the cash flow per share. The information content and analysis of P/CF ratio is similar to P/E ratio and P/CF ratio is at times used to support the P/E ratio (Nikkinen et al. 2005: 145).

Earnings as reported on the income statement can be affected by the company's choice of accounting practices, and thus are commonly viewed as subject to some imprecision and even manipulation. In contrast, cash flow – which tracks cash actually flowing into or out of the firm – is less affected by accounting decisions. As a result, some analysts prefer to use the ratio of price to cash flow per share rather than price to earnings per share. Some analysts use operating cash flow when calculating this ratio and others prefer using the free cash flow (see equation 5). (Bodie et al. 2009: 611.)

3.2.3 The difference between value and growth

Value stocks are those with low ratios of market price per share to various measures of value, for example low values of the previously presented P/E, P/B and P/CF ratios. In contrast, *growth stocks* have high ratios, suggesting that investors in these firms must believe that the firm will experience rapid growth to justify the prices at which the stocks sell. (Bodie et al. 2009: 107.)

Value stocks have low values for the ratios, because the cash flows of value stocks are expected to grow relatively slowly in the future. Thus, investors are not willing to pay a relatively high price for these stocks today. With growth stocks, investors are willing to pay a relatively high price for the stocks, since it is expected that the cash flows grow fast to higher levels in the future. (Haugen 1997:177.)

The classification of stocks into value and growth is widely known in the world of financial markets and research studies have reviewed the value-growth effects in a growing extent ever since the 1970s. Basu (1977) presented evidence that low P/E stocks tend to have higher average returns than high P/E stocks and, therefore, value stocks outperform growth stocks. Similar research evidence was presented by Fama and French (1992, 1995) and by Lakonishok, Shleifer and Vishny (1994) with low P/B ratios and P/CF ratios.

Research has shown that value stocks have earned much higher rates of return than growth stocks in recent decades. The source of these higher returns is the subject of much controversy. Some believe that value stocks are “fallen angels” and therefore are more risky. The premium returns to these stocks are expected and required. Others believe that the premium returns to value stocks are unexpected and systematically come as a surprise to investors. It is therefore regarded that investors overreact to the past records of success and failure by firms. (Haugen 1997: 177.)

Value stocks are sometimes regarded as economic distress stocks, since these stocks react more negatively than growth stocks in poor economic conditions and are therefore riskier than growth stocks, at least during recessionary cycles of the economy. In bad times, firms want to scale down, especially value firms that are less productive than growth firms (see Fama & French 1995). Because scaling down is more difficult, value firms are more adversely affected by economic downturns. In good times, growth firms face less flexibility because they tend to invest more. Expanding is less urgent for value firms because their previously unproductive assets have become more productive. (Petkova & Zhang 2005.)

4. DATA AND METHODOLOGY

In this chapter the data and methodology related to this study are presented and specified in a more detailed way. It is important to clarify the data sources and the event study methodology as well as some of the problems involved with conducting event studies before heading into the empirical results found in the course of this study.

4.1 Data sources and sample construction

The data for this study consists of 160 announcements for permanent layoffs in Finland between January 2004 and June 2010. The companies observed are Finnish large and mid-sized companies listed in the Nasdaq OMX Helsinki Stock Exchange. The daily stock market data and the financial ratios for the layoff firms were obtained from the Thomson One Banker Analytics Database provided by the University Of Vaasa. Nasdaq OMX Helsinki Stock Exchange, Arvopaperi Online and Kauppalehti Online news databases were used for searching the company announcements for the layoffs and the company announcements were browsed through to define the reasons and size for the permanent layoffs.

This study focuses on the stock market reaction for the final disclosure of permanent layoffs, indicating the announcement for the final decision of the company co-determination negotiations. Therefore, this study concentrates on the reaction of the stock market to the actual layoffs rather than only to the layoff announcements. An 11-day event window is constructed around the final announcement day, when the company co-determination negotiations are disclosed and an estimation period of 200 days preceding the event window similar to Worrell et al. (1991) is used for calculating the mean-adjusted abnormal returns. The original data sample of 184 permanent layoff announcements from Finland between the years 2004-2010 was adjusted for confounding events, mainly for overlapping event windows for the same company or large announcements for different corporate events around the initial event day. This study does not take the differences between single and multiple announce-

ments for the firms into account and this can be regarded as one of the limitations for the research.

The sample of 160 announcements for permanent layoffs was divided into different sub-samples according to the cited reason for layoffs and the P/B ratios. The cited reasons stated in the company announcements for the permanent layoffs were used to divide the sample into declining demand and improved efficiency sub-sample groups similar to Palmon et al. (1997). These sub-samples consisted of 103 declining demand layoffs and 57 improved efficiency layoffs. In a different sample formation stage the total sample was divided into value and growth sub-samples according to the P/B ratios for the firms' layoff announcement year and this sample formation was implemented for two different business cycles. The non-recessionary period of 2004 –2007 consisted of 66 layoff announcements, which were divided into 33 layoff announcements for the value sub-sample and, respectively, into 33 layoff announcements for the growth sub-sample based on the median P/B ratio. The recessionary period between the years 2008 and 2010 consisted of 94 layoff announcements with 47 in the value sub-sample and similar amount in the growth sub-sample.

4.2 Event study methodology

An important methodological approach to market based empirical research in finance and accounting is the event study. Also known by other names such as residual analysis and abnormal performance index tests, these studies involve the analysis of security price behavior around the time of an information announcement or event. The approach has been used to study a variety of events such as the announcements of annual accounting earnings, accounting principle changes, large block trades and corporate mergers. (Bowman 1983.)

The usefulness of an event study comes from the fact, that given rationality in the marketplace, the effect of an event will be reflected immediately in asset prices. Thus the event's economic impact can be measured using asset prices observed over a relatively short time period. In contrast, direct measures may require many months or even years of observation. The general applicability of

the event study methodology has led to its wide use. (Campbell, Lo & MacKinlay 1997: 149.)

Ever since the 1960s, event studies have become more and more popular among financial research studies and the framework for event studies, which was presented by the pioneering research studies by Ball and Brown (1968) and Fama, Fisher, Jensen and Roll (1969), can still be applied efficiently in today's research studies.

4.2.1 The structure of an event study

It is important to review the structure of an event study briefly before heading into the more detailed parts of an event study process. In the following figure (Figure 2.) the structure of an event study can be separated into seven different steps (Campbell et al. 1997: 151-152).

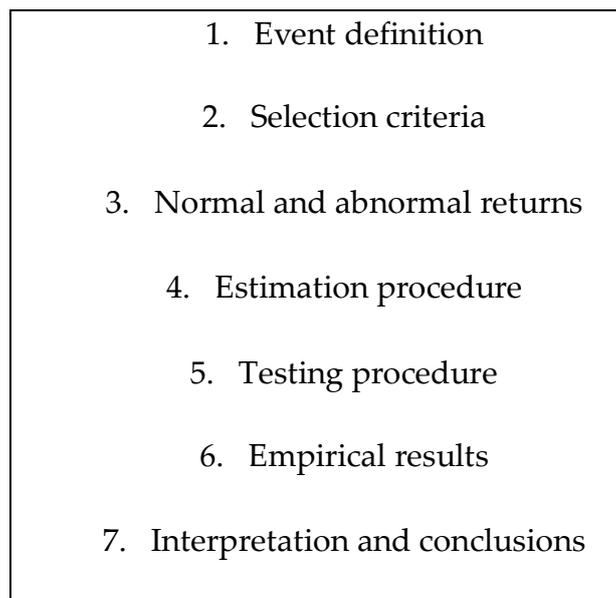


Figure 2. The structure of an event study.

The initial task of conducting an event study is to define the event of interest and identify the period over which the security prices of firms involved in this event will be examined – the *event window* (Campbell et al. 1997:151). An important point in identifying an event of interest concerns the ability to ascertain the timing of the event (Bowman 1983). For the timing of the event, the initial event day for this study is the final disclosure day for the firms' permanent layoff an-

nouncements and an 11–day event window is used to observe the stock price reactions to these events.

Another important consideration in the choosing and defining of an event is the problem presented by confounding events. Confounding events will frequently exist in event studies. Their presence can have a significant impact on the results of empirical tests. The success of many event studies will depend upon how effectively the researcher controls for the impact of confounding events. (Bowman 1983.)

After identifying the event of interest, it is necessary to determine the selection criteria for the inclusion of a given firm in the study (Campbell 1997: 151). This indicates that there are certain restrictions to be made for the data sample, in order to clarify the selection criteria. In a way, the precise definition of the selection criteria can be seen as controlling for the impact of confounding events and, therefore, the restrictions made for the data sample can enhance the empiric results. The restrictions are usually linked with the selection of country, stock exchange or membership in a specific industry which is under review in the event study (see Campbell et al. 1991:151).

After defining the event and selecting the criteria for the event, abnormal returns for the event are calculated. In this part of the event study process the actual and expected returns⁴ are compared and the stock price reactions are modeled with the chosen statistical or economical models to measure the expected performance⁵. The models for measuring the expected performance are presented later in this chapter.

The expected return is defined as the return that would be expected if the event did not take place (Campbell et al. 1997:151). The following equation (Equation 8.) describes how the abnormal return (AR_{it}) for each firm i at event day t is calculated:

$$(8) \quad AR_{it} = R_{it} - ER_{it} ,$$

⁴ In the Campbell et al. (1997) the term used is normal return.

⁵ In the Campbell et al. (1997) the term used is normal performance.

where AR_{it} = the abnormal return for firm i at the event day t
 R_{it} = the actual return for firm i at the event day t
 ER_{it} = the expected return for firm i at the event day t

Once the expected performance model has been selected, the parameters of the model must be estimated using a subset of the data known as the *estimation period*. The most common choice is to use the period prior to the event window for the estimation window. It is typical for the estimation window and the event window not to overlap. This design provides estimators for the parameters of the expected return model which are not influenced by the event-related returns. Including the event window in the estimation of the expected model parameters could lead to the event returns having a large influence on the expected return measure. In this situation both the expected returns and the abnormal returns would reflect the impact of the event. (Campbell et al. 1997: 152, 158.)

With the parameter estimates for the expected performance model, the abnormal returns can be calculated. Next comes the design for the testing framework for the abnormal returns. Important considerations are defining the null hypothesis and determining the techniques for aggregating the individual firm abnormal returns. The presentation of the empirical results follows the formulation of the econometric design. Ideally the empirical results will lead to insights relating to the understanding the sources and causes of the effects (or lack of effects) of the event under study. Additional analysis may be included to distinguish between competing explanations. (MacKinlay 1997.)

4.2.2 Models for measuring the expected and abnormal returns

A number of approaches are available to calculate the normal return of a given security. The approaches can be loosely grouped into two categories – statistical and economic. Models in the first category follow from statistical assumptions concerning the behavior of asset returns and do not depend on any economic arguments. In contrast, models in the second category rely on assumptions concerning investors' behavior and are not based solely on statistical assumptions. (Campbell et al. 1997: 154.)

In this study, the presented approaches for measuring the expected returns are statistical models – the *mean-adjusted return model* and *market model*. For the statistical models, the assumption that asset returns are jointly multivariate normal and independently and identically distributed through time is imposed. The distributional assumption is sufficient for the mean-adjusted return model and market model to be correctly specified. While this assumption is strong, in practice it generally does not lead to problems because the assumption is empirically reasonable and inferences using the expected return models tend to be robust to deviations from the assumption. (MacKinlay 1997.)

In this thesis the selected model for measuring the expected returns is the mean-adjusted return model. The mean-adjusted return model uses the daily mean returns for the stock prices from the estimation period to obtain the expected return for each firm in the study. Therefore, the mean adjusted procedure defines the expected return as the mean of past security returns (Bowman 1983). The following equation (Equation 9.) describes how the mean-adjusted abnormal returns are calculated.

$$(9) \quad AR_{it} = R_{it} - \overline{R}_i,$$

where AR_{it} = the abnormal return for firm i at the event day t
 R_{it} = the actual return for firm i at the event day t
 \overline{R}_i = the expected mean-adjusted return⁶ for firm i

Even though, the mean-adjusted return model is a simple model for establishing the expected and abnormal stock returns, Brown and Warner (1980, 1985) have suggested that it is as applicable as the more sophisticated and complex models, such as the market model. Their research found that the mean-adjusted return model often yielded results similar to those of more sophisticated models. This lack of sensitivity to the model choice can be attributed to the fact that the variance of the abnormal return is frequently not reduced much by choosing

⁶ The simple average of firm i 's daily stock returns from the estimation period.

a more sophisticated model (Campbell et al. 1997: 154). Ahern (2009) suggests that simpler estimation procedures for measuring abnormal returns, such as the mean-adjusted return model, may indicate a mean bias, when the sample is selected randomly across a wide variety of securities. This can be stated to be one of the risk factors involved with the mean-adjusted return model.

The market model is a statistical model which relates the return of any given security to the return of the market portfolio. The model's linear specification follows from the assumed joint normality of asset returns. (Campbell et al. 1997: 155.)

The expected return in the market model is calculated as follows (Equation 10.). The parameters of the model are estimated using ordinary least squares regression and then used to calculate the abnormal returns (Equation 11.).

$$(10.) \quad \bar{R}_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it},$$

where R_{it} = the expected return for firm i from the estimation period t
 R_{mt} = the market portfolio return from the estimation period t
 α_i and β_i = parameters of the market model
 ε_{it} = the zero mean disturbance term

$$(11.) \quad AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}),$$

where AR_{it} = the abnormal return for firm i at the event day t
 R_{it} = the actual return for firm i at the event day t

The abnormal return observations must be aggregated in order to draw overall inferences for the event of interest. The aggregation is along two dimensions –

through time and across securities. The cumulative abnormal return is introduced to accommodate multiple sample intervals within the event window. The individual securities' abnormal returns can be averaged by using the average abnormal return (AAR_i). Given the sample of N events, defining AAR_i as the sample average of the N abnormal returns, the equation is constructed as follows (Equation 12.). (Campbell et al. 1997:160-161.)

$$(12.) \quad AAR_i = \frac{1}{N} \sum_{i=1}^N AR_{it}$$

When the abnormal returns have been defined for all the individual firms in the sample, the procedure used widely in event studies is the observation of cumulative abnormal returns through different time intervals in the event window. This procedure gives important knowledge of how the information value in the announcements affects the stock prices and is an efficient tool in observing the different time intervals around the event day. The cumulative average abnormal returns are calculated by summing up the average abnormal returns for the event days across the sample. In the following equation (Equation 13.) the cumulative average abnormal returns are calculated by summing up the average abnormal returns ($CAAR_t$) for the 11-day time period (-5, +5) used in this study. In the absence of abnormal performance the expected value of $CAAR_t$ is equal to zero.

$$(13.) \quad CAAR_t = \sum_{t=-5,+5} AAR_i$$

The focus of the event studies is largely on the average and cumulative abnormal returns rather than on the abnormal returns for single event days. The average and cumulative abnormal returns are better indicators, when the stock price reactions to an event are observed.

4.2.3 Testing the significance of abnormal returns

When the abnormal returns for the sample have been calculated, the results must be tested for significance. That is, to confirm if the abnormal returns can be considered relevant and significant under the hypotheses suggested. There are various ways of testing the statistics for the event study results and in this study the test statistics used are similar to the test statistics under the null hypothesis as presented by Brown and Warner (1985).

Given the abnormal returns based on each method, the statistical significance of the event period abnormal returns is assessed for each sample. The null hypothesis tested is that the mean day zero abnormal return (e.g., the simple average of the mean-adjusted return model abnormal returns) is equal to zero, and thus concerns the average effect of an event on returns to shareholders. The test statistic is the ratio of the day zero mean abnormal return to its estimated standard deviation; the standard deviation is estimated from the time-series of mean abnormal returns. The test statistic for any event day t (in this case $t = 0$) is constructed as follows (Equation 14.). (Brown & Warner 1985.)

$$(14.) \quad AR_t / S(AR_t),$$

where

$$AR_t = R_{it} - \bar{R}_i$$

$$S(AR_t) = \sqrt{\left[\sum_{t=205}^{t=-6} (AR_t - \bar{R}_i)^2 \right] / 199}$$

\bar{R}_i = the expected mean-adjusted return for firm i

If the AR_t are independent, identically distributed and normal, the test statistic is distributed Student-t under the null hypothesis. Since the degrees of freedom exceed 200, the test statistic is assumed unit normal. (Brown & Warner 1985.)

The statistical analysis is based on the assumption that returns are jointly normal and temporally independently and identically distributed. The normality

assumption is important for the exact finite sample results to hold. Without assuming normality, all results would be asymptotic. (See MacKinlay 1997.)

The null hypothesis test statistic suggests that the given event has no impact on the stock price reaction and, therefore, it tests the significance of the abnormal returns differing from zero. As mentioned, there are various different test statistic models for measuring the significance and the form of abnormal returns involved with event studies, but in this study the null hypothesis test is regarded as the model of choice.

4.3 Problems with event studies

Like in any other theoretical and empirical research methods, there are various different problems with conducting event studies as well. These issues include the role of the sampling interval, the uncertainty with the event-date and the possible biases with the assumptions and simplifications of event studies.

First of all, the sampling interval should be taken into account, when conducting event studies. If the timing of an event is known precisely, then the ability to statistically identify the effect of the event will be higher for a shorter sampling interval. The increase results from reducing the variance of the abnormal return without changing the mean. The clear message is that there is a substantial payoff in terms of increased power from reducing the length of the event window. Secondly, in some studies it may be difficult to identify the exact event date. When the event announcement appears in the newspaper one cannot be certain if the market was informed before the close of the market the prior trading day. If this is the case then the prior day is the event day, if not, the current day is the event day. (Campbell et al. 1997: 175-176.)

In this study, the event period has been restricted to 11 trading days around the event and the exact event date has been confirmed by browsing the Nasdaq OMX Helsinki Stock Exchange news releases and other up-to-date news archives for the official announcements.

Further problems involved with event studies concern the possible biases, which these studies are subject to. Nonsynchronous trading can introduce a bias. The nontrading or nonsynchronous trading effect arises when prices are taken to be recorded at time intervals of one length, when in fact they are recorded at time intervals of other possibly irregular lengths. This causes bias especially for the market model parameter estimation. The methodology used to compute the cumulative abnormal returns can induce an upward bias. The bias arises from the observation by observation rebalancing to equal weights implicit in the calculation of the aggregate cumulative abnormal return combined with the use of transaction prices which can represent both the bid and offer side of the market. (MacKinlay 1997.)

5. EMPIRICAL RESULTS

In this chapter the empirical results regarding permanent layoffs and stock price reactions are presented. The analysis of stock price reactions to permanent layoff announcements is divided into three different parts, which are observed separately in this chapter. First part of this chapter focuses on the cited reasons mentioned by the layoff firms for the initial permanent layoff and the sample of 160 layoff announcements is divided into declined demand and improved efficiency subsamples based on the cited reason. In the second part, the value and growth dimension for the stock price reaction to permanent layoffs is observed and the sample is divided into value and growth subsamples in two different business cycles. In the last part of this chapter, the empirical results presented are obtained from ordinary-least-squares (OLS) regression, where the relationship between the stock price reaction to layoff-to-employee ratio and firm size is under review in both recessionary and non-recessionary business cycle.

5.1 Abnormal performance and the cited reason for layoffs

The permanent layoffs are classified into two subsamples based on the reason for the layoff decision cited in the initial announcement for the disclosure of the layoffs. These two subsamples are the declined demand and improved efficiency subsamples. This classification is similar to the classification used in the studies by Worrell et al. (1991), Lin and Rozeff (1993), Palmon et al. (1997) and Kashaefi and McKee (2002). The announcements of permanent layoff decisions that state declining sales, low product prices or poor business conditions in general as a reason for the layoff are grouped in the declined demand subsample, whereas the announcements that indicate improved profitability or efficiency as the cited reason for the layoffs are grouped in the improved efficiency subsample.

The declined demand subsample includes 103 permanent layoff announcements from the years between 2004 until 2010 and the improved efficiency subsample includes 57 permanent layoff announcements from the same time period. The examples of the quoted reasons for the permanent layoff decisions are presented in the Appendix 1.

Table 2. Abnormal performance for the declined demand subsample.

Daily average abnormal returns (AR), cumulative abnormal returns (CAAR) and t-statistics for the declined demand subsample of 103 permanent layoffs followed by the CAARs and t-statistics measured for different event intervals. Day 0 is the event day for the initial announcement for the disclosure of the permanent layoffs in the stock exchange and business news media. Standard two-sided t-test was used for testing the statistical significance of the abnormal returns. Symbols * (**, ***) indicate significance at the .10 (.05, .01) level using two-tailed test.

t(day)	AR	CAAR	t-statistic of AR		
-5	0,19 %	0,19 %	0,65		
-4	-0,08 %	0,11 %	-0,30		
-3	0,08 %	0,19 %	0,42		
-2	0,04 %	0,23 %	0,15		
-1	0,14 %	0,37 %	0,53		
0	0,13 %	0,50 %	0,51		
1	-0,04 %	0,46 %	-0,14		
2	0,38 %	0,84 %	1,41		
3	-0,39 %	0,45 %	-1,59		
4	0,49 % *	0,94 %	1,83		
5	0,17 %	1,11 %	0,73		
CAAR interval	[-5,+5]	[-5,-1]	[-1,0]	[-1,+1]	[+1,+5]
CAAR	1,11 %	0,37 %	0,27 %	0,23 %	0,61 %
t-stat	1,33	0,56	0,72	0,58	1,12

The results for the declined demand subsample (Table 2.) indicate that the stock price reaction to permanent layoffs due to declined demand is positive, but not significantly different from zero. The t-statistics for the declined demand subsample show that the returns are not significantly different from zero, except for the day 4 abnormal return, which is significantly different from zero at the 0,10 level. Therefore, it can be concluded that these results point out only weak evidence for the significance of the abnormal returns in the declined demand

subsample and it is hard to draw conclusions based on statistically significant abnormal returns on a random event day in the event window. Positive cumulative average abnormal returns may indicate that declined demand as a cited reason is seen as a more proactive reason for investors and as a way of coping with the economic environment. For a firm that states declined demand as the reason for the permanent layoffs, the initial public disclosure of the permanent layoffs may serve as a relieving factor and investors observe these actions as positive rather than negative.

Table 3. Abnormal performance for the improved efficiency subsample.

Daily average abnormal returns (AR), cumulative abnormal returns (CAAR) and t-statistics for the improved efficiency subsample of 57 permanent layoffs followed by the CAARs and t-statistics measured for different event intervals. Day 0 is the event day for the initial announcement for the disclosure of the permanent layoffs in the stock exchange and business news media. Standard two-sided t-test was used for testing the statistical significance of the abnormal returns. Symbols * (**, ***) indicate significance at the .10 (.05, .01) level using two-tailed test.

t(day)	AR	CAAR	t-statistic of AR		
-5	0,18 %	0,18 %	0,72		
-4	-0,33 %	-0,15 %	-0,94		
-3	-0,10 %	-0,25 %	-0,42		
-2	0,25 %	-0,002 %	0,70		
-1	0,06 %	0,06 %	0,20		
0	-0,29 %	-0,23 %	-1,45		
1	0,42 %	0,19 %	1,53		
2	-0,60 % **	-0,41 %	-2,13		
3	0,75 %	0,35 %	1,14		
4	0,22 %	0,57 %	0,95		
5	-0,17 %	0,40 %	-0,73		
CAAR interval	[-5,+5]	[-5,-1]	[-1,0]	[-1,+1]	[+1,+5]
CAAR	0,40 %	0,06 %	-0,23 %	0,19 %	0,63 %
t-stat	0,35	0,08	-0,65	0,48	0,75

In the improved efficiency subsample, the results (Table 3.) show that the stock price reaction to the disclosures of permanent layoffs due to improved efficiency is both positive and negative. Therefore, the abnormal performance can be observed to be rather mixed in the results and there is only weak evidence for the significance of the abnormal returns for this subsample. The day 2 abnormal return is negative (-0,60%) and significantly different from zero at the 0,05 level, but as in the case of declined demand it is rather problematic to analyze a random single event day abnormal returns with statistical significance. The 11-day cumulative average abnormal return for the improved efficiency subsample is 0,40% and it is lower than that of the declined demand subsample. This may indicate that improved efficiency as a cited reason has a lower information value for investors compared with the declined demand subsample.

Both subsamples showed positive 11-day cumulative average abnormal returns indicating that the stock price reaction to permanent layoffs and the disclosures of these layoffs are seen as proactive by the investors. The significance of the abnormal returns according to test statistics in both subsamples indicated only very weak significance for the results. Based on the results, the answer to the research question one (Q1) is that stock prices do react to permanent layoff announcement disclosures, but provide no reliable statistical significance for the abnormal returns. The stock price reactions to the cited reason of permanent layoffs were also tested in two different business cycles, but the results did not produce any further empirical evidence to the results presented in this part of the chapter.

5.2 Abnormal performance with value and growth subsamples

The abnormal performance and the difference between value and growth was tested by dividing the permanent layoffs based on the firms' layoff year's median P/B ratios into value and growth subsamples for two different business cycles. The non-recessionary period consisted of the years between 2004 and 2007 and included an overall amount of 66 permanent layoff announcements. The recessionary period between the years 2008 and 2010 included 94 permanent layoff announcements. This distinction for the business cycles is important, since it is possible that the reactions to layoffs differ during recessionary and

non-recessionary periods (See Ursel & Armstrong-Stassen 1995). The increase of the layoff announcements from 66 in the non-recessionary period to 94 in the recessionary period is consistent with the studies by Elayan et al. (1998) and Farber and Hallock (2009) that the number of layoffs seems to follow the business cycle quite closely.

In the table 4., the cumulative average abnormal returns for the selected 7-day interval inside the 11-day event window indicate that value stocks' reaction to the disclosures of the layoffs is more negative than that of the growth stocks in the non-recessionary business cycle of 2004-2007. For the value subsample, the daily abnormal returns are rather mixed for the event period and the abnormal and cumulative average abnormal returns show no signs of statistical significance.

In the growth subsample, abnormal returns for the days -3 and 0 are statistically significant on the 0,10 level. This may point out that growth investors predict the outcome of the layoff co-operational negotiations and might have information signals of the layoff disclosures beforehand, as early as three days before the initial disclosure. Similar pre-announcement market reaction was also reported by Worrell et al. (1991). The event day 0 statistically significant abnormal returns indicate that growth investors see the disclosures of layoff announcements as trustworthy positive signals for the market and, therefore, the stock market reacts efficiently to the information.

The positive cumulative average abnormal return of 1,55% for the days ranging from three days before the event until three days after the event indicates that investors can earn abnormal returns from growth stocks in a non-recessionary business cycle. The cumulative average abnormal return for the growth subsample for the 7-day interval (-3, 3) is significantly different from zero on the 0,05 level. The two-day cumulative average abnormal return of 0,87% ranging from the event day 0 until the following day and the three-day cumulative average abnormal return of 1,12% are significantly different from zero on the 0,10 level. The results from the non-recessionary period support the research questions of this study (Q2 & Q3) that the stock price reaction differs between value and growth and that the value stocks' reaction to the disclosure of permanent layoffs is more negative than the growth stocks' reaction.

Table 4. Abnormal performance for value and growth subsamples 2004-2007.

Daily average abnormal returns (AR), cumulative abnormal returns (CAAR) and t-statistics for the value (low P/B) subsample of 33 permanent layoffs and the growth (high P/B) subsample of similar amount, followed by the CAARs and t-statistics measured for different event intervals. Day 0 is the event day for the initial announcement for the disclosure of the permanent layoffs in the stock exchange and business news media. Standard two-sided t-test was used for testing the statistical significance of the abnormal returns. Symbols * (**, ***) indicate significance at the .10 (.05, .01) level using two-tailed test.

value subsample (n=33)				
t(day)	AR	CAAR	t-statistic of AR	
-3	-0,22 %	-0,22 %	-0,97	
-2	-0,28 %	-0,49 %	-1,36	
-1	0,27 %	-0,22 %	0,89	
0	-0,23 %	-0,45 %	-1,08	
1	0,07 %	-0,38 %	0,24	
2	-0,13 %	-0,51 %	-0,56	
3	0,09 %	-0,42 %	0,32	
CAAR interval	[-3,+3]	[-1,0]	[0,+1]	[-1,+1]
CAAR	-0,42 %	0,04 %	-0,16 %	0,11 %
t-stat	-0,73	0,15	-0,45	0,24
growth subsample (n=33)				
t(day)	AR	CAAR	t-statistic of AR	
-3	0,39 % *	0,39 %	1,99	
-2	0,41 %	0,80 %	1,55	
-1	0,25 %	1,05 %	0,64	
0	0,49 % *	1,54 %	1,87	
1	0,38 %	1,92 %	1,09	
2	-0,15 %	1,77 %	-0,48	
3	-0,22 %	1,55 %	-0,79	
CAAR interval	[-3,+3]	[-1,0]	[0,+1]	[-1,+1]
CAAR	1,55 %**	0,74 %	0,87 %*	1,12 %*
t-stat	2,13	1,40	1,97	1,86

In the table 5., the abnormal performance for the value and growth in the recessionary period of 2008-2010 is presented. Even though, this recessionary period is only half the length of the non-recessionary period of 2004-2007, the amount of layoff announcements has grown from 66 to 94 during the period. When the value and growth abnormal performance are compared, it can be seen that the results are rather mixed and the abnormal returns received are both positive and negative with weak statistical significance (only on day 2 for the growth subsample at the 0,10 level).

Overall, the cumulative average abnormal returns for the value subsample are less positive or more negative than the returns for the growth subsample. The 7-day cumulative average abnormal return (-3,3) for the value subsample 0,11% is less positive than that of the growth subsample 0,44% and the other three cumulative average abnormal returns observed are more negative for the value than for the growth subsample. This is also consistent with the research questions of this study (Q2 & Q3) that there are differences between value and growth in the stock price reaction to the disclosures of permanent layoffs and this reaction is less positive or more negative for value stocks than for growth stocks.

Ahern (2009) suggests that using valuation samples, such as samples based on P/B or P/E ratios, in event studies may cause biased results and problems in the statistical significance tests. The study concludes that the significance of the abnormal performance is rejected more often for the value (low P/B) firms according to the t-statistics than for the growth (high P/B) firms. This finding may help to clarify the results for the value and growth subsamples used in this study and, especially, the lack of statistical significance in the value subsample abnormal performance.

Table 5. Abnormal performance for value and growth subsamples 2008-2010.

Daily average abnormal returns (AR), cumulative abnormal returns (CAAR) and t-statistics for the value (low P/B) subsample of 47 permanent layoffs and the growth (high P/B) subsample of similar amount, followed by the CAARs and t-statistics measured for different event intervals. Day 0 is the event day for the initial announcement for the disclosure of the permanent layoffs in the stock exchange and business news media. Standard two-sided t-test was used for testing the statistical significance of the abnormal returns. Symbols * (**, ***) indicate significance at the .10 (.05, .01) level using two-tailed test.

value subsample (n=47)				
t(day)	AR	CAAR	t-statistic of AR	
-3	-0,04 %	-0,04 %	-0,10	
-2	0,34 %	0,30 %	0,53	
-1	0,29 %	0,60 %	0,75	
0	-0,52 %	0,07 %	-1,25	
1	0,11 %	0,18 %	0,27	
2	-0,53 %	-0,35 %	-1,27	
3	0,46 %	0,11 %	0,52	
CAAR interval	[-3,+3]	[-1,0]	[0,+1]	[-1,+1]
CAAR	0,11 %	-0,23 %	-0,42 %	-0,12 %
t-stat	0,08	-0,38	-0,94	-0,21
growth subsample (n=47)				
t(day)	AR	CAAR	t-statistic of AR	
-3	-0,04 %	-0,04 %	-0,17	
-2	-0,04 %	-0,08 %	-0,14	
-1	-0,28 %	-0,36 %	-0,65	
0	0,27 %	-0,09 %	0,79	
1	0,00 %	-0,09 %	0,01	
2	0,83 % *	0,75 %	1,83	
3	-0,30 %	0,44 %	-1,00	
CAAR interval	[-3,+3]	[-1,0]	[0,+1]	[-1,+1]
CAAR	0,44 %	-0,01 %	0,28 %	-0,01 %
t-stat	0,53	-0,02	0,57	-0,01

5.3 Ordinary least squares regression

This part of the chapter is based on the observation of the amount of workers laid off, firm size and their possible effects on the abnormal returns during two different business cycles. The relationship between stock price reaction to layoff-to-employee ratio and firm size is observed in the non-recessionary period of 2004-2007 and the recessionary period of 2008-2010. The impact of the disclosures of permanent layoffs to stock prices is examined by using an OLS estimation procedure similar to Palmon et al. (1997). In the procedure the relation between the layoff ratio, firm size and the two-day cumulative average abnormal return is observed.

Table 6. Descriptive statistics for different business cycles.

Panel A. Permanent layoffs 2004-2007 (n=66)			
Descriptive measure	Mean	Median	Std
CAR _(-1,0)	0,0039	-0,0013	0,0241
Total employees per firm	14779	8386	17722
Layoff ratio	0,0154	0,0098	0,0186
Panel B. Permanent layoffs 2008-2010 (n=94)			
Descriptive measure	Mean	Median	Std
CAR _(-1,0)	-0,0012	-0,0021	0,0398
Total employees per firm	18565	9883	26640
Layoff ratio	0,0165	0,0071	0,0303

In the table (Table 6.) the descriptive statistics for the total employees per firm and layoff ratio in the two business cycles are presented. Panel A in the table shows that during the years between 2004 and 2007 the average size of the firms announcing permanent layoffs indicated by the mean of the total employees per firm was 14779 and the average layoff ratio was 0,0154. The layoff ratio shows that at the average 1,54% of the firms' workforce was made redundant in the 66 layoffs from the years 2004-2007.

Panel B indicates that in the recessionary period of 2008-2010 not only were there more layoffs, but also the amount of total employees and the layoff ratio were larger than during the period of 2004-2007.

In addition to the layoff ratio (denoted as *LATER*, layoff-to-employee ratio), the logarithm of firm size (denoted as *FSIZE*) is added as an explanatory variable because firm size can affect abnormal returns, and the average firm size in the recessionary period subsample is larger than in the non-recessionary period. The cumulative average abnormal return (denoted as $CAR_{(-1,0)}$) used in the regression is measured from days -1 and zero, as in one day preceding the announcement and the initial announcement day. The regression model for the OLS estimation procedure is specified as follows (Equation 15.).

$$(15.) \quad CAR_{(-1,0)} = \alpha + \beta_1 LATER + \beta_2 FSIZE$$

Table 7. The results for the OLS - regression.

Panel A. Permanent layoffs 2004-2007 (n=66)					
Independent variables					
Constant	LATER	FSIZE	R ²	F-stat	p-Value
-0,002	-0,072	0,001	0,007	0,207	0,814
(-0,07)	(-0,39)	(-0,27)			
Panel B. Permanent layoffs in the years 2008-2010 (n=94)					
Independent variables					
Constant	LATER	FSIZE	R ²	F-stat	p-Value
0,014	0,072	-0,002	0,010	0,445	0,642
(-0,38)	(-0,44)	(-0,47)			

In the table above (Table 7.) the results for the OLS regression are presented. The beta coefficient for LATER in the non-recessionary period of 2004-2007 (Panel A.) indicates that the layoff ratio is negatively correlated with the two-day cumulative average abnormal return by $-0,072$. In the Panel B. the beta coefficient shows a correlation of a similar size, but positive for the recessionary period of 2008-2010.

The R^2 is the fraction of the variation in the two-day cumulative average abnormal return that can be explained by layoff ratio and firm size. A value of R^2 that is nearly zero indicates a poor fit of the OLS line (Wooldridge 2009: 43). For the subsample of the years 2004-2007, the R^2 of $0,007$ shows that $0,7\%$ of the two-day cumulative average abnormal return variation is explained by layoff ratio and firm size. In the subsample of 2008-2010 the R^2 of $0,010$ similarly indicates that 1% of the variation is explained by the independent variables. These R^2 values mean that for the both subsamples respectively $99,3\%$ and 99% of the variation in the stock price reactions is left unexplained. F-statistics and p-values state that the layoff-to-employee ratio and firm size as explanatory variables are unable to impact the stock price reaction.

The results of the OLS regression indicate that layoff ratio and firm size are unable to explain the stock price reaction in both subsamples and the regression results lack any statistical significance.

6. CONCLUSIONS

The purpose of this study was to examine the stock price reactions to permanent layoff announcements and to compare the differences in the reaction of value and growth stocks in Finland. The focus of this study was in the stock market reaction for the final disclosure of permanent layoffs, indicating the announcement for the final decision of the company co-determination negotiations.

Three research questions were formed for the basis of the study. First research question (Q1) covered the stock price reaction to the disclosures of permanent layoff announcements. The second research question (Q2) was whether the stock price reaction to permanent layoff announcements' disclosure differs between growth and value stocks. The last research question (Q3) stated that value stocks would signal a less positive or more negative to permanent layoff disclosures during different business cycles than growth stocks.

The empirical results were obtained from three different perspectives. First of all, the first research question was observed and it was tested if the cited reasons mentioned by the layoff firms for the permanent layoff affect the stock price reaction by dividing the sample to declined demand and improved efficiency subsamples. Secondly, the possible differences in the stock price reaction to permanent layoffs between value and growth were tested in different business cycles. This value and growth perspective was observed on the assumptions based on the research questions two and three. Thirdly, an additional empirical analysis was examined to find out whether the layoff size and firm size have impact on the abnormal returns. The impact of the layoff size and firm size to the stock price reaction was tested with OLS regression.

The empirical results show that both declined demand and improved efficiency as a cited reason for permanent layoff have positive, but not statistically significant, 11-day cumulative average abnormal returns. This may indicate that the disclosures of permanent layoffs are seen as proactive by the investors. The declined demand subsample cumulative average abnormal returns were more positive than those of the improved efficiency subsample. For a firm that states declined demand as the reason for the permanent layoffs, the final public disclosure of the permanent layoffs may serve more as a relief and as a positive

signal for the investors. Based on the results for the abnormal performance and cited reason for the layoff, the answer to the first research question (Q1) is that stock prices do react to the disclosures of permanent layoffs, but provide no reliable statistical significance for the abnormal returns.

During the non-recessionary period of the years 2004 until 2007, value stocks indicated a negative 7-day cumulative average abnormal return with no statistical significance. Growth stocks, on the other hand, showed positive cumulative average abnormal returns with statistical significance in three different intervals. This shows that the stock price reactions to permanent layoffs differ between value and growth stocks and that value stocks signal a more negative reaction during a non-recessionary period of 2004–2007 than growth stocks. For the growth subsample, also the event days -3 and 0 showed statistically significant positive abnormal returns, which may point out that investors get the information of the disclosures of the permanent layoffs beforehand and the market reacts efficiently to this information, as well as to the initial announcement.

In the recessionary period of 2008–2010, the value subsample showed less positive or more negative cumulative average abnormal returns than the growth subsample. Even though, the cumulative average abnormal returns were lacking any statistical significance, the 7-day cumulative average abnormal return for the value subsample was less positive than that for the growth subsample. Therefore, it can be concluded that the results are consistent with the research questions two and three.

As value stocks are sometimes regarded as economic distress stocks, the empirical results may indicate that investors see the disclosures of permanent layoffs for value stocks more positively during economic downturns than during upturns, when the results are compared between the non-recessionary and recessionary period. In the case of growth stocks, the stock price reaction is more positive during the non-recessionary period than during recessionary period. The stock price reaction to the disclosures of permanent layoffs is larger for growth stocks than for value stocks and in many cases more statistically significant as well. Therefore, it may be hypothesized that the information value of the disclosures of permanent layoffs is larger for growth stocks than for value stocks.

All in all, it can be concluded that even though a large body of research studies find that value stocks outperform growth stocks on the long run, the results of this study point out that the stock price reaction to the disclosures of permanent layoffs is less positive or more negative for value stocks than for growth stocks.

It is important to keep in mind that this study tested the market reaction to announcements of the disclosure of permanent layoffs, as in actual permanent layoffs rather than the announcements for the beginning of co-determination negotiations. The observation of permanent layoffs in this study has similarities with that of the research paper by Palmon et al. (1997). This point of view is interesting since business media have always speculated with the issue and this subject seems to appear frequently in the every-day conversations of people especially during recessions.

The new perspective of this study was the analysis of possible differing reactions between growth and value stocks' reactions to the disclosures of permanent layoffs. Value and growth analysis is always a current topic in finance and much discussed in the public with wide range of research studies stating the pros and cons for either side. An important contribution for this study was to examine whether the value and growth differences can be tested in the event of layoff announcement disclosure and if the empirical results received from the analysis can be implications for further research.

One of the implications for future research from this study could be to examine the stock price reaction to permanent layoffs from a longer time period and to test whether the value and growth differences exist in a larger data sample from the Finnish or Nordic stock markets. The testing of firm performance reactions to layoffs in Finland or the Nordic countries could be another particular subject of future research. The value and growth firms could be taken into the research as well with observation of post-announcement firm performance differences.

An interesting point of view could be to research the abnormal performance of value and growth stocks to layoffs and the possible biases in the value-growth observations with different statistical models and, especially, different statistical significance tools. This implication for future research could try to further examine the biasness for statistical significance in the value and growth stocks' returns stated by Ahern (2009). The differences in the magnitude of value and

growth stocks' reaction could also be compared by dividing the value and growth stocks into different groups by firm size or industry for a more specified sample selection.

In this study, the differences between single and multiple announcements were not taken into account, but for future research this layoff characteristic would be very interesting to observe more closely. This implication could be examined with a longer time period and separately with permanent and temporary layoff announcements. Also, the value and growth dimension could be taken into observation in this implication.

The subject of layoffs provides many intriguing aspects for research and regardless of the state of the economy this subject continues to raise questions in both the academic research and the public media. Layoffs are a subject which is understandable for the masses and this makes the topic even more interesting. Whether the layoffs in general are good or bad, positive or negative, proactive or reactive, is problematic to say, but in today's business world these company actions are inevitable and here to stay.

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Appendix 1. Examples of layoff announcements by the cited reason.

- 1) **Declining demand:** The announcements of permanent layoff decisions that state declining sales, low product prices or poor business conditions as a reason for the layoff.

Example: YIT has carried out codetermination negotiations to boost operational efficiency and reduce personnel to match the changed market situation. Personnel cuts were necessary because the market situation of the Network Services business unit has weakened significantly and permanently during the present year.

- 2) **Improved efficiency:** The announcements of permanent layoff decisions that indicate improved profitability or efficiency as the cited reason for the layoffs.

Example: Fiskars' codetermination negotiations as a part of a substantial reorganization of its production capacity have ended. The measures taken were aimed at improving profitability and competitiveness through cost savings, streamlined production, outsourcing some of the more labour intensive products and concentrating own manufacturing and new product development on the well-known Fiskars branded core products.