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EMPLOYEE LAYOFF ANNOUNCEMENTS AND SHAREHOLDER WEALTH: EMPIRICAL EVIDENCE FROM FINLAND 2008-2013

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ABSTRACT

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This thesis investigates the short-term stock price reaction to layoff announcements in Finland. It also studies whether the characteristics of the firm or the layoff announcement have an impact on the stock market reaction.

Standard event study methodology was utilized to examine the stock price reactions to layoffs and to test the created hypotheses. The event pool consisted of 102 publicly disclosed layoff announcements that were announced during the time period from June 2008 to December 2013.

The empirical results show that the stock market reaction is strongly positive in the pre-event period of -10 to -1 with CAAR of 2,69%. The reaction is however slightly negative on the event date with AAR of -0,57%. Based on the results the conclusion is that either the managers are timing the markets or the layoffs are seen as efficiency improving acts and the market becomes aware of such actions pre-event. Additionally different characteristic hypotheses are tested to find out whether they would explain the reaction. The characteristics are: the reason stated by the management, business cycle, industry group, prior performance, leverage-ratio, the size of the company, the size of the layoff and the duration of the layoff.

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Tämä tutkimus tutkii lyhyen aikavälin markkinareaktiota suomalaisten pörssiyritysten julkaisemiin irtisanomisilmoituksiin. Tässä tutkimuksessa selvitetään myös vaikuttavatko yrityskohtaiset tai irtisanomisilmoituksessa ilmoitetut tiedot osakekurssin reaktioon.

Käytetty metodologia on tapahtumatutkimus, jolla tutkitaan osakemarkkinoiden reaktiota. Tapahtumat koostuvat 102 julkisesti ilmoitetusta irtisanomistiedotteesta aikavälillä 1.6.2008-31.12.2013.

Empiiriset tulokset paljastavat, että markkinat reagoivat voimakkaan positiivisesti irtisanomisilmoituksiin ennen tapahtumapäivää kumulatiivisen keskimääräisen ylituoton ollessa 2,69% aikavälille -10 -1. Tapahtumapäivänä on lievä -0,57% negatiivinen reaktio. Tulosten perustella voi päätellä, että joko johtajat ajoittavat irtisanomisilmoituksia tai irtisanomiset nähdään tehokkuutta parantavina toimenpiteinä ja markkinat saavat tiedon näistä jo ennen ilmoitusta. Myös irtisanomiskohtaisia alahypoteeseja testataan. Irtisanomiskohtaiset ominaisuudet, joiden vaikutusta tässä tutkimuksessa testataan ovat: johdon antama selitys irtisanomiselle, taloudellinen sykli, toimialaluokitusryhmittely, yrityksen aiempi menestyneisyys, velkavipu, yrityksen koko, irtisanomisen koko ja irtisanomisen kesto.

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“An investment in knowledge pays the best interest.”

Benjamin Franklin.

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Vantaa, 24.11.2014

Lauri Peltola

ABBREVIATIONS

AAR = Average Abnormal Return

CAAR = Cumulative Average Abnormal Return

FTE = Full Time Employees

NI/EM = Net Income per Employee

NPV = Net Present Value

ROA = Return on Assets

ROE = Return on Equity

ROI = Return on Investment

ROS = Return on Sales

SL/EM = Sales per Employee

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1. INTRODUCTION

Managers should consider the reactions of stockholders along with those of other stakeholders when assessing the impact of layoff announcements. (Worrel et al. 1991: 663)

Cascio (2002) argues that managers are rather seeking to cut costs instead of enhancing revenues because they see that the cost cuts are more controllable than revenues. The objective in executing layoffs is to control costs of the company and to provide greater efficiency and flexibility. Layoffs are usually reported in the media as well. This is because layoffs have an effect not only on companies but on the households as well. They are usually seen in the media as a disreputable act by the management and it is usually forgotten that they should be considered as way for the firm to survive during declining demand or to answer the tightening competition.

The Central Organization of Finnish Trade Unions has held a statistics database since 2005 gathering data about layoffs. According to that data there has been 9 682 employees laid off in Finland in 2014 until the end of October. Only the 2008 and 2009 figures have been higher. (The Central organization of Finnish Trade Unions Layoff statistics 2014) An inquiry done to CFOs of Finnish companies in autumn 2014 was published on 27th of October and it shows that the layoffs are far from over. According to the survey only one third of the CFOs believed that the GDP would rise this year compared to the previous year. The survey reports that almost 30% of the CFOs are going to announce layoffs in their companies during the following six months. This is the highest number recorded in the history of this study. Also the expectations to their own companies' revenues and profits are more pessimistic than they were in the spring of 2014. Enhancement in revenue compared to year 2013 was predicted only by 40% of the CFOs. In the spring the same ratio was over 60%. (Finnish CFO Inquiry 2014) During the preparation of this study at least the following listed Finnish companies have announced layoffs: Outotec, Stockmann, F-Secure, Tieto. HK-Scan, Neste Oil and Cargotec.

There has been numerous studies examining the stock market reaction to layoff announcements, most of them in the U.S. Also UK (Collet 2002, McKnight et al. 2002, Hillier et al. 2007 and Marshall et al. 2012) and Japanese (Lee, 1997) markets have been studied. No published studies have been done in the Finnish market according to the knowledge of the author. Only one study is showing positive short term reaction to layoff announcements for the full sample in the event date (Brookman et al., 2007). All other studies show a negative reaction for the full sample.

1.1. Objectives of the study

This paper investigates the market reaction to Finnish layoff announcements from June 2008 to December 2013 utilizing the event study methodology. The event study methodology is designed to provide understanding to whether some particular event has an impact on stock prices. The objective of this study is to understand the reaction in general and to see whether some characteristics of the layoff announcement or of the announcing firm have an impact on the stock market reaction. The reaction is not only studied on event date but also pre-event and post-event. There are 8 research questions in this study and they are as follows:

- 1) Are layoff announcements associated with abnormal stock returns?
- 2) Is the stated reason by the management for the layoff affecting the market reaction to Finnish layoff announcements?
- 3) Is the business cycle affecting the market reaction to Finnish layoff announcements?
- 4) Is there a difference between the manufacturing industry group compared to the services industry group in the stock market reaction?
- 5) Are there any firm specific characteristics which explain the market reaction to Finnish layoff announcements?
- 6) Is the size of the layoff affecting the market reaction to Finnish layoff announcements?

- 7) Is the market reaction different to permanent layoffs versus temporary layoffs?
- 8) Is the market reaction to Finnish layoff announcements neo-classical, rational or myopic?

The first and last research questions are studied with the full sample but the research questions from 2 to 7 are studied using sub samples created using the characteristics of the layoff announcements or of the firms.

1.2. Limitations

The empirical part of this study is designed to provide understanding to the short term reaction of the Finnish stock markets to layoff announcements. The event window studied in this thesis is 21 trading days, even though there have been as long event windows as 60 trading days used (Collet 2002). The long term stock market reaction is not in the scope of this study.

The comparison of the long term financial performance between companies which have announced layoffs and companies that haven't is not covered in this study, even though being a fascinating subject.

This thesis studies whether some characteristics of a layoff announcement or the firm announcing the layoffs have an impact on the reaction. However some of the characteristics studied earlier have not been studied within the limits of this study.

1.3. Structure

The rest of this study consists of 6 chapters. At first the chapter 2 provides a view to the theories and hypotheses related to the topic of this study. Chapter 2 also includes a review of empirical studies related to the topic of this thesis. The research questions and the hypotheses created for this study can be found from chapter 3. The data used in this study and a descriptive analysis of it is provided in

chapter 4. Event study methodology and the tests of statistical significance are described in chapter 5. The chapter 6 is dedicated to the empirical results and explanation of the results. Finally, chapter 7 concludes the thesis.

2. LITERATURE BACKGROUND AND THEORY

2.1. Information in the capital markets

According to Fama (1970) the most important function of the capital markets is to allocate the funds efficiently. Prices reflect every bit of information completely. Within efficient markets the same information is available to everybody simultaneously. Due to this it is not possible to achieve constant abnormal returns.

According to the efficient market hypothesis there are three forms of efficiency for the markets. First one is the weak form. Weak form suggests that all historical information is included in the price of a security. Semi strong form suggests that all public information is included in the price of a security. Strong form claims that the price of a security fully reflects all the information relevant whether public or not. (Fama 1970)

Neo-Classical interpretation of the market reaction (Tobin & Brainard 1977) states that the market reacts to the announcement at the time of the announcement and no anticipation of the reaction or delayed reaction will be experienced. Rational expected approach on the other hand says that the information is priced fully pre-event. When market reacts in myopic manner the information is priced slowly and only after the event date.

Market timing theory argues that managers are timing the markets when issuing equity. Managers are working towards the best interest of the shareholders and are trying to lower the total cost of capital. Firms tend to issue equity when the stocks are overvalued and raise debt levels when the stock is undervalued (Hussain 2014). Even though it's not studied, managers may time the market also when planning the time of the layoff announcement. Taking into consideration the previous studies where negative average abnormal returns (AARs) have been found in reaction to layoff announcements it is possible that the managers want to

announce the layoffs when the stock is overvalued and therefore minimize the wealth loss of the shareholders.

2.2. Theoretical view on organizational downsizing

One way to define organizational downsizing is as follows: intentional reductions made to firm's physical or human capital (Dewitt 1998). This usually means laying people off. Layoffs can be defined as follows: *"the planned elimination of positions or jobs"* (Cascio 1993: 96). Chen et al. (2001) defined layoffs as permanent termination of a significant number of employees from a firm's payroll.

According to Dewitt (1998) there are three approaches to downsizing: retrenchment, downscaling and downscoping. Retrenchment means that the company maintains and potentially even strengthens its position in a certain industry. Retrenchment includes centralization or specialization of production. It also might have an effect on supplier relationships and on managerial responsibilities. Productivity enhancements occur from re-engineered processes and from eliminated redundant facilities and jobs.

Downscaling and downscoping on the other hand can be viewed as partial exit strategies. Downscaling is the use of permanent cuts in physical and human resources even though maintaining the market scope and product line. This is done in order to bring the supply in line with the demand. Downscoping means that reductions to workforce and to physical resources are made in order to reduce the complexity of a firm's productmarket-technological position. Downscoping usually also simplifies organizational systems (Dewitt 1998)

Economic theory

Economic theory is based on an assumption that organizations are more competitive when they downsize. By downsizing the organization will reduce its costs and gain efficiency. This will eventually lead to a more efficient organization. (Cameron 1994. McKinley et al. 2000). Labor costs are the main component of the

cost structure that can be cut and this is achieved by laying people off. In the long run the layoffs will decrease the company's costs of labor and increase profits *ceteris paribus* (Neinstedt 1989). Efficiency is achieved only in the long run because in the short term there are costs related to layoffs such as severance payments (Atchinson 1991).

Psychological contract theory

This theory suggests that there is a mutual relationship between employees and employers. There is a mutual agreement between the parties that they will fulfill their obligation. For the employees this means they will work hard and support the organization reaching its goals. For the employers this means they have to provide a stable environment, competitive wages and possibilities for one to develop his/her career. (DeMeuse et al. 2004) Downsizing breaks this mutual agreement and such it may have negative effects on the contributions of the surviving employees. When companies implement large downsizings the employees of the company will alter their behavior due to the breach in psychological contract theory. This might have severe adverse outcomes. The negative effects can be for example decrease in motivation, avoidance of executing tasks and increase in employee stress. In some extreme cases the research has shown that the employees might commit thievery or participate in vandalism against the employer. (Buono 2003)

There are many studies about the long-term results of downsizing. A number of studies show that firms which have downsized don't experience profitability improvements after the downsizing (Cascio et al. 1997, Guthrie & Datta 2008, De Meuse et al. 2004, Hillier et al. 2007, Kang and Shivdasani, 1997). Cascio et al. (1997) showed that companies that laid people off experienced lower profitability in the following years. De Meuse et al. (2004) show that companies engaged in layoffs had lower return on assets (ROA), return on equity (ROE) and return on sales (ROS) compared to companies that didn't lay people off. Guthrie & Datta (2008) also found significant negative association between layoffs and post-layoff performance of the firm.

However some studies also show improved profitability associated with layoffs. Baumol et al. (2003) found that layoffs had a positive effect on the profitability of the firm. Yu & Park (2006) found a positive association between layoffs and change in the ROA. Chen et al. (2001) studied 349 downsizing events from 1990 to 1995. They found that compared to companies that didn't announce layoffs the companies who did had greater improvements on ROA and on operating margins during three years period after the downsizing.

2.3. Investor reactions to organizational downsizing

According to Marshall et al. (2012) the literature written concerning the layoff announcements stands out as an abnormality within the corporate restructuring literature. In most of the studies the conclusion is that there is a negative reaction to layoff announcements. Negative reaction has been reported for example by Hallock (1998), Chen et al. (2001) and Hillier et al. (2007). This differs from the positive reaction to other corporate restructuring activities related to reducing the scope of the firm. Asset sell-offs (Lasfer et al. 1996), corporate refocusing programs (Berger & Ofek, 1999) and spin-offs (Cusatis et al. 1993) show positive reaction to such announcements. In the following section there are hypotheses explaining the investor reaction.

Hypotheses explaining the investor reaction

Worrel, et al. (1991) found that whether the returns were positive, negative or neutral depended on two things. First one is the firm's condition as it is seen in the markets and the second is the reason why the firm is laying people off.

Efficiency hypothesis was created by Lin & Rozeff (1993) and updated by Elayan et al. (1998). Efficiency hypothesis suggests that if the net present value (NPV) of the layoffs will be positive the management working towards maximizing the shareholder value should execute the layoffs. However if the market is already aware of such actions there is no new information for the market and there shouldn't be any reaction to the announcement. According to Elayan et al. (1998)

the positive market reaction under the efficiency hypothesis requires the public to already know that the firm has financial problems. This is in support of Worrel et al. (1991).

Cascio (1993) argues that the market reaction should be positive but it may take a longer period of time for the market to fully price the announcement. The anticipated benefits of the layoffs are higher share prices, higher return on investment (ROI), lower expense ratios and enhanced profits.

Elayan et al. (1998) created a main theorem which argues that the reaction of the stock market depends on the information disclosed in the announcement and available from other sources. Elayan et al. (1998) argue that the publicly known financial problems of the firm drive the downsizing decisions. When executed the anticipation of increased performance then triggers the positive investor reaction. Elayan et al. (1998) also argue that ROE is the best indicator of a firm's financial performance and efficiency. Firms with lower than industry average ROE are more likely to have more positive investor reactions to the layoff announcements under the efficiency hypothesis. They also introduced two ratios that measure the efficiency of the employee: sales per employee (SL/EM) and net income per employee (NI/EM). Firms with lower values are expected to have more positive market reaction than their counter parts under the efficiency hypothesis.

A rival hypothesis for the efficiency hypothesis, the declining demand hypothesis, was introduced by Lin & Rozeff (1993). This hypothesis argues that layoffs as well as other cost cuts are seen as a reaction of the management to the declining demand for the firm's services or products. Even though the NPV of these layoffs would be considered to be positive the declining demand for the firm's services and products is considered to override the benefits of the layoffs. Under the declining demand hypothesis the reaction to the layoff announcement is negative but should be captured to the price prior to the announcement with only small confirmation price change on the event date.

Elayan et al. (1998) revised the declining demand hypothesis created by Lin & Rozeff (1993). Their hypothesis is called the declining investment opportunities. It suggests that it is not only the declining demand but all the other relevant information that signals to the market that the firm's growth opportunities or business environment is deteriorating. If the company has a high ROE signaling good growth and investment opportunities the reaction to layoff announcement is expected to be negative. And if the company has low ROE the markets are already aware of the financial problems and there is no new information disclosed for the market in the layoff announcement. Therefore the market reaction should be nonexistent.

Palmon et al. (1997) argue that the layoff announcements that disclose unexpected efficiency gains should have a positive market reaction. If the layoffs are announced due to bad economic conditions the market reactions should be negative. These hypotheses are in clear support to the declining demand and efficiency hypotheses of Lin & Rozeff (1993) and Elayan et al. (1998). Palmon et al. (1997) also argue in their paper that the publicly cited reason for the layoffs is the main component behind the price reaction. They prove in their study that layoffs driven by efficiency should have a positive market reaction and layoffs driven by declining demand for the firm's products or services should be seen as negative information. Bhabra et al. (2004) argue that if the layoff announcement has any indication of declining market conditions there should be a decline in the industry wide sales and perhaps layoffs announced by the competitors as well. They called this the contagion effect and they found evidence to back this up as well. Marshall et al. (2012) divided the reason stated in the layoff announcement to four categories. Categories were: restructuring, office/plant closure, economic conditions and off-shoring/outsourcing. They found significant positive results for the economic conditions category during prosperous times, none of the other category having significant results. However the results from the crisis period of 2008 are entirely different. Every category yields negative abnormal returns but only office/plant closure and economic conditions are statistically significant. Hallock (1998) categorized the layoff announcements by the reason stated by the

management. He found that in-house merger was the only reason that had a consistent positive reaction.

2.4. Layoff characteristics affecting the reactions

Size of the layoff

Elayan et al. (1998) found out in their study that the size of the layoff was meaningful when they studied the market reaction. They found out that large layoffs tend to have more negative reaction compared to the smaller layoffs. Collet (2002) was the first one to study whether the size of the layoff had an effect to the market reaction in the UK. He found that the UK market had a similar reaction to size: the larger the layoff, the stronger the reaction. They both measured the size of the layoff the same way, by dividing the quantity of the people going to be laid off by the total amount of employees employed by the firm.

Size of the company

The size of the company is positively correlated with the stock market reaction to layoff announcements for the companies that are suffering from declining sales (Palmon et al. 1997). This might be due to the fact that the market views larger firms as more inefficient than small firms and the decision to lay off employees is seen to enhance the efficiency (Palmon et al. 1997). The size of the company might also bias the results of the study because the stocks of the smaller firms usually have higher risk-adjusted returns (Fama & French 1993).

Capital structure

Gombola and Tsetsekos (1992) found out that firms with higher leverage are more likely to announce layoffs. The threat of default is making the managers act in order to survive. Bae et al. (2011) argue that employee friendly firms usually maintain low debt ratios. It has also been shown that the higher leverage makes the managers work more towards the interests of the shareholders (Malouney et al. 1993). To the author's knowledge it has not been studied how the capital structure affects the stock market reaction to the layoff announcement.

Prior performance of the company

As discussed earlier in this study the returns might depend on how the firm's condition is seen on the markets (Worrel 1991). It is also possible that the markets might anticipate the layoff announcements based on the previous performance of the firm. Elayan et al. (1998) did not find results to prove this but they found negative reactions to layoff announcements from the market for companies with an industry above ROE. They also found a positive reaction to layoff announcements by companies with a below than industry average ROE. Collet (2002) also studied whether the prior performance of the company had an impact on the market reactions but did not find any significant results.

Business cycle

Layoff frequency follows the business cycle quite closely (Farber & Hallock 2009). There are only a few researches done on the subject: Does the business cycle affect the market reaction to layoff announcements? Brookman et al. (2007) report a positive reaction by the market for U.S. firms and their sample covers events from 1993 to 1999. One of the possible explanations offered by them is that the period they studied was a period of economic prosperity which may explain the positive results. Marshall et al. (2012) studied whether the reaction to layoff announcements in the UK was different during crisis period in 2008 compared to more prosperous times from 2005 to 2006. They hypothesize that during the economic expansion layoff announcements are viewed as proactive and efficiency enhancing acts and in recession the layoff announcements would be viewed as reactive to declining economic conditions. They found empirical results to back their hypothesis up. They conclude that the market conditions override every other piece of information provided by the layoff announcement when considering the reaction of the stock market.

Industry

Elayan et al. (1998) argue in their paper that companies operating more with human capital should have a stronger market reaction than companies that rely more on physical assets. Due to this fact companies in the service sector should have a greater reaction to layoff announcements than companies in the

manufacturing sector. Contrary findings were found by Farber & Hallock (2009). They found negative reactions to layoff announcements made by non-motor-manufacturing firms and they didn't find any significant results for layoff announcements made by firms outside the manufacturing industry or in motor vehicle manufacturing. Marshall et al. (2012) found positive and significant Cumulative Average Abnormal Returns (CAARs) for the 2005-2006 time period for the consumer industry. This is in support of Elayan et al. (1998).

Permanent vs temporary

Elayan et al. (1998) hypothesize that permanent layoffs have stronger negative reaction to layoff announcements than temporary layoffs. This is due to the fact that permanent layoffs are seen as a long term change in the company compared to temporary layoffs which are seen as a short term solution to changing demand. They also find empirical evidence that was statistically significant to back their hypothesis up. Lee (1997) also hypothesized that temporary layoffs may signal that the management is expecting a quick turnaround as the permanent layoffs on the other hand signal that the situation needs long term solutions.

Sequential vs. initial layoffs

Some companies have a tendency to announce a series of layoffs within a year. The layoffs following the first layoff are called sequential layoffs. The first layoff is called the initial layoff. According to McKnight et al. (2002) investors might grow accustomed to such behavior and the latter announcements should not have such a strong reaction. Elayan et al. (1998) and McKnight et al. (2002) found empirical evidence to back this theory up.

2.5. Previous studies

Table 1 Previous Studies

Studies are presented in chronological order. Event windows are days and symbols *, **, *** indicate the significance levels (0,1, 0,05 and 0,01). Results are from the total sample unless otherwise mentioned.

Author(s)	Market	Sample period	Observations	Event windows	Results (%) and t-stat. Sig.	
Worrel, Davidsonl & Sharma (1991)	U.S.	1979-1987	194	-90 to 90	-1,99	
				-90 to -5	-2,15	
				-5 to 5	-1,42***	
				-2	0,26	
				-1	-0,45	
				0	0,21	
				-1 to 1	-0,4*	
1 to 90	-0,96					
Lind & Rozeff (1993)	U.S.	1978-1985	383	-1 to 0	-1,35	
Chatrath, Ramchander & Song (1995)	U.S.	1981-1983	35	0 to 1	-1,21*	
		1984-1990	56	0 to 1	-0,76*	
		1991-1992	140	0 to 1	0,38**	
Iqbal & Shetty (1995)	U.S.	1986-1989	149	-1 to 0	-0,30**	
Palmon, Sun & Tang (1997)	U.S.	1982-1990	646	-1 to 0	-1,22***	
				0 to 1	-1,43***	
				1 to 10	-1,84*	
Lee (1997)	U.S.	1990-1994	300	-2 to 2	-1,78***	
	Japan	1990-1994	43	-2 to 2	-0,56***	
Elayan, Swales, Maris & Scott (1998)	U.S.	1979-1991	646	-1 to 0	-0,64***	
Hallock (1998)	U.S.	1987-1995	1287	-20 to 20	-0,7***	
				-10 to 10	-0,7***	
				-5 to 5	-0,3***	
				-1 to 1	-0,3***	
				0 to 5	-0,5***	
				0	-0,4***	
Chen, Mehrotra, Sivakumar & Yu (2001)	U.S.	1990-1995	349	-1 to 0	-1,20***	
Chalos & Chen (2002)	U.S.	1993-1995	293	-1	0,15 ¹	
				0	0,71 ¹	
				1	0,82 ¹	
				236	-1	0,04 ²
					0	-0,14 ²
				135	1	0,05 ²
					-1	0,00 ³
					0	0,04 ³
1	-0,09 ³					
Collet (2002)	UK	1990-1999	54	-30 to -1	-3,47**	
				0 to 1	-1,43***	
				2 to 30	-0,43	
McKnight, Lowrie & Coles (2002)	UK	1990-1995	147	-1 to 1	-1,48**	
				-2 to 2	-2,05***	
				-3 to 3	-0,48*	
				-4 to 4	-0,76*	
				-5 to 5	-0,87*	
		1980-1984	88	-1 to 1	0,79	
				-2 to 2	-1,40**	
				-3 to 3	-1,54	
				-4 to 4	-0,49	
				-5 to 5	0,00	
Brookman, Chang & Rennie (2007)	U.S.	1993-1999	229	-5 to 0	0,6 **	
Abraham (2004)	U.S.	1993-1994	154	-1 to 0	0,25*	
				-1 to 0	-0,99**	
Hillier, Marshall, McColgan and Werema (2007)	UK	1990-2000	322	-1 to 1	-0,81**	
Farber & Hallock (2009)	U.S.	1970-1999	4273	-1 to 1	-0,315*	
		1970-1979	1529	-1 to 1	-0,594**	
		1980-1989	1533	-1 to 1	-0,240	
		1990-1999	1211	-1 to 1	-0,059***	
Scott, Ueng, Ramaswamy & Chang (2011)		1990-1992	253	-1 to 1	-0,53	
Marshall, McColgan, McLeish (2012)	UK	2005-2006	67	-1 to 1	0,51*	
			67	-2 to 2	0,8**	
		2008	76	-1 to 1	-1,75***	
			76	-2 to 2	-1,95**	

¹ Revenue refocusing category

² Cost cutting

³ Plant closing

Worrel, Davidson & Sharma (1991)

Worrel et al. (1991) tested the reaction of stock prices to 194 layoff announcements in 1979-1987. They found a significant negative stock market reaction taking place around the date of the layoff announcement. They also studied whether the market reacts differently to layoffs motivated by different reasons. They found that the reaction to financial layoffs was significantly more negative than for the restructuring layoffs in the pre-event window. From -1 to +1 interval the difference is also marginally significant.

They also ranked the layoffs by a ratio describing the size of the layoff. The ratio was calculated by dividing the number of employees going to be laid off by the total number of employees of the company and then divided the layoffs into three equal sized groups. They found that the large layoffs have significantly larger negative reaction during the pre-announcement period, from -90 to -5, than the small layoffs have.

They argue that there is a difference in the reaction to layoff announcements of different durations. Market seems to react more negatively to permanent layoffs compared to temporary layoffs. As for the leaked information they argue that there is weak evidence that the market reacts differently to the events where the information is leaked. However the market reacts pre-announcement only.

In conclusion, they argue that layoff announcements are usually seen as negative information and that the negative market reactions are most likely to occur in cases where the firm is under financial distress. Also they conclude that in preannouncement period a negative market reaction is more likely to occur when the layoffs are permanent and affect a large percentage of the employees. (Worrell et al. 1991)

Lin & Rozeff (1993)

Lin & Rozeff (1993) created the decreased demand and the efficiency hypotheses. They show that the average market reaction to layoff announcements is negative and that the layoffs usually follow a situation where the firms have faced negative

AARs. Their main conclusion is that the layoff announcements include negative information to investors about the company's future demand. They also show that the market is aware of the decreasing demand and therefore the market reacts before the actual layoff announcement.

Chatrath, Ramchander & Song (1995)

Chatrath et al. (1995) studied the difference in the market reactions to layoff announcements in different business cycles. They studied four different time periods between 1981 and 1992. Their results are mixed as they found negative reactions for the recessionary periods and for one expansionary period in the 80s. They found positive reactions for the expansionary period in the 90s. They argue that there is a shift in the investor's behavior changing the reaction towards more positive in the 90s.

Iqbal & Shetty (1995)

Iqbal & Shetty (1995) studied the relationship between the financial condition of the firm and the layoffs. They found that the market reaction is more negative for firms with strong financials compared to firms with weaker financials. These findings are in line with the hypotheses of the declining demand and the declining investment opportunities created by Lin & Rozeff (1993) and Elayan et al. (1998). They also found out that the firms that are laying employees off tend to have experienced poor earnings pre-announcement.

Palmon, Sun & Tang (1997)

Palmon et al. (1997) created a hypothesis for publicly stated reason for the layoffs by the management. Their results show that the reason given by the management explains the market reaction as well as the long term financial performance of the company. They show that the layoff announcements in which the reason is related to efficiency improvements have significantly positive AARs. On the other hand the layoff announcements in which the reason is related to declining demand the reaction is significant and negative. They argue that this is because the layoff announcement signals new information to the market. They also prove that the reason publicly stated by the management has an effect on the long term

profitability measurements. They conclude that the reasons behind the layoffs as publicly stated by the management provide extremely useful signals not only because of the short term reaction but also because they signal the long term performance as well.

Lee (1997)

Lee (1997) was the first to study layoff announcements and the stock market reaction outside of U.S. She had a total sample of 43 layoff announcements from Japanese stock markets. She found that the Japanese market reaction was also negative and statistically significant. However the reaction was mild compared to the U.S. market reaction with AAR -0,56% versus AAR -1,78% for their U.S. counterparts. She introduced few reasons for the different reaction including patient investors and stock market data that might bias the results.

Elayan, Swales, Maris & Scott (1998)

Elayan et al. (1998) found significant abnormal reaction of AAR -0,64% for the full sample of 646 layoff announcements. This is in line with their hypothesis of declining investment opportunities. They argue that the layoff announcement reveals negative information to investors about the firm. In addition to their main hypothesis they had six sub hypotheses related to size, duration, reason, industry, business cycle and the anticipation of the layoff. They also found statistically significant differences for the six characteristic hypotheses.

Hallock (1998)

Hallock (1998) studied the relation between CEO compensation, layoffs and firm performance. The sample consisted of 1 287 layoff announcements from 1987 to 1995. He found small but significantly negative reaction to layoff announcements in general. On the announcement day the reaction was -0,4% AAR. He also found less negative or slightly positive CAAR and AAR for the temporary layoffs while the permanent layoffs were very much like the full sample (slightly negative). He categorized the layoff announcements for the stated reason as well. In-house merger was the only reason that had a consistent positive price reaction. The

results were entirely opposite for the layoff announcements in which the stated reason was bankruptcy. They had an AAR of -12,3% on the event date.

Chen, Mehrotra, Sivakumar & Yu (2001)

Chen et al. (2001) studied the relation between layoff announcements and stockholders wealth as well as the long term corporate performance after the layoffs. They found out that on average the layoff announcements are greeted with significant negative reaction of -1,2% CAAR on -1 to 0 period by the stock markets. They had the same kind of results as the papers discussed previously in this thesis: Layoffs follow a period of bad stock performance and layoffs associated with declining demand or declining investment opportunities create the most negative stock market reaction.

Chalos & Chen (2002)

Chalos & Chen (2002) studied three different layoff strategies and post-announcement financial performance during the time period from 1993 to 1995. Their sample consisted of three different categories based on three hypotheses: revenue refocusing, cost cutting and plant closure. Their samples consisted of 293, 236 and 135 events. They found positive and statistically significant reactions only to the revenue refocusing strategy with AAR of +0,71% for the event date. The revenue refocusing strategy seemed to outperform the other strategies based on their study. They conclude that their findings are in line with Elayan et al. (1998) and Lin & Rozeff (1993).

Collet (2002)

Collet (2002) was the first to study the UK stock market reaction to layoff announcements. He had 54 layoff announcements in the final sample from 1990 to 1999. He found negative CAAR of -3,47% during the pre-announcement period from -30 to -1 day. That indicates that the market was fully aware of the problems of the companies. The median reaction to the announcement on the announcement day was also negative even though the mean reaction was positive. So majority of the reactions were negative. Results are in line with the previous studies made in the U.S. and are also in line with the declining demand

hypothesis. Collet (2002) also tested whether the announcement size, company size, book to market value and ROE had an impact on the reaction. The only statistically significant result was for the announcement size. He found that the large layoffs had a positive reaction and that they explained the positive mean for the total sample.

McKnight, Lowrie & Coles (2002)

McKnight et al. (2002) studied the impact of layoff announcements on shareholder wealth. Their sample was constructed of layoff announcements that happened from 1980 to 1984 and from 1990 to 1995. The sample consisted of 147 and 88 events, respectively. They found that the investors in the UK reacted negatively to the layoff announcements in general. They also found that the reaction was more negative during the 1990 to 1995 period with CAAR of -1,48% from -1 to 1 compared to the earlier period of 1980 to 1984 with CAAR of -0,79%. Both results were significant at 0,01 level. They also conclude that the reaction is more sensitive in the UK than in the U.S. This is because they found that a reactive downsizing creates significantly negative CAAR of -3,46%. This is much larger reaction than founded by Lee (1997) who found -2,72% CAAR during the same time period in the U.S. markets.

Abraham (2004)

Abraham (2004) tested the reaction of stock prices to 154 layoff announcements from 1993 to 1994. He found significant negative reactions for the full sample as they expected. The CAAR from -1 to 0 was -0,93% and it is significant at 0,05 level. Also the AAR of the day before the announcement was -0,92% and statistically significant at 0,05 level. He also found significant CAARs for longer time periods.

He also studied whether the reason behind the layoff was reactive or proactive and whether it had an influence on the market reaction. He found out that the returns were more negative for the firms who announced the layoffs for reactive reasons than for the firms who announced the layoffs for proactive reasons. The difference between the sub-samples for time period from -1 to 0 was -0,3008 and

significant at 0,01 level. This is in clear support of Worrel et al. (1991) and Palmon et al. (1997).

Brookman, Chang and Rennie (2007)

Brookman et al. (2007) studied the changes in the CEO compensation when the firm was executing layoffs. They studied the change in the shareholder value as well. Their sample was constructed of events that happened between 1993 and 1999. The final sample was 229 layoff announcements. They report positive CAARs for event windows from -5 to 0 and from -1 to 0 with results of 0,6% and 0,25%. The result for -5 to 0 is statistically significant at 0,01 level and the result for -1 to 0 is significant at 0,10 level.

Farber & Hallock (2009)

Farber & Hallock (2009) studied the U.S. stock market reaction to 4 273 layoff announcements from 1970 to 1999. They examine the cumulative abnormal returns over 3-day period from -1 to 1. They argue that the stock market reaction has become less negative over the years. Their explanation is that the layoffs have become more efficiency driven over these three decades instead of reacting to declining demand. For the full sample they found negative CAAR of -0,315%. From 1970 to 1979 CAAR was -0,594%, from 1980 to 1989 CAAR was -0,240 and from 1990 to 1999 CAAR was -0,059.

Scott, Ueng, Ramaswamy & Chang (2011)

Scott et al. (2011) mainly studied the long-term stock price performance of the firms that announce layoffs. They also studied the short term effect of the layoff announcements on the stock prices. The sample was constructed of events from 1990 to 1992 and the total sample consisted of 253 events. The effect was slightly negative with -0,53% CAAR for the -1 to 1 time period. However it was not statistically significant but they found significant positive return for the long term.

Marshall, McColgan, McLeish (2012)

Marshall et al. (2012) examined the reaction to layoff announcements during the economic crisis in 2008 in the UK markets. After that they compared it to the

reaction of more prosperous times from 2005 to 2006. They tested the following hypotheses in their research: 1) The condition of the stock market is relevant to the stock price reaction of the layoff announcement. 2) During the expansion of the stock markets the reaction to layoffs will be positive or neutral when the management explains the layoffs by efficiency enhancement. 3) If the stock market conditions are negative the stock price reaction will be negative when poor economic conditions are the reason stated by the management. 4) During the expansion of the stock markets the reaction to layoffs will be positive or neutral when the layoff announcement happens in an industry where layoffs are viewed as efficiency enhancing. 5) If the stock market conditions are negative the stock price reaction will be negative if the layoff happens in an industry most adversely affected by the declining market conditions. (Marshall et al. 2012)

For the sample from 2005 to 2006 they found a statistically significant abnormal return of 0,51% for three day event window and 0,8% for five day event window. These findings are in line with the previous findings of Brookman et al. (2007) in the U.S. during the economic expansion in the 1990s. The writers argue that this proves that layoffs during this period were not value reducing. This is a contrary finding to some earlier studies for example Hallock (1998), Chen et al. (2001) and Hillier et al. (2007). As for the time period of 2008 they found statistically significant negative CAARs of -1,75% and -1,95% for the three and five day periods. Their results support the efficiency hypothesis for the layoffs from 2005 to 2006 whereas for the 2008 sample period their results are in support of the declining demand hypothesis. They conclude that their findings are in clear support of their first research hypothesis. (Marshall et al. 2012)

For their second research hypothesis they found that the layoffs explained with economic reasons during time period from 2005 to 2006 where met with significant positive reaction of 1,94% CAAR for the three day period and 2,22% CAAR for the five day period. For the 2008 time period they found that when the reason stated in the layoff announcement is related to declining economic conditions the stock market reaction is significant and negative with CAAR of -2,39% for the three day period and -3,49% for the five day period. For the sub-group where the reason

behind the layoff is plant closure in 2008 they find a significant negative return. For the other stated reasons they found no significant results. (Marshall et al. 2012)

From 2005 to 2006 they found that there is a significant positive return related to layoff announcements for the firms in the consumer products industry. They found CAAR of 1,51% for the three day event window and 2,42% for the five day period. This finding is in line with Elayan et al. (1998) who argued that the firms that have more reliance on physical capital will have less negative market reaction when announcing layoffs. For the rest of the industries the sample period from 2005 to 2006 provides no other significant results. As for the 2008 period they found that the reaction to layoff announcements made by manufacturing firms is significantly negative with CAAR of -3,72% for the three day window and -3,57% for the five day window. They argue that the reaction is most likely due to declining investment opportunities and product market conditions in the UK manufacturing industry during that time period. They also found significant negative returns related to the banking and financial services industry during 2008. They argue that the findings are in support of their third hypothesis. The conclusion of their study is that the market conditions seem to override the firm variables when examining the market reaction to layoff announcements. (Marshall et al. 2012)

2.6. Summary

In this chapter the theoretical framework of layoffs has been gone through with specific concentration on investor reactions to layoff announcements. Key findings can be found below:

- Market reaction exists due to the information asymmetry between managers and the markets. Previous studies show that the markets may react to new information pre-event (rational expectations approach), at the event date (neo-classical) or only after the announcement (myopic)
- Layoffs are mainly implemented in order to achieve cost cuts and greater efficiency. This is in line with the economic theory. Psychological contract

theory on the other hand states that the employees that survive the layoffs will have issues and this will have negative effects on organizational performance. Studies are inconclusive whether the financial performance of the company is improved by the layoffs.

- Lin & Rozeff (1993) created the efficiency and declining demand hypotheses. These were later reviewed by Elayan et al. (1998). These can still be used to explain the market reaction to layoff announcements.
- Empirical results show that layoffs follow business cycle quite closely and they occur after a period of poor share and financial performance.
- Investor reaction to layoff announcements is usually slightly negative regarding the total sample. Only positive reaction is recorded by Brookman et al. (2007).
- The market reaction is dependent on the information set available to investors and the market reaction may vary over time and across countries.

3. RESEARCH QUESTIONS AND HYPOTHESES

3.1. Research questions

The following research questions will be answered to in the empirical part of this thesis. The research questions are as follows:

- 1) Are layoff announcements associated with abnormal stock returns?
- 2) Is the stated reason by the management for the layoff affecting the market reaction to Finnish layoff announcements?
- 3) Is the business cycle affecting the market reaction to Finnish layoff announcements?
- 4) Is there a difference between the manufacturing industry group compared to the services industry group in the stock market reaction?
- 5) Are there any firm specific characteristics which explain the market reaction to Finnish layoff announcements?
- 6) Is the size of the layoff affecting the market reaction to Finnish layoff announcements?
- 7) Is the market reaction different to permanent layoffs versus temporary layoffs?
- 8) Is the market reaction to Finnish layoff announcements neo-classical, rational or myopic?

All of these research questions are of such nature that the results can be found by utilizing the event study model described in the latter parts of this thesis.

3.2. Main hypotheses

In order to answer to the first research question the main hypotheses are created. According to the efficient market hypothesis the stock market will react immediately to any relevant information. In this case there should be no abnormal returns on the event date. This may be because the layoff announcement is not

providing any new information to the markets or because the information has already been taken into consideration by the markets. In order to examine the Finnish stock market reaction to the layoff announcements the main hypothesis is created. The null hypothesis is as follows:

Null hypothesis: There is no AAR related to Finnish layoff announcements.

According to the previous studies it is reasonable to expect negative reactions to layoff announcements. However the results have varied between different time periods and between different countries (Lee 1997, Farber & Hallock 2009). In case there is an abnormal reaction to Finnish layoff announcements the null hypothesis will be rejected and two competing hypotheses are created. As stated by Elayn et al. (1998) the reaction depends on the information set available for the investors and how the investors perceive this information. The two competing hypotheses are created in order to test this. The hypotheses created for this study are as follows:

The positive information hypothesis

In this case there will be a statistically significant positive reaction to Finnish layoff announcements. The stock market interprets the layoff announcements and their content so that the NPV of the layoffs will be positive and the layoffs are seen as an improvement to the current condition of the firm. Such improvements can be direct cost savings or the company becoming more efficient or flexible. When the expected reaction to layoff announcements is positive the hypothesis is:

The positive information hypothesis: There is positive AARs related to Finnish layoff announcements.

The negative information hypothesis

However the above might not be the case if the investors perceive the information in a way that the layoffs signal the market about the declining demand for the firm's products or services or with some other negative information such as negative market conditions or negative growth opportunities. The reaction might

also be partly due to the reactions of the employees still employed by the company according to the psychological contract theory (lower motivation, vandalism etc.). The null hypothesis in this case is as follows:

The negative information hypothesis: There are negative AARs related to Finnish layoff announcements.

Market reaction hypotheses

In order to find out whether the Finnish stock market reaction is neo-classical, rational or myopic the event window is broadened to 21 trading days. The neo-classical interpretation expects that the market reaction happens on the day of the announcement. The direction and the magnitude of the reaction depend on the information available in the layoff announcement.

Neo classical market reaction hypothesis: There is a reaction (positive or negative) to Finnish layoff announcements on the day of the announcements.

Rational expectations approach assumes that the reaction will be fully priced pre-event. So it follows:

Rational expected approach hypothesis: The reaction (positive or negative) is fully captured pre-event by the markets.

Myopic market reaction means that the information is priced slowly and only after the event date. So my last market reaction hypothesis is:

Myopic market reaction hypothesis: The reaction (positive or negative) will only happen after the event date.

3.3. Characteristic hypotheses

Main hypotheses are tested with the full sample. However in order to test the rest of the research questions the characteristics hypotheses are created. These hypotheses can be tested when full sample is divided into sub-samples based on

the characteristics described further in this chapter. The formation of the sub-samples is described under each hypothesis.

Stated reason

This part of the study is based on work of Elayan et al. (1998) and Marshall et al. (2012). The layoff announcements were divided into five different groups using the classification system used by Marshall et al. (2012). The reasons provided by the management in justifying the layoffs were categorized as follows: restructuring, office/plant closure, economic conditions (including declining demand for the firm's products and services), off-shoring/outsourcing and reason unknown. The reasons are not mutually exclusive. Palmon et al. (1997) highlight the meaning of investment opportunities based on the reason stated by the management in order to justify the layoffs when explaining the reaction of the stock market. They also show that the announcements signaling declining future investment opportunities create the strongest negative reaction by the stock market.

The restructuring group includes layoff announcements where the firms announce to restructure their firm, reduce overhead and/or reduce costs. Based on the previous paragraph the restructuring layoffs should convey positive information to the markets and the hypothesis is as follows:

Characteristics hypothesis 1: Layoff announcements where the management justifies the layoffs with restructuring should have more positive or less negative reaction than the total sample.

The office/plant closure group includes firms who announce that they are closing a plant or office, firms who are focusing their resources back to their core business and firms who are closing plants that are not in line with their strategy or that are unprofitable. In office/plant closure cases the market should react positively to layoff announcements. The hypothesis is as follows:

Characteristics hypothesis 2: Layoff announcements justified by office/plant closure should have a more positive or less negative reaction than the total sample.

As for the economic conditions group the market should see the announcements as a sign of declining demand and they should be treated with a negative reaction by the stock market. Based on that the hypothesis is as follows:

Characteristics hypothesis 3: Layoff announcements where the management justifies the layoffs with economic conditions (including declining demand for firm's services or products) should have more negative or less positive reaction than the total sample.

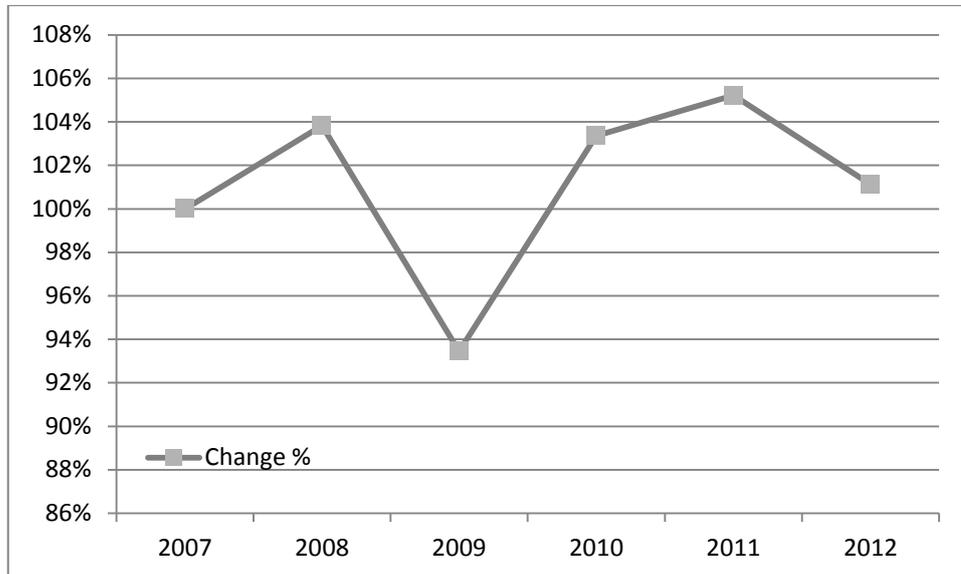
The off-shoring/outsourcing group includes companies that are justifying the layoffs with off-shoring or/and outsourcing plans. The market should see the layoff announcements as a sign of lowering costs or improving efficiency and for such it should convey positive information to the investors. The hypothesis is as follows:

Characteristics hypothesis 4: Layoff announcements where the management justifies the layoffs with off-shoring/outsourcing should have more positive or less negative reaction than the total sample.

No hypothesis for the reason unknown group will be created.

Business cycle at the time of the announcement

The global downturn in the financial markets began in the late 2007 but escalated following the failure of Lehman Brothers in September 2008 (Baba & Backer 2009). The global downturn provides a good opportunity to examine the stock market reaction to layoff announcements during a crisis period. The crisis period studied in this thesis consists of the time period from June 2008 to December 2009. The end of the crisis in this study is the end of 2009 because in 2010 the Finnish GDP increased almost 3% compared to 2009. The change in the Finnish GDP can be seen in the figure 1. (Statistics Finland Gross Domestic Product at market prices)

Figure 1 Change in the Finnish GDP

According to Marshall et al. (2012) the business cycle overrides all other information when studying the market reaction to layoff announcements in the UK. They found empirical results showing that during the financial crisis the layoffs had much more negative reaction by the markets than during the more prosperous times. Brookman et al. (2007) found positive reaction to their sample and explained that it might have been due to the expansionary time period from which they gathered their sample. The events have been divided into two sub-samples based on when the announcement has been disclosed. Based on the previous the hypothesis is as follows:

Characteristics hypothesis 4: The stock market reaction to layoff announcements during crisis period from 2008 to 2009 will be more negative or less positive than reactions in the follow up period from 2010 to 2013 .

Industry grouping

According to Elayan et al. (1998) the importance of the human capital for the firm announcing the layoffs will affect the reaction of the stock markets. The stock prices of the firms operating in the service industry which relies on human capital more than on physical assets should therefore have a stronger reaction to layoff announcements. The companies in the manufacturing industries are relying more on the physical assets instead of human capital and therefore they should

experience a milder reaction to layoff announcements. However there has been mixed results in the past and there is a possibility that no statistically significant results will be found. Based on previous findings the hypothesis is as follows:

Characteristics hypothesis 5: Firms operating in the service industry group should have stronger reaction to layoff announcements whereas firms operating in the manufacturing industry group should have a milder reaction to layoff announcements.

The industry grouping in this study has been made by dividing the events into two different groups: services and manufacturing. This has been made based on their industry classification which has been obtained from OMXH website. Classification is done in the following way: industrials, consumer goods and basic materials belong to the manufacturing group and technology, health care, financials and consumer services belong to the services industry group.

Size of the company

According to Palmon et al. (1997) the size of the company is positively associated with abnormal returns related to layoff announcements for those companies that are facing declining sales. This is because the market views larger companies less efficient than smaller companies. Based on the previous studies the hypothesis is:

Characteristics hypothesis 6: Larger companies will have more positive or less negative abnormal returns compared to smaller companies.

In this study the size of the company is being measured and tested based on three different figures: total revenue, total assets and number of the full-time employees (FTE). All of these figures are from the end of the year preceding the layoff announcement. The sample is divided into two equal sized subgroups based on the median figure. The median figures are 193,9MEUR (revenue), 120,2MEUR (total assets) and 1 326 (FTEs).

Prior performance of the company

According to empirical results by Elayan et al. (1998) companies with low growth opportunities signaled by low ROE are expected to have more positive market reaction to layoff announcements than firms with an above industry ROE. And on the other hand if the market believes that the company has good growth opportunities signaled by high ROE the market reaction is expected to be negative. Based on these facts the hypothesis is as follows:

Characteristics hypothesis 7: Companies with high growth potential measured with ROE and ROA will have more negative or less positive reaction to layoff announcements than companies with low growth potential.

Elayan et al. (1998) stated that ROE is the best indicator of efficiency and performance of the firm. ROE measures the return on equity and is therefore the best indicator to understand the efficiency from the shareholders perspective. However in order to understand the efficiency of the whole firm also ROA is used. The sample is divided into two groups based on the median ROE (above median and below median) and then examined. The same procedure is then repeated with ROA. The median value for ROE is 3,0% and 3,04% for ROA. Banks are left out of this part because their balance sheets are calculated differently.

Capital structure

According to the author's knowledge no previous studies have been conducted using debt to total assets ratio as an explaining factor to stock market reaction to layoff announcements in short term. However it has been proved that companies with high leverage tend to lay off people more often. This can be seen as a way for the company to survive and not to default its debt. (Gombola & Tsetsekos 1992) Additionally it has been shown that the managers of the companies with high leverage are usually making decision more in line with the shareholders incentives (Maloney et al. 1993). Taking the above into consideration the hypothesis is as follows:

Characteristics hypothesis 8: Companies with high leverage will have more positive or less negative reaction to layoff announcements than companies with smaller leverages.

The capital structure in this study is calculated by dividing the total debt by the total assets. The banking companies have been left out because their balance sheets are calculated differently. After this the sample is divided into two baskets. The first group is above the median leverage of 27,08% and the second group is the lower than median leverage.

Size of the layoff

According to Elayan et al. (1998) and Collet (2002) the size of the layoff has an effect on the stock market reaction. If the layoff announcement includes any new information to the market the reaction will be a function of the size of the layoff. Based on that fact and on the previous empirical studies the hypothesis is:

Characteristics hypothesis 9: Above median sized layoffs will have a stronger reaction to layoff announcements than the smaller than median sized layoffs.

The size of the layoff is defined as the number of the employees going to be laid off divided by the total number of the employees of the firm at the end of the year preceding the layoff announcement. The sample is divided into two equal sized groups based on the median sized layoff which is 4,04% of the amount of full time employees.

Permanent vs temporary layoffs

According to Elayan et al. (1998) and Lee (1997) the temporary layoffs signal that the management may expect the situation to turn around quickly. The layoff announcements including only temporary layoffs should signal positive outlooks to the markets compared to the layoff announcements including permanent layoffs. This being the case the hypothesis is as follows:

Characteristics hypothesis 10: Layoff announcements including permanent layoffs will have more negative or less positive reaction in the stock market compared to layoff announcements including only temporary layoffs.

4. DATA

The events of this study are the layoff announcements announced by companies listed in the Finnish stock market. The events are gathered from June 2008 to December 2013. NASDAQ OMX Helsinki news database was searched in order to obtain the events during that time period. The database contains all the information that is disclosed through the stock exchange. The search was conducted using keywords “to layoff” and “co-operation negotiations”⁴. This search brought up 426 results of which some were not actual layoff announcements. After going through the announcements there were 187 events left. There might be some layoff announcements where the term “lay off” or “co-operation negotiations” are not used and so they are missing from the final event pool. An example of a typical Finnish layoff announcement can be found from Appendix 1.

The next step was to search for other meaningful information, such as profit warnings, interim reports etc., that would have been disclosed during the 21 trading day event window. 84 events had some other meaningful information disclosed during the event window. Although the removal of these events from the sample decreased the number of the events dramatically it had to be done because this study aims to isolate the specific signal by layoff announcement and to make sure that the event window was not contaminated. Also one event happened during the time when the stock was just listed and due to the missing daily prices it had to be removed. After the above procedures the final sample of 102 events was left. Final sample can be found from Appendix 2.

⁴ ”Irtisanoo” and ”YT-neuvottelut” in Finnish

Table 2 Sample Construction

Total sample	187
Stocks with no daily price data	1
Contaminated events	84
Final sample	102

Every announcement from the final sample was then read through and the following information was captured:

- 1) The date and time of the announcement
- 2) The industry of the announcing firm
- 3) The total number of employees of the firm
- 4) The number of employees planned to be reduced
- 5) The cited reason for the layoffs
- 6) Whether the layoffs are going to be only temporary

The date of the announcement is relevant in order to be able to pin point the exact event date. The time of the announcement was captured in case there are any announcements made after the close of the exchange. In this case there was one case but it was already removed from the sample due to other information disclosed in the event window. The industry for the announcing firm was retrieved from NASDAQ OMX Helsinki. The number of employees to be reduced was found in 86 announcements. This information was used to determine whether the size of the layoff has any impact on the reaction. Cited reason for the layoffs was categorized into five different categories: restructuring, office/plant closure, economic conditions (including the declining demand for the firm's services and products), offshoring and outsourcing and unknown reason. The reasons provided in the announcement were not treated as mutually exclusive. Therefore one event may belong to several categories. If the announcement stated there to be only temporary layoffs this information was recorded as well.

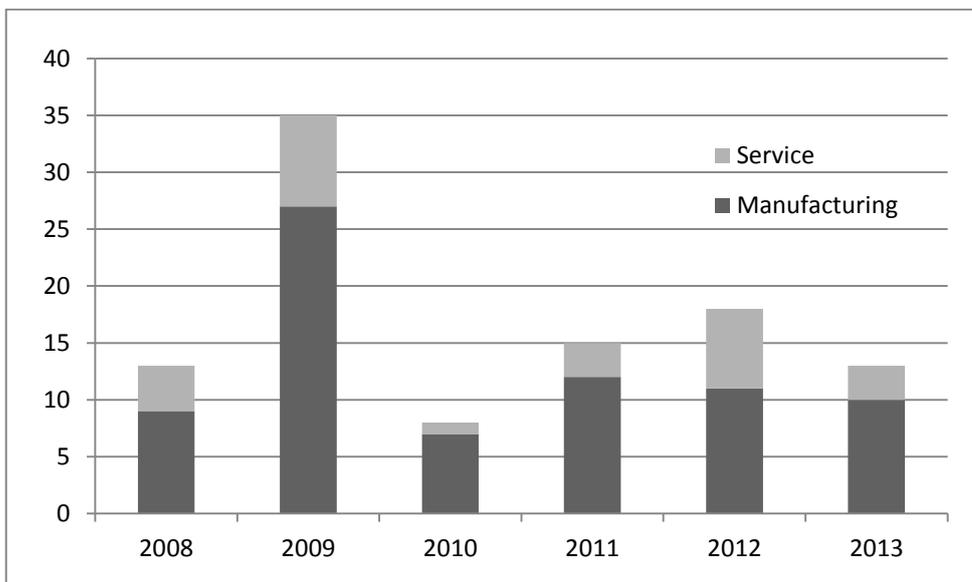
NASDAQ OMX Helsinki Cap was chosen as the market index. The index is aimed to reflect the status and changes in the market. The OMX Helsinki Cap index is modified version of the market index. It is modified so that the maximum value of one stock is limited to 10% of the total value of the index. (Nasdaq OMX Website) Therefore it is considered to be a better choice as the market index. 3 months Euribor is used as a risk free return.

Daily prices for the stocks, OMXH Cap and risk free return were obtained from Factset database as well as the debt to assets -ratio, ROE and ROA.

4.1. Descriptive statistics

Figure 2 provides information on how the events are distributed yearly and what is the amount of events in both industry groups on each year. As seen in the Figure 2 the manufacturing layoffs represent the majority of the layoff announcements. Year 2009 is dominant in terms of number of events with 35 events.

Figure 2 Layoff Announcements per Year and Sector



In Figure 3 the risk free rate and OMXH Cap index are presented during the period studied. There is a sharp decline on both figures in 2008. The decline for the 3

months Euribor has continued since but the OMXH Cap index has instead increased almost back to its 2008 start level.

Figure 3 Risk Free Rate and Index During the Study Period

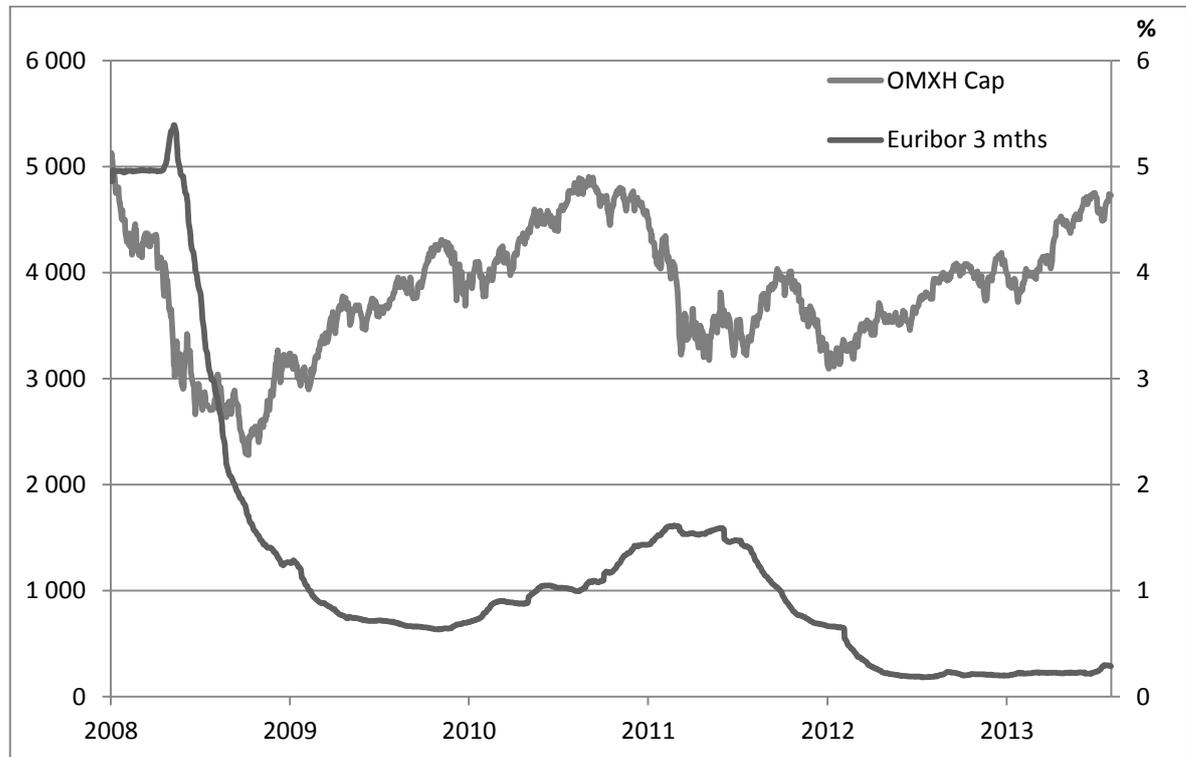


Table 3 represents the reason stated by the management and the yearly distribution of the events. The dominant reason justifying the layoffs is Economic conditions with 68 events.

Table 3 Layoff Announcements per Year and Reason

Year	Restructuring	Office/plant closure	Economic conditions	Off-shoring/outsourcing	Reason unknown
2008	3	1	10	0	0
2009	10	7	27	2	2
2010	1	2	6	0	0
2011	5	2	10	1	0
2012	8	0	8	3	0
2013	5	3	7	2	0
Total	32	15	68	8	2

Table 4 describes the sample and the sub-samples and their statistical information.

Table 4 Number of People Laid Off in Each Sample

Descriptive statistics	N	Mean employees laid off	Median	Minimum	Maximum	Total employees laid off
Total sample	102	90,0	48	-	860	7 470
A. Cited reason	102					
Restructuring	32	120,9	50	7	860	3 384
Office/plant closure	15	165,4	100	6	860	2 150
Economic conditions (including declining demand for the firm's products and services)	68	79,6	31	-	860	4 538
Off-shoring/outourcing	8	154,3	115	30	310	926
Reason unknown	2	60,0	60	60	60	60
B. Business cycle	102					
2008-2009	48	93,0	60	-	500	3 719
2010-2013	54	87,2	25	-	860	3 751
C. Industry grouping	102					
Services	26	113,8	50	-	500	2 390
Manufacturing	76	81,9	47	-	860	5 080
D. ROE	98 **					
High	49	77,6	44	-	500	3 258
Low	49	103,6	49	-	860	3 832
E. ROA	99*					
High	50	69,8	38	-	360	2 930
Low	49	109,5	55	-	860	4 160
F. Debt to Total Assets ratio	99					
High	50	78,6	49	-	400	3 300
Low	49	99,7	31	-	860	3 790
G. Size of the company (Revenue)	102					
Large	51	137,2	80	-	860	5 901
Small	51	39,2	25	-	250	1 569
H. Size of the company (Total assets)	99					
Large	50	130,2	75	-	860	5 600
Small	49	40,3	25	-	250	1 490
I. Size of the company (Full time employees)	102					
Large	51	140,9	85	-	860	6 060
Small	51	35,3	25	-	250	1 410
J. Size of the layoff	81					
High	41	129,2	60	8	500	5 299
Low	40	82,5	48	6	860	3 298
K. Temporary layoff vs. permanent layoff	102					
Permanent layoff	81	92,9	45	6	860	6 225
Temporary layoff	21	77,8	55	-	360	1 245

The sub-samples based on ROE, ROA, Leverage, Size are divided based on medians. For more specific information of the construction of the sub-samples read chapter 3.3. * 2 banks are left out from the sample **2 banks are left out from the sample and one event is missing the ROE figure and therefore left out

5. METHODOLOGY

5.1. Event study methodology

An event study is an analysis that can be used to measure the effect of an economic event on the value of a firm or several firms. It can also be used to measure the effect of an event on stock trading volume, return volatility or the price of debt securities. (Benkraiem et al. 2009)

Event study methodology is one the most used analytical tools in study of the field of finance (Peterson 1989). There is no exact knowledge of how many studies have been conducted using the event study methodology. Kothari and Warner (2005) report that event study results are part of 565 articles published in five major finance journals from 1974 to 2000. Event study was initially developed as a statistical tool for empirical research in finance and accounting. Nowadays this methodology is used in several fields of science such as economics, history, law, management, marketing and political science. (Corrado 2011)

According to Corrado (2011) event study in its current form was introduced to large audience in two papers by Ball and Brown in 1968 and by Fama et al. in 1969. However this type of methodology had been used before. According to MacKinlay (1977) Dolley was the first one to study the reaction of a stock price to stock splits in 1933. MacKinlay also reports that there was several papers published using the event study methodology before 1968 (for example: Myers and Bakay 1948, Barker 1956, 1957, 1958 and Ashley 1962).

An event study is based on three assumptions. The efficient market hypothesis states that all relevant information is instantaneously reflected on the stock price (Fama 1970). Therefore the market reaction can be investigated by the stock returns in the chosen time period. Additionally this methodology assumes that the event is unforeseen. The third assumption is that during the event window there are no other occurrences that might affect the price of the stock.

5.2. The event study process

The event study methodology is designed to evaluate the direction and the magnitude of the stock market reaction to certain events. According to Wells (2004) an event study is based on an assumption that returns for a certain stocks can be estimated over time. Stock returns might also be random fluctuations but by using the event study methodology one can find returns that exceed the normal variation of the stock price. Abnormal returns are calculated by deducting the estimated returns from the actual returns. If the results are statistically significant it can be concluded that this is the market reaction to the event. The above is expressed mathematically as follows:

$$(1) \quad AR_{it} = R_{it} - E(R_{it})$$

In the above formula AR_{it} , R_{it} and $E(R_{it})$ are abnormal return, actual excess return and expected return for the security i for the time period t .

An event study usually consists of five different steps:

1. Identifying the event and the study time line
2. Identifying the firms or events that fulfill the criteria that has been chosen for this study and creating a data base of these events
3. Estimating the expected return for each sample stock over an estimation period
4. Computing the abnormal returns for each stock during the estimation period
5. Statistical testing of the abnormal returns

The first task of an event study is to identify the event going to be studied and the relevant time period when the chosen stock returns are being studied. (MacKinlay 1997) This time period is called the event window. In some cases it is difficult to identify the exact event date due to the fact that sometimes the information is being released over a period of time. (Vaihekoski 2004).

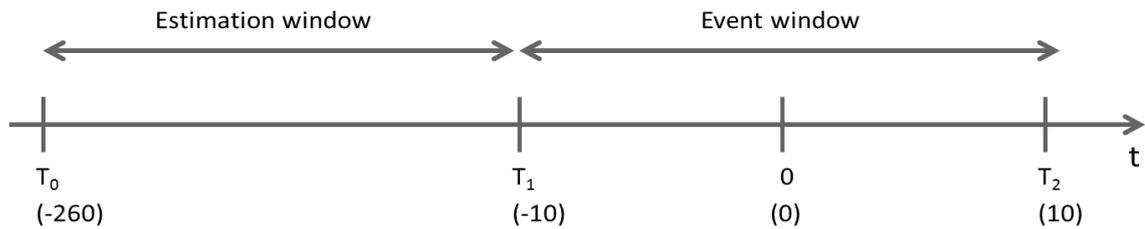
Figure 4 Event Study Time Line

Figure 4 visualizes the time line of an event study. The time period from 260 days before the event to 11 days before the event (T_0 to T_1) is called the estimation window. The time period from 10 days before the event, the event date itself to 10 days after the event (T_1 to T_2) is called the event window.

In this study the dates of the layoff announcements have been chosen as the event dates and the layoff announcements as the events. The stock prices are analyzed from ten days before the announcement to ten days after the announcement. The time periods before and after the events are taken into consideration because the markets may not be fully efficient and the events may have an impact to the stock prices also outside the event date.

There are different models to choose from when estimating the expected return for the stocks. First one is the constant mean return model. It assumes that the average return from the estimation period is also the expected return for the event window. Even though it is one the simplest models it often yields similar results as more sophisticated models (Brown and Warner 1985). The market adjusted model differs from the constant mean model so that the return of an index is being used instead of a particular stock. The third one is called the market model and it is the most sophisticated of these three models.

The market model begins by estimating both Alfa and Beta for each stock. Beta is a stock's market risk compared to the market's market risk. 1 is the value that reflects the market risk of an average stock. So for example a stock with Beta of two indicates higher risk than the market average and an example stock with Beta of 0.5 a lower risk than the market. Due to this fact the stocks with higher Betas

should have higher expected returns when the index is increasing and lower returns in bad times. This is why the high risk stocks may show abnormal returns during an event window even without being affected by the event itself. Brown & Warner (1985) argue in their paper that the market model is the best choice in majority of cases. In this study a CAPM-based net of market return model is being used. The total sample is also tested with market-adjusted model to test the robustness of the model.

Next step in the study is to estimate the expected return for each sample stock over the estimation period. The expected excess return $E(R_{it})$ for stock i on day t is calculated as expressed mathematically in the formula below:

$$(2) \quad E(R_{it}) = \alpha_i + \beta_i R_{mt} + e_{it}$$

In the above formula the α_i and β_i are estimated with regression analysis using the daily excess returns from the estimation window. The excess returns are calculated by deducting the daily risk free return from the actual returns. The R_{mt} is the market excess return and the e_{it} is the error term and the average, variance and expected values are assumed to be zero for it. When so the formula can be expressed mathematically as follows:

$$(2b) \quad E(R_{it}) = \alpha_i + \beta_i R_{mt}$$

The abnormal return can be calculated after both expected returns and actual returns are calculated. Combing the equation 1 and 2 the abnormal return can be calculated as follows:

$$(3) \quad AR_{it} = R_{it} - \alpha_i - \beta_i R_{mt}$$

When abnormal returns for each stock have been calculated the returns are aggregated. Aggregated returns are calculated in order to be able to make

conclusions of the impact of the event on the stock price in general (MacKinlay 1997). Mathematically the Average abnormal return is calculated as below:

$$(4) \quad AAR_t = \frac{1}{n} \sum_{i=1}^n AR_{it}$$

In the above equation n is the number of the events (layoff announcements) in the sample. In order to observe the market reaction to the event over time the aggregated abnormal returns have to be cumulated over time. Cumulative average abnormal returns can be calculated by adding the daily abnormal returns across time. Cumulative average abnormal returns for time period from $T0$ to $T1$ can be calculated as follows:

$$(5) \quad CAAR_{T0}^{T1} = \sum_{t=T0}^{T1} AR_t$$

The time frame of the CAAR can be defined to be anything inside the event window. Examination of the CAARs is the core idea in the event study framework

5.3. Statistical significance

After the calculation of the CAARs the statistical significance of the results has to be tested in order to prove that the results are not just coincidental. The statistical significance is being tested with standard t-test. Even though there are strong assumptions behind the t-test, for example related to normal distribution of the abnormal returns, it can be used to examine the statistical significance of the AARs (Brown & Warner 1980). Test statistic for t-test is calculated with the following equation:

$$(6) \quad \frac{AAR_t}{\sqrt{\sigma^2(AAR_t)}} \sim t(N)$$

In the above equation the AAR_t is the average abnormal return on day t and σ^2 is the variance that can be calculated as follows:

$$(7) \quad \sigma^2(AAR_t) = \frac{1}{N^2} \sum_{i=1}^N \sigma_{it}^2 = \frac{1}{N^2} \sum_{i=1}^N \sigma^2(ei)$$

In the above equation (7) $\sigma^2(ei)$ is the variance of the market regressions residual and in other words the variance of the abnormal returns of the estimation period (Vaihekoski, 2004). In this study the variance has been calculated during 250 trading days. The t-stat for cumulative abnormal return can be calculated as follows:

$$(8) \quad \frac{CAAR_{T0}^{T1}}{\sqrt{\sum_{t=T0}^{T1} \sigma^2(AAR_t)}} \sim N(0,1)$$

In the above equation (8) the $CAAR_{T0}^{T1}$ is the daily cumulative average abnormal return from time period $T0$ to $T1$ and variance $\sigma^2(AAR_t)$ can be calculated in the way described in equation 7.

When calculating the statistical significance of the abnormal return differences between two sub-samples the t-statistic is calculated as follows:

$$(9) \quad \frac{AAR_{t,1} - AAR_{t,2}}{\sqrt{\sigma^2(AAR_{t,1}) + \sigma^2(AAR_{t,2})}} \sim t(N)$$

In the above equation (9) the $AAR_{t,1}$ and $AAR_{t,2}$ are the average abnormal returns for subsamples 1 and 2 on day t . The $\sigma^2(AAR_{t,1})$ and $\sigma^2(AAR_{t,2})$ are the variance estimates of the average abnormal returns for sub-samples 1 and 2 calculated from the 250 days estimation window. The variance estimates are calculated the same way as described in equation 7. When calculating the

statistical significance of the difference between the cumulative average abnormal returns of sub-sample 1 and 2 the t-statistic is calculated as follows:

$$(10) \frac{CAAR_{T_0}^{T_1}(1) - CAAR_{T_0}^{T_1}(2)}{\sqrt{\sum_{t=T_0}^{T_1} \sigma^2(AAR_{t,1}) + \sum_{t=T_0}^{T_1} \sigma^2(AAR_{t,2})}} \sim N(0,1)$$

In the above equation the $CAAR_{T_0}^{T_1}(1)$ and $CAAR_{T_0}^{T_1}(2)$ are the daily cumulative average abnormal returns from time period T_0 to T_1 for subsamples 1 and 2. The variances are calculated as in equation (9).

5.4. Known problems with event study

Even though the event study is one the most used methodologies in the field of finance it has also generated some criticism. According to Wells (2004) some of the assumptions used in the event study methodology are not valid in some circumstances. For example the market model is dependent on Beta that is estimated using the actual returns from the past. However empirical tests have shown that Beta is not constant over time. Also some separate event might change the relationship between one particular stock and the market eventually changing the Beta. Also changes in the macro economic factors such as in the interest rates will change the Beta. (Wells 2004)

Another problem according to Wells (2004) is that the event study methodology assumes that the returns from the sample are independent from each other. However this is not likely for example when studying a certain industry. The possibility that the event will happen at the same time with other shock is much higher in this case. Particularly banking and insurance industries are very sensitive to macro-economic factors and to the changes in them.

Also stocks with thin trade create a problem for the event study. Stocks that are not traded on a daily basis might show too small variance and covariance between market portfolio and the stock. (Campbell et al. 1997)

6. EMPIRICAL RESULTS

All the statistically significant results provided in the tables of this chapter are marked with symbols ***, **, * signaling significance levels of 0,01, 0,05 and 0,1. In the results tables the N stands for the number of observations. The AARs are presented from days -2 to 2 except for the total sample where it is presented from -10 to 10. The CAARs are from six different intervals within the event window.

6.1. Total sample

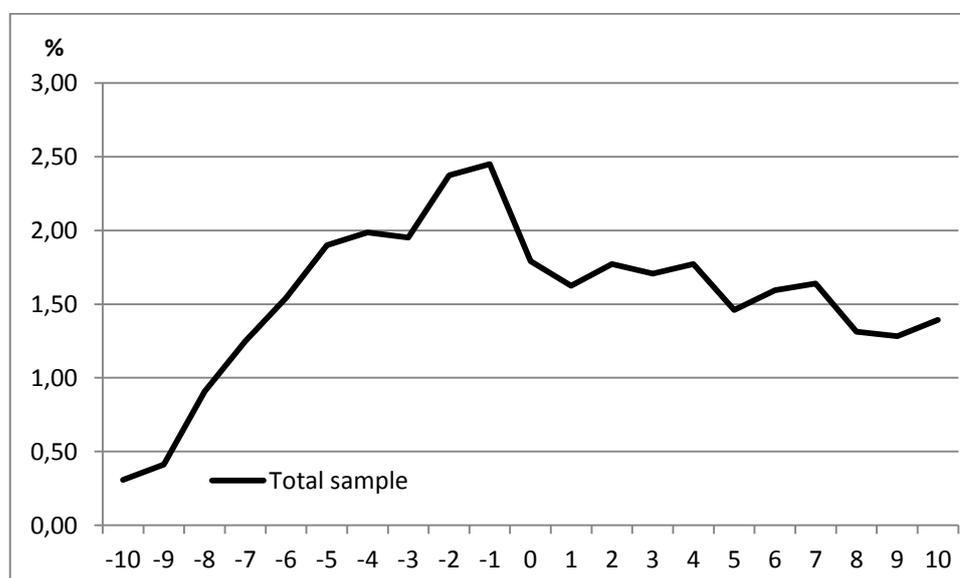
The results covered in this section answer to the research questions 1 and 8. The results for the full sample of 102 events are shown in the Table 5. The graphical presentation of CAARs for the event window is presented in Figure 5.

The first initial hypothesis, no reaction to Finnish layoff announcements, can be discarded. It is not clear whether the markets view the results shown here positive or negative. There are statistically significant large pre-announcement CAARs suggesting that the market anticipates the information content of layoff announcements and reacts positively to those (CAAR for -10 to -1 +2,692%, statistically significant at 0,01 level). On the other hand on the event date there is a statistically significant negative reaction of AAR -0,571%. The negative reaction on the event date may be due to the information released in the layoff announcement. For example the market may have anticipated an announcement of a larger magnitude. There is also a possibility that the managers are timing the markets when announcing layoffs. The market seems to react in rational expectation as well as in neo-classical manner. No myopic reaction can be found from the results. The results are also presented by utilizing the market-adjusted model in order to test the robustness of the model. As can be seen from the results they are very close to each other and one can conclude that the CAPM-based net of market return model is robust.

Table 5 Results for the Total Sample

t	Net-of-market-return-model		Market-adjusted-model				
	AAR	CAAR	AAR	CAAR			
-10	0,345	0,34	0,492**	0,49			
-9	0,218	0,56	0,252	0,74			
-8	0,23	0,79	-0,049	0,70			
-7	0,237	1,03	0,102	0,80			
-6	0,358	1,39	0,383	1,18			
-5	0,462**	1,85	0,541**	1,72			
-4	0,266	2,12	0,168	1,89			
-3	0,144	2,26	0,194	2,08			
-2	0,241	2,50	0,332	2,41			
-1	0,19	2,69	0,387	2,80			
0	-0,571**	2,121	-0,543**	2,258			
1	-0,247	1,87	-0,521**	1,74			
2	0,091	1,96	-0,012	1,73			
3	-0,053	1,91	-0,112	1,61			
4	-0,109	1,80	-0,015	1,60			
5	-0,311	1,49	-0,512**	1,09			
6	0,142	1,63	0,152	1,24			
7	0,036	1,67	0,023	1,26			
8	-0,268	1,40	-0,191	1,07			
9	-0,11	1,29	-0,351	0,72			
10	0,185	1,48	-0,046	0,67			
[t ₁ ,t ₂]	[-10,-1]	[-5,-1]	[-1,+1]	[0,0]	[0,+1]	[+1,+5]	[+1,+10]
CAAR Net of return model	2,692***	1,304***	-0,629***	-0,571***	-0,818***	-0,628	-0,644
CAAR market-adjusted model	2,801***	1,621***	-0,678***	-0,543**	-1,064***	-1,171**	-1,585

Figure 5 CAAR for Total Sample



These results are in line with the results found by Brookman et al. (2007). They found positive CAARs of 0,6% for the -5 to 0 event window. These findings are also in line with the efficiency hypothesis by Lin & Rozeff (1993) and Elayan et al. (1998) who both stated that if the financial problems of a firm are known to markets and the layoffs can be anticipated the share price should rise pre-event and there should not be a reaction on the event date.

6.2. Characteristics hypotheses

The results provided in this section will answer the research questions from 2 to 7.

Stated reason

Table 6 and Figure 6 show results for the sub-samples that have been categorized using the reason stated by the management in order to justify the layoffs. As the characteristics hypothesis 1 stated the restructuring group should have more positive or less negative reaction by the market than the full sample. However this does not seem to be the case for this sample. There is a statistically significant AAR of -1% on the event date for the restructuring group. The CAAR for the -10 to -1 is 2,339% and statistically significant. The reaction is less positive than for the total sample. Therefore the characteristic hypothesis 1 is discarded.

The only statistically significant positive reaction on the event date is for the office/plant closure group. It has an AAR of 1,54% on the day of the announcement. The result is statistically significant at 0,1 level. The results for the longer time periods are not statistically significant signaling that the market reacts efficiently to the layoff announcement on the day of the announcement. This is in line with the earlier presented hypothesis: The office/plant closure should have more positive or less negative reaction than the total sample. One thing that has to be noted when inspecting this result is the low number of events that may cause some problems for the event study model. As for the economic conditions (including declining demand for the firms products and/or services) category the results are as hypothesized. On the event date there is a negative AAR of -0,77%

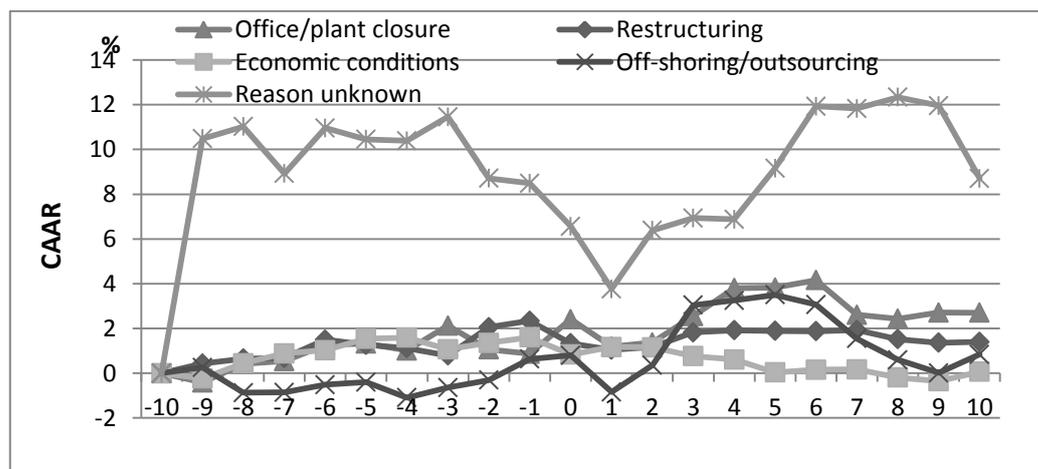
which is statistically significant at 0,05 level. Also the CAAR of 1,6% for -10 to -1 is less positive than for the full sample. These results are in line with the declining demand hypothesis by Lin & Rozeff (1993) and Elayan et al. (1998). There is also a statistically significant reaction for the result unknown category but due to having only two events it is not highly reliable. For the offshoring category there are no statistically significant results.

Table 6 Results for Cited Reason

		AAR (day)				
Results	N	-2	-1	0	1	2
Total sample	102	0,241	0,19	-0,571**	-0,247	0,091
A. Cited reason	102					
Restructuring	32	1,256***	0,288	-1,006**	-0,288	0,13
Office/plant closure	15	-1,06	-0,198	1,542*	-1,221	0,179
Economic conditions	68	0,285	0,246	-0,773**	0,339	-0,012
Off-shoring/outsourcing	8	0,341	0,943	0,164	-1,644	1,198
Reason unknown	2	-2,745	-0,226	-1,92	-2,803	2,62

		CAAR (interval)						
Results	N	[-10,-1]	[-5,-1]	[-1,+1]	[0,0]	[0,+1]	[+1,+5]	[+1,+10]
Total sample	102	2,692***	1,304***	-0,629***	-0,571***	-0,818***	-0,628	-0,644
A. Cited reason	102							
Restructuring	32	2,339**	0,839	-1,006**	-1,006**	-1,295**	0,56	0,066
Office/plant closure	15	0,865	-0,396	0,123	1,542**	0,321	1,414	0,299
Economic conditions	68	1,603*	0,576	-0,188	-0,773**	-0,434	-0,799	-0,768
Off-shoring/outsourcing	8	1,152	-0,537	0,164	-1,48	2,704	0,039	0,00
Reason unknown	2	-2,474	-4,949**	-1,92	-4,723*	2,595	2,138	0,00

Figure 6 CAAR for Cited Reason



Business cycle

The hypothesis for the business cycle was that during the crisis period of 2008-2009 the market reaction to layoff announcements should be more negative or

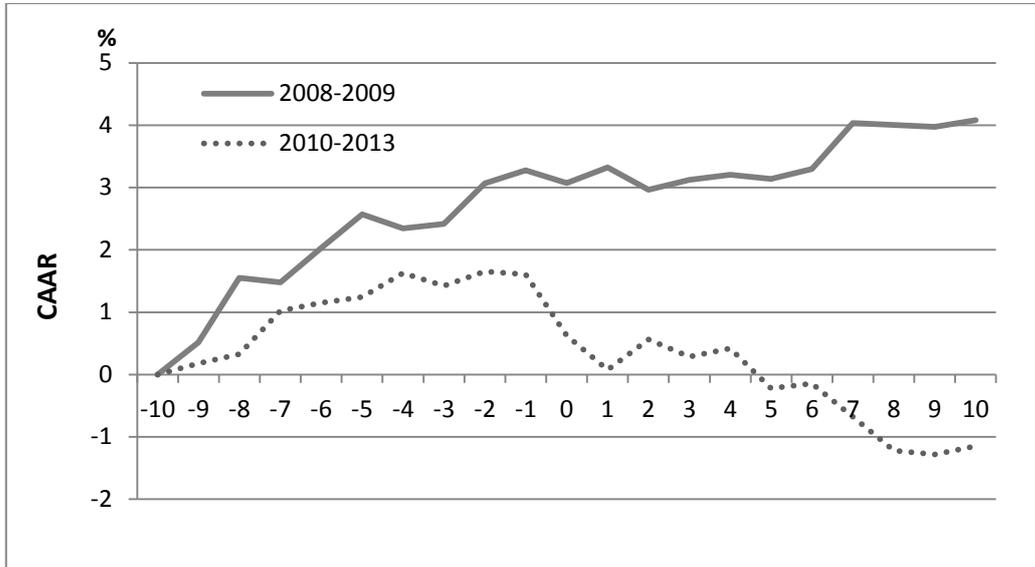
less positive than for the following period. The results presented in the Table 7 and Figure 7 are in fact quite the opposite. There is a significant negative AAR for the 2010-2013 period of -0,98% on the event date. No statistically significant AARs can be found for the crisis period or for the difference between the different time periods. As for the longer periods there are statistically significant results for both of the groups. There is a significant CAAR of 3,28% for the crisis period on the event window from -10 to -1. As for the latter period there is significant results for the time periods from -1 to +1 and from 0 to +1 with CAARs of -1,57% and -1,53%, respectively. Also the difference between the two time periods is statistically significant at 0,01 level for -1 to +1 period and with 0,05 level for 0 to +1 period. The reported differences in the CAARs are 1,83% and 1,58%, respectively.

These results are contrary to the findings of Marshall et al. (2012) and also to the suspected reason of the positive AARs founded by Brookman et al. (2007). These results are in support of Worrel et al. (1991) who stated that if a firm has known financial problems the investors might view the layoffs as a mean to survive through the financially troubled times. The possibility that the crisis period is not accurately defined in this thesis has to be considered as well.

Table 7 Results for Business Cycle

		<i>AAR (day)</i>						
Results	N	-2	-1	0	1	2		
Total sample	102	0,241	0,19	-0,571**	-0,247	0,091		
B. Business cycle	102							
2008-2009	48	0,65	0,212	-0,203	0,25	-0,36		
2010-2013	54	0,229	-0,043	-0,982***	-0,549	0,487		
Difference		0,421	0,255	0,779	0,799	-0,847		
		<i>CAAR (interval)</i>						
Results	N	[-10,-1]	[-5,-1]	[-1,+1]	[0,0]	[0,+1]	[+1,+5]	[+1,+10]
Total sample	102	2,692***	1,304***	-0,629***	-0,571***	-0,818***	-0,628	-0,644
B. Business cycle	102							
2008-2009	48	3,278***	1,243*	0,259	-0,203	0,047	0,066	1,009
2010-2013	54	1,608*	0,459	-1,574***	-0,982***	-1,531***	-0,847	-1,777
Difference		1,67	0,784	1,833***	0,779	1,578**	0,913	2,786

Figure 7 CAAR for Business Cycle



Industry grouping

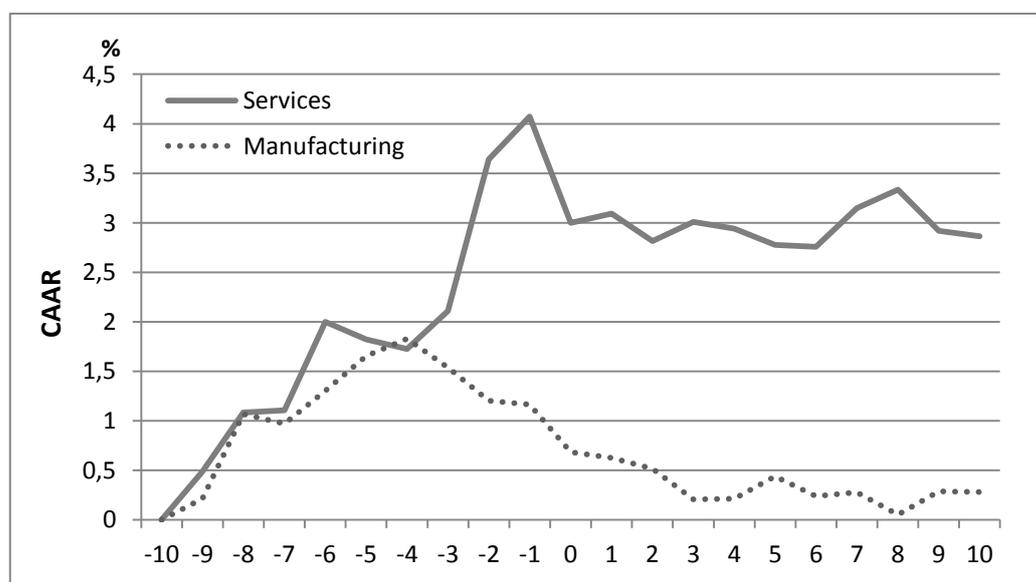
The results for the industry grouping are presented in Table 8 and in Figure 8. The hypothesis for the industry grouping was that the magnitude of the reaction, positive or negative, should be stronger for the service industry because they rely more on human capital. As presented in the results the reaction is much stronger in the service industry than in the manufacturing industry. The difference in the CAARs is statistically significant at 0,1 level for the -10 to -1 period and for the -5 to -1 period. The difference in CAARs is 2,9% and 2,2% respectively. For the services industry there is a CAAR of 4,1% for the -10 to -1 period. This is significant at 0,01 level. As for the event date there is a negative AAR of -1,07% for the services industry compared to -0,48% for the manufacturing industry. These results are in line with Elayan et al. (1998).

Table 8 Results for the Industry Grouping

		AAR (day)				
Results	N	-2	-1	0	1	2
Total sample	102	0,241	0,19	-0,571**	-0,247	0,091
C. Industry grouping	102					
Services	26	1,53***	0,433	-1,074**	0,092	-0,275
Manufacturing	76	-0,333	-0,041	-0,48**	-0,056	-0,111
Difference		1,863***	0,474	-0,594	0,148	-0,164

		CAAR (interval)						
Results	N	[-10,-1]	[-5,-1]	[-1,+1]	[0,0]	[0,+1]	[+1,+5]	[+1,+10]
Total sample	102	2,692***	1,304***	-0,629***	-0,571***	-0,818***	-0,628	-0,644
C. Industry grouping	102							
Services	26	4,072***	2,074**	-0,549	-1,074***	-0,982*	-0,223	-0,138
Manufacturing	76	1,164*	-0,141	-0,576***	-0,48**	-0,535*	-0,245	-0,402
Difference		2,908*	2,215*	0,027	-0,594	-0,447	0,022	0,264

Figure 8 CAAR for the Industry Grouping



Size of the company

Whether the size of the company has an effect on the stock market reaction is tested on three different ways. The hypothesis was that larger companies should have more positive or less negative reaction compared to smaller companies. First the companies are divided into two different sub-samples based on their revenue. When examining the results in Table 9 and Figure 9 it can be seen that the results are in line with the hypothesis. There is a statistically significant negative reaction to small revenue sub sample on the event date and the difference on the event date is also statistically significant at 0,05 level. The difference in AAR for the event date is 1,3%. The difference is also statistically significant for the time

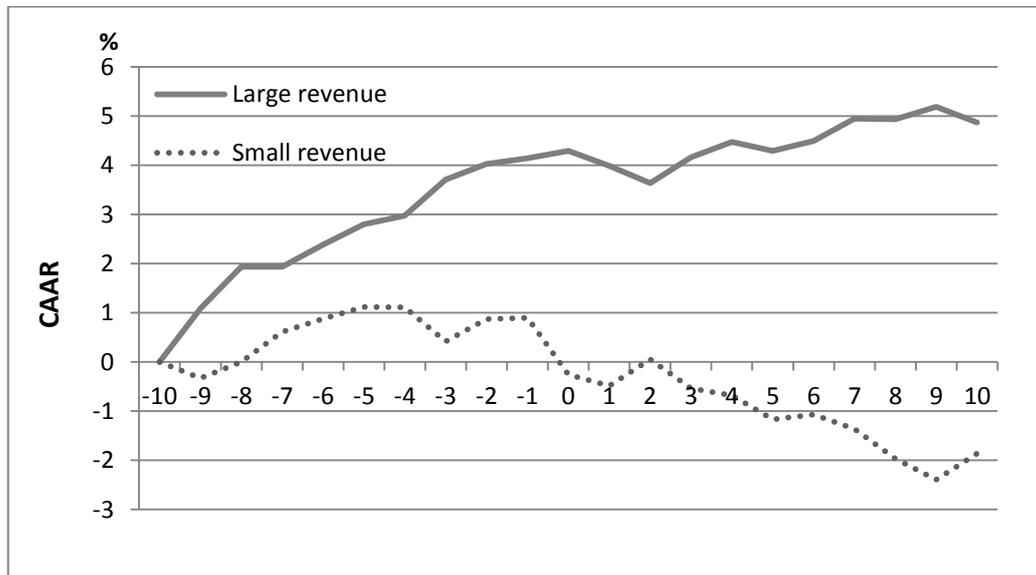
periods of -10 to -1 and -1 to +1 with differences in CAARs of 3,25% and 1,32% respectively.

Table 9 Results for the Size of the Company (Revenue)

		AAR (day)					
Results	N	-2	-1	0	1	2	
		AAR (day)					
G. Size of the company (Revenue)	102						
Large revenue	51	0,319	0,115	0,151	-0,303	-0,352	
Small revenue	51	0,454	0,025	-1,156***	-0,228	0,539	
Difference		-0,135	0,09	1,307**	-0,075	-0,891	

		CAAR (interval)						
Results	N	[-10,-1]	[-5,-1]	[-1,+1]	[0,0]	[0,+1]	[+1,+5]	[+1,+10]
Total sample	102	2,692***	1,304***	-0,629***	-0,571***	-0,818***	-0,628	-0,644
G. Size of the company (Revenue)	102							
Large revenue	51	4,144***	1,756**	-0,037	0,151	-0,152	0,001	0,579
Small revenue	51	0,896	0,021	-1,359***	-1,156***	-1,384***	-0,907	-1,605
Difference		3,248*	1,735	1,322**	1,307**	1,232	0,908	2,184

Figure 9 CAAR for High and Low Revenue



When the sample is divided based on total assets of companies the results are very similar to the ones based on revenue. The results are presented in Table 10 and Figure 10. There is a statistically significant reaction on the event date for the small total assets group of AAR -1,38%. The CAAR for the large group for period of -10 to -1 is +3,86% and statistically significant at 0,01 level. The differences are

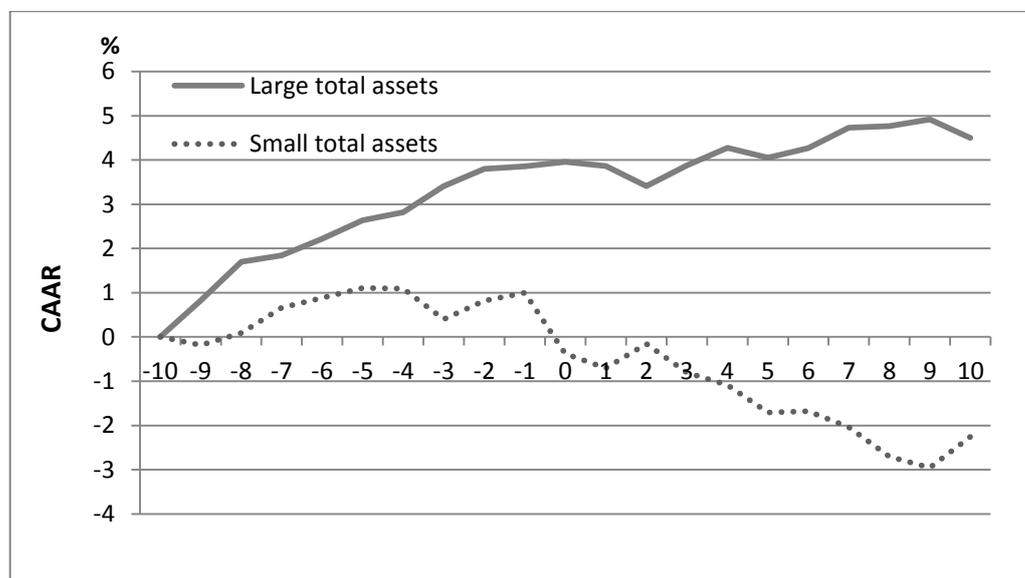
statistically significant also for the event date and for the longer periods of -1 to +1 and 0 to +1 period.

Table 10 Results for the Size of the Company (Total Assets)

		<i>AAR (day)</i>				
Results	N	-2	-1	0	1	2
Total sample	102	0,241	0,19	-0,571**	-0,247	0,091
H. Size of the company (Total assets)	99					
Large total assets	50	0,394	0,053	0,103	-0,093	-0,452
Small total assets	49	0,419	0,178	-1,377***	-0,326	0,552
Difference		-0,025	-0,125	1,48***	0,233	-1,004*

		<i>CAAR (interval)</i>						
Results	N	[-10,-1]	[-5,-1]	[-1,+1]	[0,0]	[0,+1]	[+1,+5]	[+1,+10]
Total sample	102	2,692***	1,304***	-0,629***	-0,571***	-0,818***	-0,628	-0,644
H. Size of the company (Total assets)	99							
Large total assets	50	3,857***	1,64**	0,062	0,103	0,009	0,094	0,544
Small total assets	49	0,996	0,111	-1,525***	-1,377***	-1,703***	-1,324*	-1,873
Difference		2,861	1,529	1,587***	1,48***	1,712**	1,418	2,417

Figure 10 CAAR for Large and Small Total Assets



When the sample is divided based on FTE the results are again very similar to the results from the two previous ways to measure the size. The results are presented in Table 11 and Figure 11. For the small companies there is a negative statistically significant reaction at 0,01 level on the event date of -1,19% AAR. The 1,2% difference in AARs for the two groups is also statistically significant at 0,05 level on

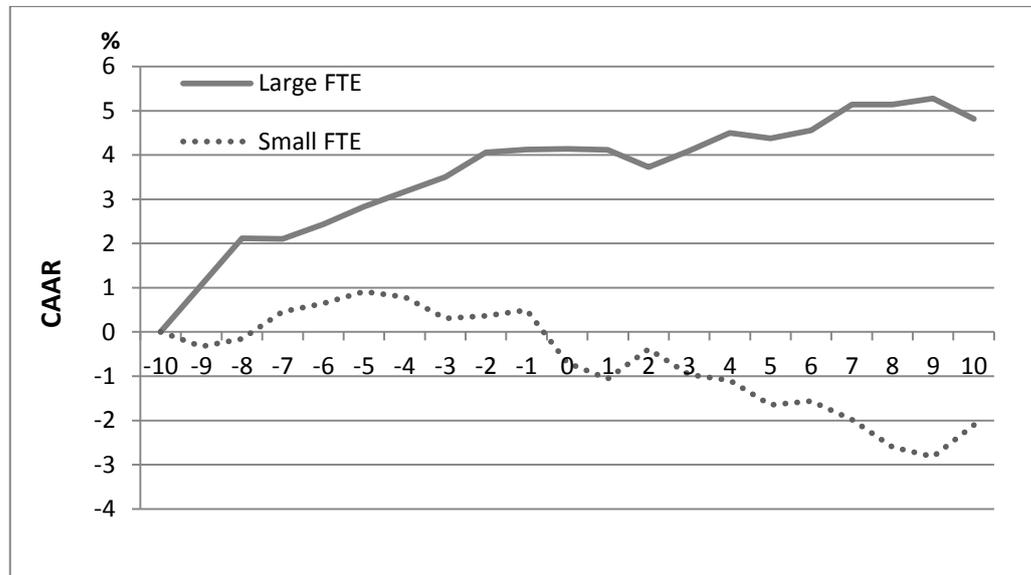
the event date. The differences are also statistically significant for the time intervals of -10 to -1, -1 to 1 and 0 to +1.

Table 11 Results for the Size of the Company (FTE)

		<i>AAR (day)</i>				
Results	N	-2	-1	0	1	2
Total sample	102	0,241	0,19	-0,571**	-0,247	0,091
I. Size of the company (FTE)						
	102					
Large FTE	51	0,433	0,069	0,012	-0,02	-0,396
Small FTE	51	0,459	0,134	-1,19***	-0,364	0,668
Difference		0,499	-0,065	1,202**	0,344	-1,064*

		<i>CAAR (interval)</i>						
Results	N	[-10,-1]	[-5,-1]	[-1,+1]	[0,0]	[0,+1]	[+1,+5]	[+1,+10]
Total sample	102	2,692***	1,304***	-0,629***	-0,571***	-0,818***	-0,628	-0,644
I. Size of the company (FTE)								
	102							
Large FTE	51	4,004***	1,565**	0,06	0,012	-0,009	0,233	0,676
Small FTE	51	0,898	0,25	-1,42***	-1,19***	-1,554***	-0,952	-1,407
Difference		3,106*	1,315	1,48***	1,202**	1,545**	1,185	2,083

Figure 11 CAAR for Large and Small FTE



All three ways to measure the size give results that are similar and supporting the hypothesis. It can be concluded that the size of the company is positively associated with the reaction to layoff announcements. This is perhaps because the market views that larger companies are less efficient than small companies and

when announcing layoffs they are seen to improve their efficiency. This is in line with Palmon et al. (1997).

Prior performance of the company

The results for the sub-samples based on the prior performance of the company are presented in Table 12 for the ROE and Table 13 for the ROA. Figures 12 and 13 visually present the CAARs. The hypothesis was that companies with lower ROE and ROA should have more positive reaction to layoff announcements. These results are in line with the provided theories and the hypothesis. As can be seen from the figures both groups have similar reactions until few days before the actual event. From there it can be seen that the low ROE and ROA samples keep their higher stock prices accumulated pre-event and with the high ROE and ROA groups the stock price declines back to where it started. Difference is statistically significant only for the ROA based groups and in the pre-event period of -10 to -1. The results are in line with Elayan et al. (1998) under the efficiency hypothesis.

Table 12 Results for the ROE

		<i>AAR (day)</i>				
Results	N	-2	-1	0	1	2
Total sample	102	0,241	0,19	-0,571**	-0,247	0,091
D. ROE	98					
High ROE	49	-0,026	0,014	-0,834**	0,2	-0,33
Low ROE	49	0,849*	0,192	-0,413	-0,621	0,437
Difference		-0,875	-0,178	-0,421	0,821	-0,767

		<i>CAAR (interval)</i>						
Results	N	[-10,-1]	[-5,-1]	[-1,+1]	[0,0]	[0,+1]	[+1,+5]	[+1,+10]
Total sample	102	2,692***	1,304***	-0,629***	-0,571***	-0,818***	-0,628	-0,644
D. ROE	98							
High ROE	49	1,872**	-0,025	-0,619**	-0,834***	-0,633*	-0,513	-1,076
Low ROE	49	2,726**	1,361*	-0,842**	-0,413	-1,034**	-0,758	-0,211
Difference		-0,854	-1,386	0,223	-0,421	0,401	0,245	-0,865

Figure 12 CAAR for High and Low ROE

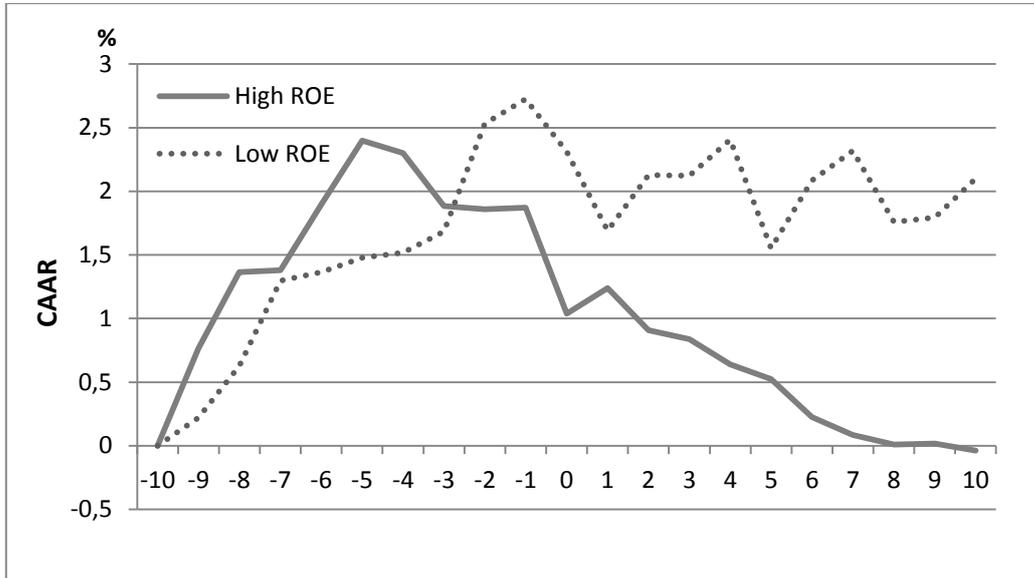
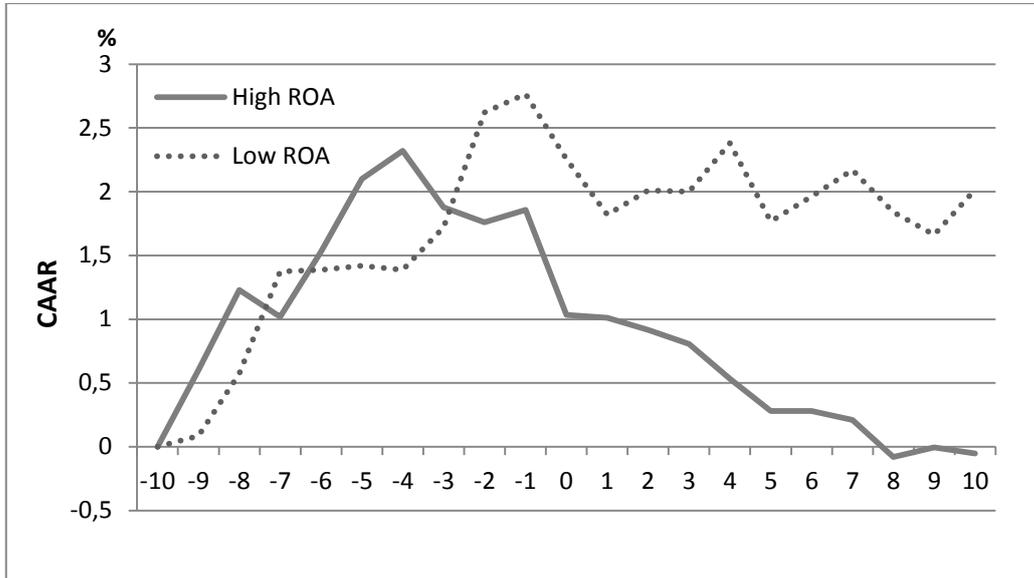


Table 13 Results for the ROA

		<i>AAR (day)</i>					
Results	N	-2	-1	0	1	2	
Total sample	102	0,241	0,19	-0,571**	-0,247	0,091	
E. ROA	99						
High ROA	50	-0,118	0,098	-0,822**	-0,024	-0,096	
Low ROA	49	0,901**	0,145	-0,511	-0,434	0,19	
Difference		-1,019*	-0,047	-0,311	0,41	-0,286	

		<i>CAAR (interval)</i>						
Results	N	[-10,-1]	[-5,-1]	[-1,+1]	[0,0]	[0,+1]	[+1,+5]	[+1,+10]
Total sample	102	2,692***	1,304***	-0,629***	-0,571***	-0,818***	-0,628	-0,644
E. ROA	99							
High ROA	50	1,858**	0,327	-0,748**	-0,822***	-0,846**	-0,753	-1,087
Low ROA	49	2,766**	1,381*	-0,8**	-0,511	-0,945*	-0,487	-0,238
Difference		-0,908	-1,054	0,052	-0,311	0,099	-0,266	-0,849

Figure 13 CAAR for High and Low ROA



Capital structure

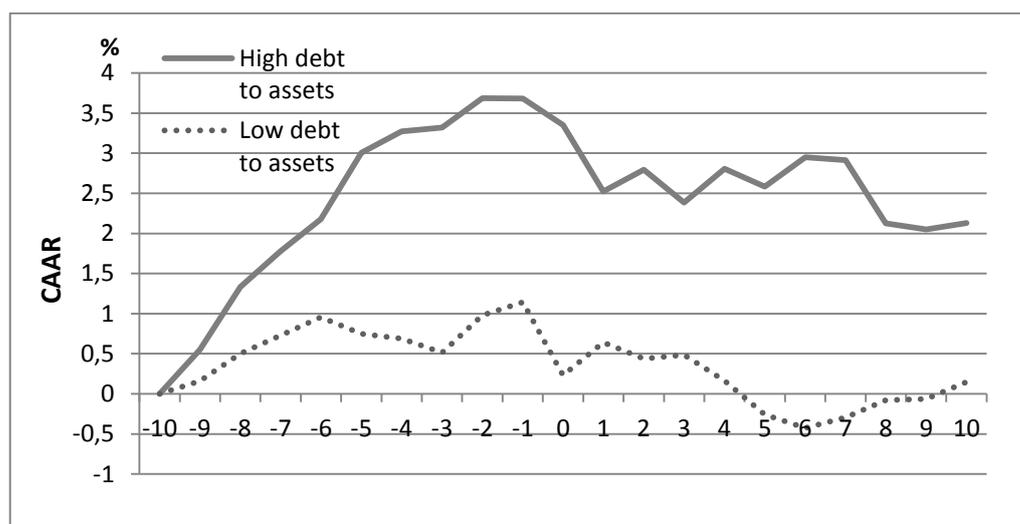
The hypothesis for the capital structure was that the companies with higher leverage should have more positive or less negative reaction than companies with low leverage. The results are presented in Table 14 and Figure 14. The group with high leverage has more positive reaction pre-event and less negative reaction on the event date but only one statistically significant difference can be found between the two sub groups. On the post event day 1 there is a statistically significant difference in the AARs. The reaction on this day is however contrary to the results from the earlier event windows. There is a statistically significant negative reaction of -0,91% AAR on the event date in the low leverage group. There is also a statistically significant reaction in the group of high leverage companies for -10 to -1 period with CAAR 3,7%. These results are explained by the shareholders viewing the layoffs for the company as a mean to survive and to avoid defaulting its debts.

Table 14 Results for the Debt to Assets Ratio

		AAR (day)					
Results	N	-2	-1	0	1	2	
Total sample	102	0,241	0,19	-0,571**	-0,247	0,091	
F. Debt to total assets ratio	99						
High debt to assets	50	0,366	-0,005	-0,328	-0,831*	0,273	
Low debt to assets	49	0,464	0,165	-0,914***	0,411	-0,203	
Difference		-0,098	-0,17	0,586	-1,242**	0,476	

		CAAR (interval)							
Results	N	[-10,-1]	[-5,-1]	[-1,+1]	[0,0]	[0,+1]	[+1,+5]	[+1,+10]	
Total sample	102	2,692***	1,304***	-0,629***	-0,571***	-0,818***	-0,628	-0,644	
F. Debt to total assets ratio	99								
High debt to assets	50	3,681***	1,502*	-1,164***	-0,328	-1,158**	-0,768	-1,222	
Low debt to assets	49	1,143	0,19	-0,338	-0,914***	-0,502	-0,487	-0,083	
Difference		2,538	1,312	-0,826	0,586	-0,656	-0,281	-1,139	

Figure 14 CAAR for High and Low Debt to Assets Ratio



Size of the layoff

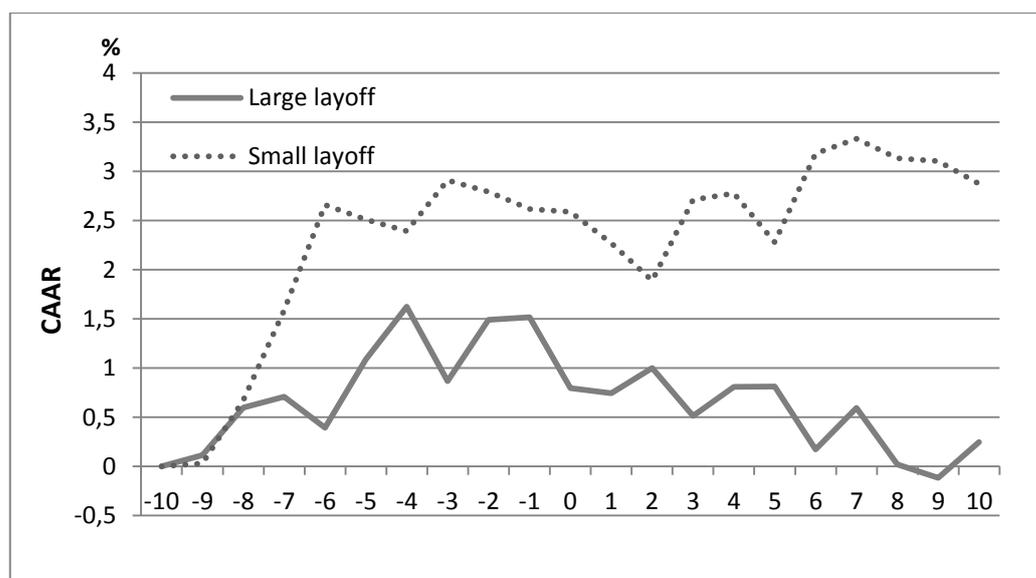
The hypothesis was that large layoffs have stronger reaction to layoff announcements than smaller layoffs. Based on the results presented in Table 15 and in Figure 15 the hypothesis is correct on the event date. On the event date there is a statistically significant negative reaction of -0,72% AAR for the large layoffs and only -0,03% AAR for the small layoffs, the latter being statistically insignificant. However when looking at a broader time perspective the large layoffs seem to have a smaller reaction. For the -10 to -1 time period there is a highly statistically significant result of 3,29% CAAR for the small layoffs group. The differences are not statistically significant for any time interval or day.

Table 15 Results for the Size of the Layoff

		AAR (day)				
Results	N	-2	-1	0	1	2
Total sample	102	0,241	0,19	-0,571**	-0,247	0,091
J. Size of the layoff	102					
Large layoff	51	0,281	0,024	-0,719*	-0,054	0,256
Small layoff	51	0,56	-0,177	-0,03	-0,318	-0,379
Difference		0,739	0,201	-0,689	0,264	0,635

		CAAR (interval)						
Results	N	[-10,-1]	[-5,-1]	[-1,+1]	[0,0]	[0,+1]	[+1,+5]	[+1,+10]
Total sample	102	2,692***	1,304***	-0,629***	-0,571***	-0,818***	-0,628	-0,644
J. Size of the layoff	102							
Large layoff	51	1,173	0,779	-0,748**	-0,719**	-0,772*	0,016	-0,551
Small layoff	51	3,293***	0,633	-0,525	-0,03	-0,347	-0,308	0,289
Difference		-2,12	0,146	-0,223	-0,689	-0,425	0,324	-0,84

Figure 15 CAAR for Large and Small Layoffs



Temporary vs permanent layoff

As for the duration of the layoff the hypothesis was that the permanent layoffs should have more negative or less positive reaction to layoff announcements than layoffs including only non-permanent layoffs. However based on the results shown on Table 16 and Figure 16 it doesn't seem to be the case. On the event date there is a stronger negative reaction of -1,16% AAR to temporary layoffs than for the permanent layoffs with AAR of -0,518%. Both results are statistically significant, permanent layoffs at 0,05 level and temporary layoffs at 0,1 level. The difference is however not statistically significant. As for the longer time periods there is a stronger reaction for the temporary layoffs. For the -10 to -1 period there is a

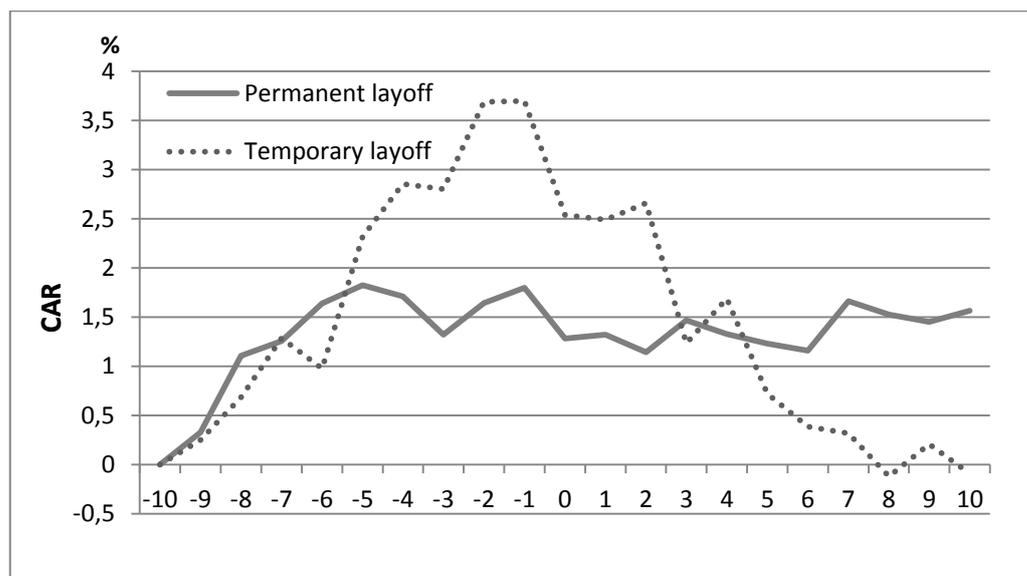
positive CAAR of 3,01% and for the permanent layoffs the reaction is also positive with CAAR of 1,6%, both results being statistically significant. The differences in the CAARs or in the AARs are not statistically significant. These results might be due to investors viewing the permanent layoffs as a way for the firms to survive and the temporary layoffs not being an effective long-term solution.

Table 16 Results for the Duration of the Layoff

Results	N	AAR (day)				
		-2	-1	0	1	2
Total sample	102	0,241	0,19	-0,571**	-0,247	0,091
K. Temporary layoff vs. permanent layoff	102					
Permanent layoff	81	0,119	0,157	-0,518**	0,039	-0,179
Temporary layoff	21	0,198	0,009	-1,16*	-0,048	0,17
Difference		-0,564	0,148	0,642	0,087	-0,349

Results	N	CAAR (interval)						
		[-10,-1]	[-5,-1]	[-1,+1]	[0,0]	[0,+1]	[+1,+5]	[+1,+10]
Total sample	102	2,692***	1,304***	-0,629***	-0,571***	-0,818***	-0,628	-0,644
K. Temporary layoff vs. permanent layoff	102							
Permanent layoff	81	1,596**	-0,044	-0,322*	-0,518**	-0,479*	-0,052	0,283
Temporary layoff	21	3,012*	2,034*	-1,198**	-1,16**	-1,207	-1,817	-2,627
Difference		1,416	2,078	-0,876	-0,642	-0,728	-1,765	-2,91

Figure 16 CAAR for Permanent and Temporary Layoffs



7. CONCLUSIONS

This paper answers to eight research questions related to Finnish layoff announcements. Two of the questions are related to the reaction of the total sample whereas the remaining six questions are developed in order to understand whether the characteristics of the layoff announcement or the characteristics of the company have an effect on the stock market reaction to layoff announcements. The main results of this paper can be summarized as follows:

- There is a statistically significant positive reaction of 2,7% CAAR to Finnish layoff announcements taking place pre-event window from -10 to -1. This is supporting the positive information hypothesis created in this paper. On the event date there is a negative reaction of -0,57% AAR. However the CAAR (2,12%) remains to be positive for the time period from -10 days to the event day. For the post-announcement period from 1 to 10 days after the event the reaction has a CAAR of -0,64. The result is statistically insignificant.
- The reason used by the management to justify the layoffs has an impact on the reaction to the layoff announcements. The restructuring group has less positive reaction on the pre-event period and more negative reaction on the event date. The only statistically significant positive reaction on the event date is for the office/plant closure category. As for the layoffs justified by economic conditions (including declining demand for firm's services and/ or products) the results are more negative for the event date and less positive for the pre-event window than for the full sample.
- The business cycle has an effect on the reaction. Contrary to the hypothesis created in this study and the results presented by Marshall et al. (2012) in the crisis period the results are more positive on the pre-event day and less negative on the event date than in the following period from 2010 to 2013. The difference being statistically significant it can be concluded

that the reaction to Finnish layoffs is more positive in the crisis period from 2008 to 2009 than in the latter period.

- The reaction to Finnish layoff announcements is stronger in the service industry than in the manufacturing industry. This is according to the hypothesis created in this study and in clear support of Elayan et al. (1998) and Marshall et al. (2012).
- The size of the company measured in three different ways (revenue, total assets and FTEs) affects the reaction to layoff announcements. The reaction is positive for larger companies and negative for smaller companies.
- The prior performance measured by ROE does not have a statistically significant difference but when measured by ROA there is a statistically significant difference in CAARs on time period of -10 to -1. The reaction is more positive for companies with previous weak performance signaled by low ROA. This is in support of Elayan et al. (1998).
- Leverage ratio, size of the layoff or the duration of the layoff does not have statistically significant differences in the reaction to Finnish layoff announcements.
- Market reaction seems to take place pre-event with a small adjustment on the event date. The market is reacting as the rational expected theory states but with small reaction also on the event date.

The main conclusion of this study is that there is a strong price run up before the actual layoff announcement in the Finnish stock market. The greatest price run up is related to large companies and companies with high leverage. The high leverage group has a price run up of 3,68% CAAR and the large companies group (measured with revenue) has a price run up of 4,14% CAAR. Both of these results take place in the pre-event window from -10 to -1. Both groups also have a much

smaller reaction on the event date compared to the full sample. For the large companies group the reaction is positive with AAR of 0,15% and for the companies with high leverage the reaction is slightly negative with AAR of -0,328. There are two possible reasons behind these results. The managers are timing the markets when announcing the layoffs and/or the layoffs are seen as value enhancing acts and market has become aware of such actions pre-event. The fact that the companies with high leverage are having the second highest CAARs pre-event implicates that the managers are actually timing the announcements. Managers know that the layoffs are decreasing the short term stock value and therefore announce the layoffs when the stock is already overvalued. The managers are maximizing the shareholder value when timing the announcements. It has been shown that the managers' interests in highly leveraged companies are more aligned with the interests of the shareholders (Malouney et al. 1993).

The other possible explanation is that the layoffs are seen as efficiency improving actions especially for the large companies. The large companies have the highest pre-announcement price run up of all the groups studied in this study. Large companies are seen less efficient than small companies and therefore layoffs are seen as efficiency improving acts. The market becomes aware of such actions pre-event and therefore the price reaction is captured mainly pre-event.

The positive reaction pre-event is contrary to the most literature written on the subject. The findings of this study can help the Finnish stock market to predict the layoff announcements more efficiently. Based on the results layoff announcements seem to occur after at least 10 days of abnormal price run up.

Some very interesting suggestions for further research can be found based on this thesis. With clearly positive reactions pre-event the possibility of the managers timing the announcements seems likely. More research on the topic should be done. By studying longer event windows the length and the magnitude of the price run up could be better observed. Additionally by using longer event windows one could find out whether the layoffs are seen as value enhancing actions in the stock market in the longer run. The long term financial performance comparison

between companies that have laid off employees and companies that have not could also reveal different results in Finland. This is because the short-term reaction was different in Finland compared to other markets that have been studied. Continuing the comparison between the different time periods in the Finnish market could provide a good topic for further research. A research concentrating on the comparison between different markets during the same time periods would be beneficial as well.

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APPENDICES

Appendix 1: An example of a Finnish layoff announcement:

Vacon - Company Announcement

Vacon Plc to start negotiations to save costs

Vacon Plc, Stock Exchange Release, 13 December 2011 at 9.30 am (EET)

Vacon is starting negotiations with its white-collar personnel working in the Vacon Group's parent company Vacon Plc in Finland as part of a large global cost-savings plan in the Group. During the years 2012-2013, the Group aims to achieve annual savings equal to 60 man-years in its parent company and 10 man-years in the Vacon subsidiaries. The invitation to the negotiations in the parent company was given to Vacon's white-collar employee representatives yesterday, 12 December 2011.

The negotiations affect approximately 420 white-collar employees in the Vacon Group's parent company in Finland. The negotiations will deal with and aim to agree on measures which can be used to adjust business operations to the market situation. The goal is to find the cost-saving measures which ensure the company's competitiveness as well as developing and launching new products to the market. In addition to improving efficiency in operations, among the measures to be initially considered are reductions in definite-duration office personnel, voluntary leave of absence, working part-time, exchanging holiday pay for time off, outsourcing, temporary lay-offs and personnel reductions. At the same time, Vacon will consider the re-organization of its global operations.

The need for personnel reduction is estimated at 60 persons at most. Any temporary lay-offs and part-time work are estimated to affect not more than approximately 400 white-collar employees of the company.

In the background of the need for the alignment are economic and production related reasons as well as the possible re-organization of Vacon's operations. The need for the alignment is caused by the declined order intake and the poor predictability of market prospects in the future. Vacon's financial position has deteriorated in the second half of 2011 and the company reduced its guidance for the year 2011 on 12 December 2011. The demand for Vacon's wind power products started to decline already in June 2011, and it has not shown any sign of recovery. Additionally, during the fourth quarter of the year, the demand for motor control products has also weakened. "The reason for the weakened demand is in the prolongation and escalation of the European finance crisis. At the moment, it is particularly difficult to estimate how the markets will develop. Therefore, we will have to act now and ensure that we will survive with our feet dry if the crisis still deepens and drags on. This is the only way we can make sure that we are prepared when the market picks up," concludes Vesa Laisi, Vacon's President and CEO.

In Finland, Vacon employs altogether some 750 people in Vaasa, Tampere and Vantaa. The company will inform of the results of the negotiations after they are completed.

Vacon Plc

Further information and press contacts:

- * 12.30 (EET) onwards, Vesa Laisi, President and CEO, Vacon Plc, tel. +358 40 8371 510, email vesa.laisi(at)vacon.com
- * Sebastian Linko, Director, Corporate Communications and Investor Relations, Vacon Plc, tel. +358 40 8371 634, email sebastian.linko(at)vacon.com

Vacon in brief:

Vacon is driven by a passion to design, manufacture and sell only the best AC drives on the planet - and nothing else. AC drives can be used to control electric motors or to help generate power from renewable sources. Vacon has R&D and production units in Finland, the United States, China and Italy, and sales offices in 27 countries. In 2010, Vacon had revenues of EUR 338 million and globally employed 1,300 people. Vacon's shares (VAC1V) are listed and publicly traded on the Helsinki Stock Exchange.

Driven by Drives, www.vacon.com

Distribution:

NASDAQ OMX Helsinki
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Appendix 2: Total sample

Number	Event date	Firm	Number	announcement date	Firm	Number	Announcement date	Firm
1	24.8.2011	Ahlstrom	35	3.3.2009	Larox Oyj	69	8.10.2010	Raute
2	1.10.2012	Atria Oyj	36	1.12.2009	Lassila & Tikanoja	70	6.10.2009	Raute
3	2.4.2009	Atria Oyj	37	18.10.2011	Lemminkäinen	71	23.11.2011	Revenio Group Oyj
4	7.8.2012	Comptel	38	8.3.2011	Marimekko	72	22.3.2012	Revenio Group Oyj
5	13.5.2011	Digia Oyj	39	18.10.2011	M-real	73	10.9.2010	Revenio Group Oyj
6	18.9.2012	Digia Oyj	40	1.10.2012	Neo Industrial Oyj	74	26.9.2008	Ruukki Group Oyj
7	3.2.2009	Efore	41	18.3.2009	Neomarkka	75	5.1.2009	Solteq Oyj
8	27.8.2009	Elcoteq	42	17.12.2009	Neomarkka	76	11.5.2009	Stockmann
9	11.6.2009	Exel Composites Oyj	43	6.4.2010	Neomarkka	77	14.5.2012	Suominen Oyj
10	19.6.2012	Exel Composites Oyj	44	13.1.2012	Neomarkka	78	31.7.2012	Suominen Oyj
11	24.2.2009	Finnair Oyj	45	30.3.2011	Neomarkka	79	11.8.2009	Suominen Yhtymä
12	20.3.2009	Finnair Oyj	46	20.1.2009	Nokian Renkaat	80	19.2.2009	Tamfelt Oyj Abp
13	12.6.2008	Finnair Oyj	47	30.11.2010	Nordic Aluminium	81	8.12.2008	Tamfelt Oyj Abp
14	11.4.2012	Finnair Oyj	48	23.8.2011	Nordic Aluminium	82	9.10.2012	Teleste
15	25.11.2008	Finnair Oyj	49	6.10.2011	Nordic Aluminium	83	14.11.2008	Teleste
16	11.4.2012	Finnair Oyj	50	9.10.2012	Nordic Aluminium	84	11.3.2013	Teleste
17	29.12.2008	Fiskars	51	12.6.2013	Nurminen Logistics Oy	85	29.3.2010	Trainer's House Oyj
18	7.10.2009	Fiskars	52	31.1.2013	Nurminen Logistics Oy	86	25.2.2009	Trainer's House Oyj
19	9.1.2009	Glaston Oyj Abp	53	2.9.2009	Okmetic Oyj	87	15.1.2013	Tulikivi Oyj
20	3.9.2009	Glaston Oyj Abp	54	19.11.2008	Orion	88	18.9.2012	Tulikivi Oyj
21	3.3.2009	Glaston Oyj Abp	55	9.1.2009	PKC Group Oyj	89	31.10.2011	Tulikivi Oyj
22	4.9.2009	HKScan Oyj	56	13.5.2009	PKC Group Oyj	90	17.1.2013	UPM-Kymmene
23	15.9.2009	HKScan Oyj	57	19.1.2010	PKC Group Oyj	91	8.1.2009	Uponor
24	7.6.2011	Honkarakenne Oyj	58	3.6.2010	PKC Group Oyj	92	11.11.2008	Uponor
25	19.4.2010	Honkarakenne Oyj	59	17.6.2009	PKC Group Oyj	93	18.11.2008	Uponor
26	21.11.2011	Honkarakenne Oyj	60	28.11.2008	PKC Group Oyj	94	20.9.2013	Uponor
27	4.9.2012	Honkarakenne Oyj	61	14.1.2009	Pohjois-Karjalan Kirjap	95	17.4.2009	Uponor
28	14.8.2008	Huhtamäki Oyj	62	15.3.2013	Pohjois-Karjalan Kirjap	96	8.12.2008	Vahto Group Plc Oyj
29	2.1.2013	Incap	63	19.9.2012	Pohjola Pankki Oyj	97	25.2.2013	Viking Line
30	5.10.2009	Incap	64	18.11.2013	Pöyry	98	18.10.2013	Wulff-Yhtiöt Oyj
31	14.11.2011	Incap	65	8.10.2012	Raisio	99	26.2.2009	Wulff-Yhtiöt Oyj
32	25.10.2011	Keskisuomalainen Oyj	66	9.3.2009	Raisio	100	16.6.2008	Wulff-Yhtiöt Oyj
33	10.3.2009	Kesla Oyj	67	3.12.2009	Rautaruukki	101	6.9.2012	Ålandsbanken
34	3.1.2013	Konecranes Oyj	68	14.11.2013	Raute	102	28.12.2011	Ålandsbanken