PERFORMANCE OF STOP-LOSS RULES
VS.
BUY-AND-HOLD STRATEGY

AUTHORS:
Bergsveinn Snorrason
Garib Yusupov

SUPERVISOR:
Göran Anderson

ABSTRACT

The purpose of this study is to investigate the performance of traditional stop-loss rules and trailing stop-loss rules compared to the classic buy-and-hold strategy. The evaluation criteria of whether stop-loss strategies can deliver better results are defined as return and volatility. The study is conducted on daily equity returns data for stocks listed on the OMX Stockholm 30 Index during the time period between January 1998 and April 2009 divided into holding periods of three months. We use the Efficient Market Hypothesis as the rule of thumb and choose an arbitrary starting date for the holding periods. We test the performance of two types of stop-loss strategies, trailing stop-loss and traditional stop-loss. Despite the methodological differences our results are in line with previous research done by Kaminski and Lo (2007), where they find that stop-loss strategies have a positive marginal impact on both expected returns and risk-adjusted expected returns. In our research we find strong indications of the stop-loss strategies being able to outperform the buy-and-hold portfolio strategy in both criteria. The empirical results indicate that the stop-loss strategies can do better than the buy-and-hold even clearer cut when compared in terms of the risk-adjusted returns.

Keywords: Stop-loss, Trailing Stop-loss, Buy-and-Hold, Behavioral Finance, Strategy

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GLOSSARY

Behavioral Finance - an academic discipline that has its place between classical finance theory and cognitive psychology (DeBondt,W.F.M., Shefrin, H., Muradoglu, Y.G., Staikouras, S.K.,2009).

Certainty Effect - the tendency of people to underweigh the probabilities of merely probable, but possible, outcomes, and overweigh the probabilities of highly probable, but not certain, outcomes. C.E. leads to that individuals are risk averse (concave utility function for gains) when deciding in situations with a certain positive outcome and risk seeking (convex utility function for losses) in situations with a certain negative outcome (Kahneman, D. and Tversky, A.1979.)

Disposition Effect - the tendency of investors to hold their losing investments for too long and sell their winning investments too soon (Shefrin Hersh; Statman Meir; Constantinides George M. 1985.)

Expected Utility Theory- A theory of decision-making stating that among risky outcomes decision makers choose the alternative(s) with the highest expected utility value, which is the weighted sum of utility values of the outcomes times the respective probability of the outcomes (Debreu, G,1964).

Homo economicus- the assumption used by many economists that individuals are rational and always try to maximize their utility (www.investopedia.com)

Loss aversion - the tendency of losses, from a given reference point, to weigh more for people than gains of the same magnitude (Kahneman, D. and Tversky, A.,1979.)

Stop-loss order - an order to the broker from the holder of a contract to exit the position when the price of the contract meets a pre-specified level (Harvey, 2005)

Trailing stop-loss - a stop loss order where the pre-specified exit price is set as a percentage of the current market price and by that follows the increasing price of the position, but not downward. (www.interactivebrokers.com)

1. INTRODUCTION

The stock market has during recent years been characterized by a significant stock market turmoil where investors struggle to maintain their savings. During economic downturns it is not all about buying low and selling high, instead investors prioritize to minimize losses. One of the most commonly used portfolio management tool used by practitioners are the stop-loss rules. Moreover the rules are frequently recommended by specialists as a powerful tool to minimize losses and improve portfolio performance. Stop-loss rules are also a built-in feature in many trading softwares on the market. (Patrick L. Leoni 2009)

Despite the acceptance of stop-loss rules among a large group of practitioners and advisers, stop-loss rules is not a topic of consensus among academics. The debaters addressing the issue have been becoming ever more categorical in their preference for the buy-and-hold portfolio strategy or for more active strategies.

The strongest theoretical argument against stop-loss rules and for the buy-and-hold strategy is Efficient Market Hypothesis (EMH). According to EMH stock prices follow a random walk stating that it is impossible to be able to predict if selling a declining investment before the end of the holding period is a better choice then to wait until the end of the holding period as in the buy-and-hold strategy. By selling before the end of a holding period the investor protects him/herself from further losses, but also deprives him/herself the potential stock price improvement during the remaining time of the holding period.

Supporters of the EMH still claim that buy-and-hold is superior to active portfolio management strategies (Malkiel, Burton G. 2005). They dismiss active portfolio management strategies and as a result even stop-loss rules as pointless, inefficient and even wasteful. Instead they advise investors to stick to the buy-and-hold portfolio strategy.

Another argument for buy-and-hold is transaction costs, i.e. even if the market is not efficient, transaction costs make it suboptimal to trade more actively, trying to beat the market (Barber, B.M.,Odean, T., 2000) This argument is not relevant in this study, because we only utilize stop-loss rules and not a more active strategy, e.g. filter rules, so the transaction costs are the same as for the buy-and-hold.

The EMH is challenged by among others Behavioral Finance. A fact supported by empirical evidence behavioral finance claims that the market and market participants are more often irrational than they are rational. Investors are plagued by numerous behavioral biases especially in times of bad investor luck and the market can stay irrational for years. Individual, professional and institutional investors often use rules of thumb instead of solving complicated dynamic optimization problems when making their investment decisions. (Montier, J. 2004) An individual investor can feel forced to use stop loss policies, because others do that. Used by a larger number of investors, stop loss orders cause price cascades (Osler, 2002). Faced with this reality stop loss policies could give more value to investors compared to passively owning a portfolio of stocks.

In this thesis we approach the problem of stop-loss efficiency. We test whether stop loss rules give better returns and/or lower return variance using historical daily stock returns data on stocks included in the OMX Stockholm 30 index between January 1998 and April 2009. We apply two types of stop-loss strategies: traditional stop-loss rules (SL) and trailing stop-loss rules (TSL).

We find strong indications of the stop-loss portfolio strategies being able to outperform the buy-and-hold portfolio strategy at some stop-loss levels. The results lie in line with the previous research in the area (Kaminski and Lo, 2007). The results suggest that the Random Walk Hypothesis is not the best approximation of the stock returns processes. Better approximation seems to be autoregressive processes: a positive autoregressive process in the short term (3-12 months) and a negative autoregressive process in the longer term (3-5 years). This in turn, directly replicates the findings of the behavioral finance studies about stock returns exhibiting short term momentum (Jegadeesh, Titman, 1993,1999) and long term reversals (DeBondt, Thaler,1985; Lakonishok, Shleifer, Vishny,1994). Our results are rarely though statistically convincing, implying that further research is warranted.

The outline of this paper is as follows: The second chapter presents the relevant theories, different price movements and their implications for efficiency of stop-loss strategies compared to the buy-and-hold strategy. The third chapter contains a brief overview of previous research regarding efficiency of stop loss rules and gives the reader the relevant background information to the study. In the forth chapter, data and methodology used are presented and explained. The

fifth chapter covers the results of the study. In chapter six the results are analyzed. Finally we round up this study with conclusion and suggestions for further research in chapter seven.

2. THEORY

In this chapter we present the relevant theories and their implications on the efficiency of stop-loss rules.

2.1 Efficient Market Hypothesis

In 1970 Fama defined the "efficient market" as a market in which prices always "fully" reflect available information concerning a stock and that prices completely and swiftly adjust to new events. Stock information holds not only the currently known information but also future rational expectations of the market participants and the only reason for a price to change is unexpected news and events. New information comes to the market at random, thus the price changes happen randomly as well. The *frictionless* market also interprets the information in the same way. Most of the market participants are assumed to act rationally with the aim to maximize their own utility. The minor group of investors that act irrationally, act so uncorrelated to each other, thus cancelling each other's effect on the market prices.

Therefore according to Efficient Market Hypothesis (EMH) it is impossible to outperform the market portfolio consistently by actively managing a portfolio of assets since there are no undervalued or overvalued stocks. The only way to outperform the market portfolio is by accepting higher risk. The EMH is subdivided into three types of market efficiency, depending on the type of the information that the market prices are assumed to reflect.

The weak form of the EMH states that an investor can not consistently outperform the market portfolio by just looking at the historical time series data of the stock prices. This means that for example the technical analysis is inefficient.

The semi-strong version of the EMH states that investors can not consistently outperform the market portfolio by taking into account all publicly available information. This implies the inefficiency of the fundamental analysis.

The most stringent form of the EMH is the strong form of market efficiency. This form of market efficiency states that stock prices always fully reflect all relevant information, including insider information not yet available to the public.

Stop loss order is one of the simplest instruments from the technical analysis' toolkit, because a stop loss order is linked to the behavior of a stock's or other asset's chart, without considering whether the fundamentals for the firm in question have changed. Under the EMH it should not be possible to outperform the market portfolio, the BH strategy, using stop-loss rules or trailing stop-loss rules.

2.2 Behavioral Finance

Behavioral Finance offers an alternative view on the market processes by taking inspiration from cognitive psychology. The cornerstone of Behavioral Finance is Prospect Theory developed by psychologists Daniel Kahneman and Amos Tversky as a more realistic alternative to Expected Utility Theory and presented in their paper in 1979. Prospect Theory was later extended by Thaler and Johnson (1990) to explain risk perception and decision making in a dynamic context.

Prospect theory takes a descriptive approach to decision-making and explains why people are simultaneously attracted to both gamble and insurance. The theory explains it from psychological standpoint that is anchored in empirical results. According to Prospect Theory, individuals in the decision making focus not on the final wealth but on making gains and avoiding losses and experience losses being about twice as painful compared to the satisfaction that gains of the same size give. Individuals have a convex value function for losses and a concave value function for gains with diminishing marginal value further from the reference point. The reference point is usually the status quo. But that is not necessarily so, instead it can also be the price paid. Individuals demonstrate certainty effect, i.e. tendency to, in extreme, attach zero probability to low-probability, but still possible, outcomes and a probability of one to highly probable, but not certain, outcomes. People tend to be risk-averse when faced with a risky situation with positive expected return, preferring security and probably sticking to status quo. But when faced with a risky situation with expected loss, people are more willing to gamble for the opportunity to avoid that loss. This behavioral bias was named loss-aversion by Kahneman and Tversky (1979).

Behavioral finance challenges the assumptions underlying EMH. It does not agree that information is widely, cheaply and readily available to all investors. Instead, empirical evidence suggests that information dispersion occurs gradually, especially negative information. This in

turn leads to underreaction in the market causing price trends. (Hong, H.G.,Lim,T.; Stein, J.C.2000)

Behavioral Finance rejects EMH's assumption of individuals being Homo Economicus i.e. that investors are rational in their decision-making. Substantial psychological evidence shows that investors act irrationally in a systematic and predictable way. Therefore behavioral finance states that investors, especially individual investors, are incapable of solving dynamic optimization problems, in contrast to the assumption in the traditional financial theory. Heuristics, or rules of thumb, are used instead as means of coping with new information. Rules of thumb are used both because of the impossibility of the task of analyzing one by one the vast number of securities available to an investor today and because of psychological biases that investors systematically suffer from when making decisions. (Shleifer, A. (2000)

Another consequence of this twofold problem is the tendency of investors to trade in attention grabbing assets (Barber, B., Odean, T., 2005) and also to have trading styles, or defined areas of investing. The areas can be one type of stocks, as opposed to a different type (large versus small cap), or stocks as opposed to bonds, and so forth. Investors tend to switch to the styles that recently have performed well (Odean, T., Barber, B.,2000).

Empirical studies have shown that stocks exhibit short-term (3-12 months) momentum (Jegadeesh, Titman, 1993,1999) and longer-term (3-5 years) reversals (DeBondt, Thaler,1985; Lakonishok, Shleifer, Vishny,1994). The proposed explanation is style rotation. Market participants constantly switch from one style to another, from one type of stock to another, because a style that becomes too popular loses its profitability edge and falls into disfavor. Style rotation is, according to behavioral finance, a consequence of over- and under-reaction of the investors subject to behavioral biases (Montier, J., 2004). Swaminathan and Lee (2000) call the process "The Momentum Life Cycle". The momentum life cycle hypothesis predicts that investors initially under-react to fundamental news about a stock, if the news is in contrast to the type of information (positive/negative) from previous longer periods, but after a while the investor majority recognizes the shift and overreacts to the news. The mechanism leads to positive and negative momentum price movements for a given stock (Ibid).

A slightly different explanation to a part of the momentum life cycle hypothesis, namely the reversal part, is reversal fear, suggested and tested empirically by Wang (2008). Reversal fear

means that after a positive or negative trend, momentum, when the price of a stock has reached unusually high or low levels, investors become worried that the price level is not sustainable and fear that the price is about to reverse. Investors then start to change their positions to the opposite, causing the reversal (Wang, K. Q. 2008*).*

Investors are plagued by psychological biases. The most common of them are over-optimism and over-confidence, arising from the false sense of being in control of the situation, but also because of proximity to the project, i.e. commitment (Montier, J., 2004). Overconfidence in the investing field is common, especially for male investors (Barber, B. M., Odean, T. 2001) and is found to worsen a portfolio's performance, because overconfidence leads to excessive trading (Barber, B. M., Odean, T. 2000). Overconfidence can certainly be caused or boosted by recent successful investments and lead to bolder trading (Thaler, R., Johnson, E.J., 1990). This frequent trading seems to be somewhat skewed toward winning investments though, because when dealing with their losing investments investors tend to keep the losers longer than they should, showing the so called disposition effect (Odean, T., 1998).

When facing the market going against himself investors often act in one of the following ways. They can watch their investments decrease in value and first after extreme negative returns take a flight to safety by selling the risky investments and investing the proceeds in interest bearing assets (Agnew, J. 2003). Other investors tend to become ever more risk-seeking and trade ever more aggressively in the same direction as before, trying to recoup the losses. Oberoi (2004) predicts that these investors will not stop until they have run out of funds. This kind of behavior was also described by Thaler and Johnson (1990).

Further, irrational investors do not act randomly cancelling each other's effects on the market prices as claimed by EMH, but rather often in the same direction, causing large mispricing on the market. The mispricing is not taken out by arbitrageurs because of the uncertainty in the market and high transaction costs, so that in effect there is no risk free arbitrage. These market irrationalities, mispricing, can last for a long period of time and aggravate under the period (Montier, J., 2004). In fact, there are investors, like Soros, who are aware of mispricing on markets and often play in the direction of the mispricing and not against, thus aggravating the mispricing and giving hard time to arbitrageurs (Soros,G. 1994).

Behavioral Finance adherents consider that future prices are not entirely random, due to the phenomenon of reflexivity. Market participants have expectations about the future. The expectations influence how the future will be. Therefore it is not the rational market that through its rational expectations can correctly predict the future but it is the biased investors forming the future through their expectations (Ibid).

Behavioral biases combined with the empirical evidence of persistency of both positive and negative price trends, for up to 12 months (Jegadeesh & Titman 1993,1999), means an investor that get caught in a negative trend can suffer huge losses and stop loss rules could be a rational way to avoid the scenario.

Stop loss rules could also be an effective tool in risk management and mitigating agency problems. Analysts suffer from both agency problems and behavioral biases, which result in over-optimism (Montier, J. 2004). Traders employed by financial institutions can have a propensity to take on larger risks when trading for clients than with their own funds.

Stop-loss rules could be rational to use also from the risk perspective. When stock prices go down they become more volatile, i.e. more risky (Jones, C.P., Walker, M.D., Wilson, J.W., 2004). Empirical evidence shows also that stocks exhibit asymmetric correlations (Ang,A., Chen, J., 2002*).* Correlations between stocks and the aggregate market are found to increase substantially when markets are sinking than when they are rising meaning that portfolio risk increases and thus diversification effect decreases (Montier, J., 2004). Increased idiosyncratic volatility and stronger positive correlations between the stocks, i.e. higher risk, can make stop-loss rules attractive as means of controlling risk exposure. So there is potentially a gain to be made by reducing the risk of an investment and by that getting a higher risk-adjusted return, a thought also considered by Lei and Li (Lei,A. Y.C., ,Li, H., 2009).

Using stop-loss strategies investors can mitigate their own behavioral biases, and cope with the irrational market, so behavioral finance implicitly and explicitly suggests the use of stop-loss rules to be efficient.

2.3 Theory conclusion

As shown Efficient Market Hypothesis and Behavioral Finance give conflicting predictions of stop-loss rules efficiency. These theories imply different underlying price movement processes. Kaminsky and Lo (2007) concludes that the underlying price movement processes are directly determining the performance of stop-loss strategies. Therefore we look at random walk and non-random walk processes and their implications for stop-loss rules efficiency.

2.4 Random Walk

Random Walk became popular and widely accepted as the approximation of stock price movements in 1960's and 1970's. Random Walk Hypotheses address the question of predictability of asset price movements. According to Random Walk Theory the prices cannot be predicted because the current price has already incorporated all available information. Only new pieces of information, which come randomly, can cause a price change. Price movements are thus unpredictable. There are three forms of Random Walks with two underlying assumptions:

- Future prices are impossible to predict by using information about the past prices

- An asset price can rise or fall in the next period with equal probability.

2.5 Random Walk 1

The most stringent form, Random Walk 1 (RW1), can be expressed as follows

$P_t = \mu + P_{t-1} + \varepsilon_t$, $\varepsilon_t \sim IID\ (0;\sigma^2)$ (White noise)

,where P_t and P_{t-1} are asset prices at time t and $t-1$; μ – is the drift parameter, or the expected price change factor; ε_t – is an increment term which is assumed to be approximately Independently Identically Distributed with mean 0 and variance σ^2, $\sim IID\ (0;\sigma^2)$.

To avoid the case when a price of an asset is negative, i.e. violation of limited liability for asset holders, the expression is modified by taking natural logarithms of prices;

$\ln(P_t) = \mu + \ln(P_{t-1}) + \varepsilon_t$, $\varepsilon_t \sim IID$ and $N\ (0;\sigma^2)$

,where $ln(P_t)$ and $ln(P_{t-1})$ – are the natural logarithms of prices at time t and $(t-1)$; ε_t - is the increment term which is assumed to be approximately Independently Identically and *Normally* Distributed with mean 0 and variance σ^2, ~IID and N ($0;\sigma^2$). Campbell et al.(1997)

2.6   Random Walk 2

Random Walk theory of type 1 is not applicable to financial asset prices over a long period of time because of RW1's strong assumption that the increments are identically distributed. Daily stock returns are determined by among other things changes in technology, regulations, institutions, economy and society itself. These factors are constantly changing over time. A more realistic random walk hypothesis thus is the one that eases up the assumption that the increments are identically distributed, allowing by that for unconditional heteroskedasticity, ε_t ~INID. This form of Random Walk is called Random Walk 2, RW2. (Ibid.)

2.7   Random Walk 3

Random Walk 3, RW3, is the weakest form of Random Walk Theory and is obtained by dropping the assumption of independency between the increments. Increments are assumed to be dependent but uncorrelated, which can be expressed as follows: $Cov[\varepsilon_t \, \varepsilon_{t-k}] = 0$ for all $k \neq 0$, but $Cov \, [\varepsilon^2_t \, \varepsilon^2_{t-k}] \neq 0$ for some $k \neq 0$ (Ibid)

Random Walk Hypothesis, which is considered synonymous to EMH, states that price developments for risky assets like stocks are essentially unpredictable apart from the long-term generally upward trend, not least due to inflation. The logical conclusion of this statement is that a price dip might be followed by a price jump, therefore by activating a stop loss order a trader risks losing the chance of taking advantage of the jump. Previous price movement contain no information on the direction the price is going to follow.

In our study when a stop-loss order is triggered the stock position is closed and the proceeds are held in cash until the next holding period of three months. So if the stock has an expected return larger than zero, a stop-loss activation replaces that expected return with the certain return of zero for the rest of the holding period.

Therefore, the stop-loss strategies will always reduce the expected return on the underlying for the rest of the holding period as well. The SL will always reduce the expected return on the stock or portfolio for the entire holding period. The TSL at sufficiently tight stop-loss limits can be able to lock in some of the positive returns if the price first moves upward, therefore the TSL's effect on the expected return for a holding period is not clear cut.

2.8 Autoregressive Process

An autoregressive process (AR) is a stochastic process in which future values of a time series are dependent on past values through autocorrelation in the error term. The AR process of order q, AR(q), is defined as follows (Bowerman, B.L.,O´Connell, R.T.,(1993).

$$\varepsilon_t = \rho_1\varepsilon_{t-1} + \rho_2\varepsilon_{t-2} + \rho_3\varepsilon_{t-3} + \ldots + \rho_q\varepsilon_{t-q} + \upsilon_t$$

where ρ - is the correlation coefficient between error term at time t ,ε_t, and time $t-1$, $t-2$ and so on up to $t-q$. υ_t - is an error term (random shock) with zero mean and satisfying the assumptions of constant variance, independence and normality. An often observed AR process is the AR process of order one, AR(1) (Bowerman, B.L.,O´Connell, R.T.,Koehler, A.B.(2005).

If the error term in the random walk equation

$$\ln(P_t) = \mu + \ln(P_{t-1}) + \varepsilon_t$$

shows serial dependence on its past value

$$\varepsilon_t = \rho\varepsilon_{t-1} + \upsilon_t \text{ (eq.)}$$

, then covariance between the error terms is greater than zero, $Cov[\varepsilon_t, \varepsilon_{t-1}] > 0$, or, equivalently, the correlation is different from zero $\rho(\varepsilon_t, \varepsilon_{t-1}) \neq 0$. In that case the asset price at time t-1 influences the price of the asset at time t in a given, predictable direction.

The autocorrelated error terms can give one of two price movement patterns. There are essentially two types of autoregressive processes: mean-reverting and momentum, depending on whether the autocorrelation factor, ρ, is less or greater than zero.

2.9   Mean-reversion

If the error term in an estimated equation for price movement follows an AR(1) with a *negative* correlation factor, $\rho < 0$, then a positive error term at time t-1 will be followed by a negative one, and a negative error term with a positive one (Ibid). With $\rho = -1$ a positive/ negative shock at time t-1 is fully offset at time t and the price development thus is mean-reverting (Kaminski,K. and Lo,A.W, 2007).

If the returns on a given stock or portfolio are of mean-reverting character and the asset in question has a positive expected return, then traditional stop-loss strategies will always hurt the returns performance of the asset. This is because a traditional stop-loss order is activated after a certain negative cumulative return point is reached after which the negative return is realized. But because the returns on the asset are mean-reverting, the negative cumulative return indicates that the reversal in the returns' pattern is becoming more probable, but the stop-loss eliminates the possibility for the position value to recover.

In the case of the TSL, the performance can be improved, if the stop-loss is sufficiently tight and the asset first delivers a positive cumulative return and then locks in some of the profit the trend reverses.

2.10 Momentum

If instead the error term follows an AR(1) with a positive correlation factor, $\rho > 0$, then a positive/negative increment at time t-1 tends to cause a positive/negative error term at time t (Bowerman, B.L.,O´Connell, R.T.,Koehler, A.B.(2005). With the error term equal to one, $p = 1$, the error terms will accumulate and drive the price of the asset in either upward or downward trend, i.e. the price movement will demonstrate momentum (Kaminski,K., Lo,A.W.(2007).

Returns for a given asset that have positive autocorrelation have following implications for the stop-loss strategies.

The SL will most often improve the returns performance of the asset. When the price has been moving negatively, it strongly indicates that it will continue to go in the same direction in the future as well. In that situation, the SL will close the position at a relatively low loss, preventing the losses to further accumulate. If the price is moving upward, then the SL will be staying idle,

allowing the price to advance further. But it is possible that the position can be closed at the beginning of the holding period if the positive momentum starts with a temporary price dip crossing the stop-loss limit thus hurting the returns performance of the asset. If, on the other hand, the price first advances for some time, then the risk of undesired position closure becomes smaller because of the increased distance between the stop-loss limit price and the market price.

The TSL will display in general the same behavior as the SL strategy when it comes to positively autocorrelated returns. If the negative momentum starts with is temporary price jump, the TSL might even lock in some of the profit. During a positive momentum the TSL will allow the price to advance. But the risk of undesired position closure will be constant during the entire holding period, because of the fact that the distance between the stop-loss limit price and the market price is constant in the TSL strategy.

3. LITERATURE REVIEW

This chapter contains a brief overview of previous research regarding efficiency of stop loss rules and therefore relevant background information to the study.

Stop-loss strategy efficiency is not a general topic of academic finance literature, although there exist a few studies and articles that treat the question of comparing active portfolio managements such as stop-loss strategy to a more passive strategy of buy-and-hold. The debaters addressing the issue are becoming ever more categorical in their preferences for either of the ways of handling asset portfolios. And then there are researchers like Jorion (2003), who propose investors to follow the herd, sell if the market is selling to cut losses and buy or hold if the market is buying.

The buy-and-hold (BH) portfolio strategy became widely acknowledged after the publication of Fama (1970) where his study on the efficiency of the capital markets concludes that the BH strategy was superior to active portfolio management in terms of return, risk and transaction cost.

In a study from 2005 Malkiel conclude that The Efficient Market Hypothesis still is dominating. He also finds that active trading does not outperform the market by pointing out how few professional traders have outperformed passive trading strategies of buy-and-hold during the last decades.

Other studies conclude that active portfolio management is inferior to the buy-and-hold from the transaction costs argument, i.e. even if the market is not efficient, transaction costs make it suboptimal to trade more actively, to try and beat the market (Barber, B.M., Odean, T., 2000). The transaction cost argument is not relevant in this study, because we only utilize stop-loss rules and not a more active strategy, e.g. filter rules, so the transaction costs are the same as for the buy-and-hold.

Although the basis of the buy-and-hold strategy is literally to buy a security and hold it, investors need to decide when to sell, in other words they need to focus on find the best stopping time. The first one comes in to mind is that you ought to sell at the maximum price, but it is impossible to know in advance when the maximum is reached. In the working paper,

"*Thou Shalt Buy and Hold*" (2008) Shiryaev, A., Xu, Z. and Zhou, X. address the issue of when the best time to sell is using a "goodness index" approach. The goodness index is defined by the authors as the ratio between the excess return rate and the squared volatility rate to measure the quality of the stock (α). The goodness index shows that the best time to hold is when $\alpha \geq 0,5$ but when $\alpha < 0,5$ then sell right away or short sell. In contrast with the name of the article "*Thou Shalt Buy and Hold*" the notion of goodness index leads inevitably to active portfolio management if one follows returns and volatilities of stocks on a continues basis.

Another article challenging the buy-and-hold portfolio strategy is written by Ruggiero in 2009 called "*Buy and Hold, R.I.P.:1900-2007*" where he contests the findings of Fama and Malkiel claiming that most investors consider that the benchmarking Buy-and-Hold strategy has lost its dominating status and even that it is dead, because of the recent market downturns. Ruggiero further argues that the Buy-and-Hold strategy is useless by considering the fact that there are more daily downs then up moves and the market gain of the recent seven years has vanished in the market crash in 2008. Therefore he suggests active portfolio management to be preferred to traditional buy-and-hold strategy.

A number of studies have been done to find out whether stop loss rules are efficient compared to buy-and-hold. A good deal of these researches regarding the issue have compared the two approaches using simulated stock data.

Patrick L. Leoni in 2008 published the working paper "*Stop-loss Strategies and Derivatives Portfolios*" where he analyzed the efficiency of stop loss rules for reducing losses by conducting a research on the Monte Carlo simulated long-term behavior of a standard derivatives portfolio. The derivatives used were four types of options: Asian Call, European Call, Cash-or-Nothing and Lookback Call. Further, Leoni made the assumption that the underlying securities followed a Geometric Brownian motion (GBM). He used a six-year horizon where the stop-loss strategy was compared to the laissez-faire strategy (no trade interruption in the pre-determined time horizon). The research showed that early activation of the stop-loss strategy was due to correlations in the underlying securities and that stop-loss strategy was not effective in reducing downside risk. The derivative portfolios used had high recovery potential and since stop-loss rules ignored this aspect, the laissez-faire strategy was better suited for loss reduction.

In a similar article on the same subject from 2009 Patrick L. Leoni reaches the conclusion that the higher the mean-reversion intensity of the underlying securities, the lower the probability of reaching the pre-determined loss level. The importance of Leoni's research is in the fact that he thoroughly investigates the problem of stop-loss and risk reduction from different angles. The results make it clear for us under which circumstances stop-loss rules are efficient. The limitation in his works for our purposes is that the studies are conducted on a simulated data.

An even more comprehensive study of the issue of stop-loss rules efficiency and its relation to the underlying price movement processes is a study by Kaminski and Lo (2007). They address the question "*When do Stop-Loss Rules Stop Losses?*". Kaminsky and Lo investigate empirically the efficiency of traditional stop-loss rules using US stock returns between 1950 and 2004. In their paper they present a framework for evaluating the traditional stop-loss rule using filter rules. The study investigates the question of stop-loss efficiency both analytically and empirically. Their analytical part of the study shows that the price movement processes in the underlying securities are directly affecting the efficiency of the stop-loss rules. Under a Random Walk Hypothesis the stop-loss rules show a negative expected return but for non-random walk price movement processes the stop-loss rule can stop losses and if there exists momentum or positive serial correlation in the underlying then the stop-loss rules can be value adding to the buy-and-hold strategy. The empirical part of the study shows that some stop-loss strategies improve the portfolio performance of the buy-and-hold strategy.

The limitation of their study lies in the fact that they use monthly returns as input for their study. Monthly returns data has lower volatility than the data of higher frequency, leading to inaccurate estimation of the effect of stop-loss rules efficiency.

3.1 Problem Discussion

The seemingly peripheral question of whether stop-loss rules are efficient potentially has far reaching implications for the market, individual investors and the financial theory. Expectations on stop-loss rules efficiency reveal which theoretical ground one has chosen, Efficient Market Theory or behavioral finance (and/or Technical Analysis). Consistent and statistically significant empirical evidence would show which of these theories mirrors reality more accurately. Whether or not stop loss rules are efficient is in turn determined by the price movement processes of the stocks and the two theories imply fundamentally different processes.

Previous studies, although mostly conducted on simulated data, give hints on when stop loss rules can add value to the return of the buy-and-hold strategy. Price movements that follow random walk or mean-reversion suggest that stop-loss rules are inefficient. But if the price movements follow trends, i.e. have momentum, then stop loss rules can potentially save the investor from afflicting oneself large losses. Efficient Market Hypothesis claims that price movements follow a random walk, whereas Behavioral Finance is of the opinion that market price move in mean-reverting trends. The matter is further complicated by the possibility of coexistence of a trend function and a random walk function simultaneously in the price function of a stock (Fliess, M., Join, C., 2009). Because of there practical and theoretical implications of stop-loss rules efficiency we are eager to make this study and find out whether stop-loss rules outperform the traditional buy-and-hold by increasing expected return and/or minimizing volatility.

3.2   Purpose of the thesis

The purpose of this thesis is to test the performance of stop-loss strategies compared to the classic buy-and-hold strategy. We test two types of stop-loss strategies, a traditional stop-loss and a trailing stop-loss, on common stocks listed on the Nasdaq OMX Stockholm 30 (OMXS 30) during the period of 1998 to 2009 divided into holding periods of three months.

4. DATA AND METHODOLOGY

4.1 Data

The historical time series data used in the study is downloaded from Thomson Datastream. The data consists of daily closing price from stocks that constitute the OMX Stockholm 30 index (OMXS) during the study period of 11 years, 1998-2009. The list over the companies included in the index during the study period is courtesy of NASDAQ OMX.

OMXS 30 is a Swedish index of the 30 companies with the largest market capitalization and should therefore be an acceptable representation of the Swedish stock market. The OMXS index is reshuffled and rebalanced every six months to properly reflect changes in the market capitalization of companies. To ensure adequacy of the stop-loss strategy, liquidity of the underlying asset is of great importance to be able to sell at the right moments. Companies included in the OMXS fulfill the requirement of liquidity needed for the purpose of the study. The total number of stocks that are included in the entire study period is 54. Data for some of the stocks in the earlier part of the study period was of a poor quality, so because of that there are not always 30 stocks include in each holding period and the total number is only 54 stocks (see appendix S). The research period is approximately 11 years, ranging from January 1998 to April 2009. Research period includes 45 quarters of 3 months where each quarter represents one holding period.

The risk-free interest rate is approximated using the average interest rate for a 90-days Swedish T-bill for a given holding period.

4.2 Methodology

In this study Efficient Market Hypothesis is used as a rule of thumb, so we enter the market regardless of the market conditions. But being aware of the vast empirical results indicating the theory does not always hold, we are not willing to hold on to the Buy-and-Hold unconditionally, therefore we impose the stop-loss orders on our positions. Below the study is explained in more detail.

The empirical study is conducted by taking a long position in the stocks with a pre-defined stop-loss level and the same position without stop-loss, i.e. buy-and-hold. The position is taken at the first trading day of a quarter, starting from January 1998. At the end of a quarter the proceeds are reinvested.

The two types of stop-loss orders, traditional and trailing, and each stop-loss level are applied to the data as well as the buy-and-hold strategy. When a stop-loss limit is reached, the stock is sold and the proceeds are held in cash until the next holding period. The tested stop loss levels range from 5 to 55% decline in the initial price.

Traditional stop-loss was calculated by using the logical function IF in excel. Formula 1 is an example of how a traditional stop-loss limit with 5% loss limit is calculated in Excel. This was then repeated for each holding period for every company's stock data.

=IF($price_{t+1+k}$ < ($price_t$*0,95));if true "SELL";if false "HOLD") (Formula 1)

where $price_t$ is the price at the beginning of the holding period.

Trailing stop-loss was also calculated using the logical function IF and MAX in excel as follows in formula two and three. The following 2 formulas are examples of how a trailing stop-loss level of 5% is calculated.

=MAX($price_t$;$price_{t-1}$;$price_{t-k}$) (Formula 2)

=IF($price_t$<(0,95*MAX($price_t$;$price_{t-1}$;$price_{t-k}$));"SELL";"HOLD") (Formula 3)

Formula two determines the highest price so far in a holding period. It compares todays, yesterdays or all previous prices of the holding period. Then 95% of the max price is compared to today's price in formula 3 to see if the loss limit is reached and if it is time to close the position.

At the end of each quarter the returns are calculated for each stock. The quarterly returns on the stocks are then aggregated in an equally-weighted index portfolio. Returns on the portfolios are calculated for each three months holding period. The same composition of the portfolio lasts only for two holding periods, due to the fact that OMX adjusts the composition of the OMXS30 once half a year and we have quarterly holding periods.

In the next step the excess portfolio returns for each quarter are calculated. The results are examined for each stock separately, but also aggregated in the equally-weighted portfolio. We focus on the total return of a given strategy, mean of the quarter returns and the variance of the returns.

The results are then tested for statistical significance by conducting hypothesis tests in Excel with t-test for the returns and F-test for the variances. We test whether the average return and variance of the buy-and-hold strategy is significantly larger or smaller from average return and variance of the stop-loss strategies for each stock and the portfolio.

4.3 Assumptions

We make an assumption that the stop-loss orders are exercised only at the end of the day, allowing the stock price to freely fluctuate during the day.

Another assumption made is that when a stop-loss order is to be executed due to the adverse price development, the order becomes a market order and is executed at the market price at that moment. We allow for the possibility of slippage so the market price is assumed to be the closing day price which most certainly will be below the stop loss order price.

Next assumption is that positions are sufficiently small and do not affect the market price.

We also assume that the market is generally efficient, therefore it is of a minor importance when and which stock is bought.

Finally we do not consider transaction costs since utilizing stop-loss rules in our case leads to the same number of transactions, hence the transaction costs are the same for stop-loss and the buy-and-hold strategy.

4.4 Data and Methodology Criticism

We view the data and methodology chosen for this study with criticism, since the reliability and validity of our empirical study depend profoundly on these two components. We believe that the data, the methods and the tools fit the purpose of the study. The chose of appropriate data and methodology allows this study to comply with the requirements for reliability and validity.

The historical data chosen for this study are the stocks with the largest market capitalization, the OMXS 30 stocks. The data is a good approximation of the Swedish stock market. The OMXS stocks are the most traded stocks on the Swedish stock market and therefore should be the most efficiently priced stocks on the NASDAQ-OMX. However, the otherwise strong validity of this study is somewhat reduced because of the missing data for a few stocks in the earlier fraction of the research period. Some stocks are only listed on the OMXS for half a year, therefore the statistical significance of the results is reduced.

Microsoft Excel is used as the tool of chose in this study. Much of the data input and processing is administered manually. We experience this as a constant threat to the reliability of the study, but the awareness of this also keeps us alert throughout the research. The results are meticulously verified for absence of calculation and methodological errors on every stage of this study.

For this study we apply a parsimonious methodology that is tested and widely used in the previous studies concerning the topic of this study. We focus solely on stop-loss rules efficiency. By avoiding more complex trading strategies that are designed to time the market in both opening and closing a trading position and by not considering the possibility of investing in a risk free asset we improve the reliability and validity of our study.

5. RESULTS

In this section the statistical results from the Buy-and-Hold (BH) strategy versus Traditional Stop-Loss (SL) and Trailing Stop-Loss (TSL) models are presented based on the model previously presented. The results for the equally-weighted portfolio and individual stocks are presented. The cumulative returns and average returns for each stock and all three trading strategies are calculated in the given time period, January 1998 to March 2009. Also the calculated corresponding excess returns are presented. The results presented are based on quarterly results and if stop-loss strategies outperform buy and hold the results will be indicated with bold font in the tables.

5.1 Equally weighted portfolio results

In this part of the chapter the results from the equally weighted portfolio are presented. The cumulative returns and average returns for all three trading strategies are calculated for the study's time period, January 1998 to March 2009. Also the corresponding excess returns are calculated. The results presented are based on quarterly results and if stop-loss strategies outperform buy and hold the results will be indicated with bold font in the tables.

For the BH strategy both the average and cumulative returns were positive, as shown in table 1. Although the excess returns are disappointing with a substantially negative cumulative excess return. These results were although surpassed by the stop-loss strategies with high margins.

As indicated in table 1, the highest average quarterly return (1,7%) was obtained by trailing stop-loss at the 20% loss level limit. The highest cumulative return (74%) is received at the 15% trailing stop-loss limit. The only stop-loss level that delivers a lower result than buy-and-hold with actually a negative average (-0,1%) and cumulative (-8,1%) result is from the trailing stop-loss strategy with 5% loss limit.

TS-L	B-H	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%
Cumulative:	0,0129	-0,0814	**0,3175**	**0,7391**	**0,6360**	**0,3802**	**0,2656**	**0,2657**	**0,1760**	**0,1009**	**0,0766**	**0,0571**
Mean:	0,0080	-0,0012	**0,0084**	**0,0167**	**0,0171**	**0,0137**	**0,0124**	**0,0125**	**0,0111**	**0,0098**	**0,0093**	**0,0089**
Variance:	0,0154	**0,0015**	**0,0048**	**0,0090**	**0,0126**	**0,0134**	**0,0145**	**0,0147**	**0,0150**	**0,0153**	**0,0152**	**0,0153**

Table 1- Equally weighted portfolio TSL results.

The superior results from using trailing stop-loss strategy, compared to the BH strategy, are tested with t-test and are statistically significant at, the 90% or higher confidence level for all stop-loss limits from 15% to 55%. Calculating the cumulative excess returns for the strategies does not improve the statistical significance of the results.

TSL strategy decreases the variance of the equally weighted portfolio compared to the BH strategy at all stop-loss levels. The lowest variance (0,15%), ten times lower than for the BH strategy (1,5%), is obtained from the stop-loss limit of 5%. The results of 5% to 10% stop loss levels are highly significant statistically (over 99% confidence level), according to F-test results in Excel. The 15% stop loss limit is statistically significant at 90% confidence level. These results hold both for cumulative portfolio returns and cumulative excess portfolio returns. Calculating the Sharpe ratio, which is the risk adjusted excess return on the portfolio, the 10% stop loss limit shows highest result of 0,093. In figure 1 the cumulative returns are illustrated where the 20% stop-loss limit is showing higher mean then BH and other stop-loss limits. Although the 15% stop-loss limit ends with higher return for the first quarter in 2009.

Figure 1 - Trailing Stop-loss, equally-weighted portfolio performance
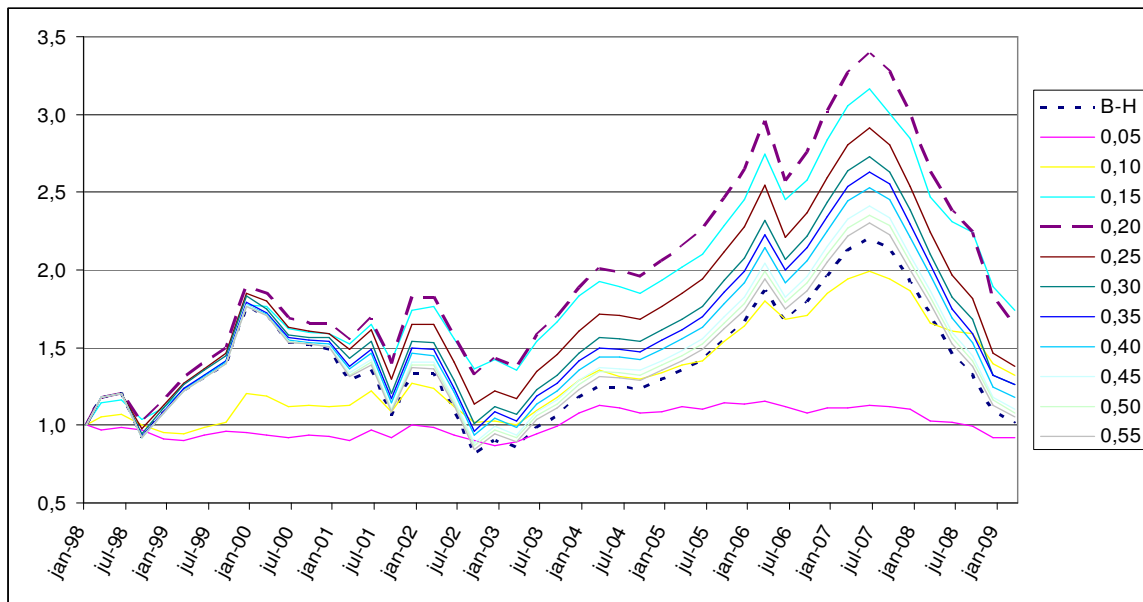
All traditional stop-loss levels from 5%-55% renders better returns than the BH strategy, see table 2. The highest average quarterly return (1,5%) from traditional stop-loss strategy is obtained at 15% stop loss level. The cumulative results are at its highest (57%) at the 10% stop-loss level closely followed by the15% stop-loss level (53%). The differences in average returns

are only partly statistically significant with at least 90% confidence level though, from the 20% to 40% and at the 50% stop-loss limits.

TS-L	B-H	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%
Cumulative:	0,0129	0,3969	0,5710	0,5331	0,3613	0,2162	0,1360	0,1068	0,0940	0,0463	0,0469	0,0355
Mean:	0,0080	0,0095	0,0138	0,0147	0,0130	0,0111	0,0101	0,0097	0,0095	0,0086	0,0087	0,0084
Variance:	0,0154	0,0044	0,0078	0,0107	0,0126	0,0136	0,0146	0,0148	0,0150	0,0152	0,0152	0,0153

Table 2 - Equally weighted portfolio, SL results.

In figure 2 the cumulative returns for traditional stop-loss strategy are illustrated where the 15% stop-loss limit is showing higher mean then BH and other stop-loss limits. Although 10% stop-loss limit ends with higher return for the first quarter in 2009.

Figure 2 - Traditional Stop-loss, equally-weighted portfolio performance
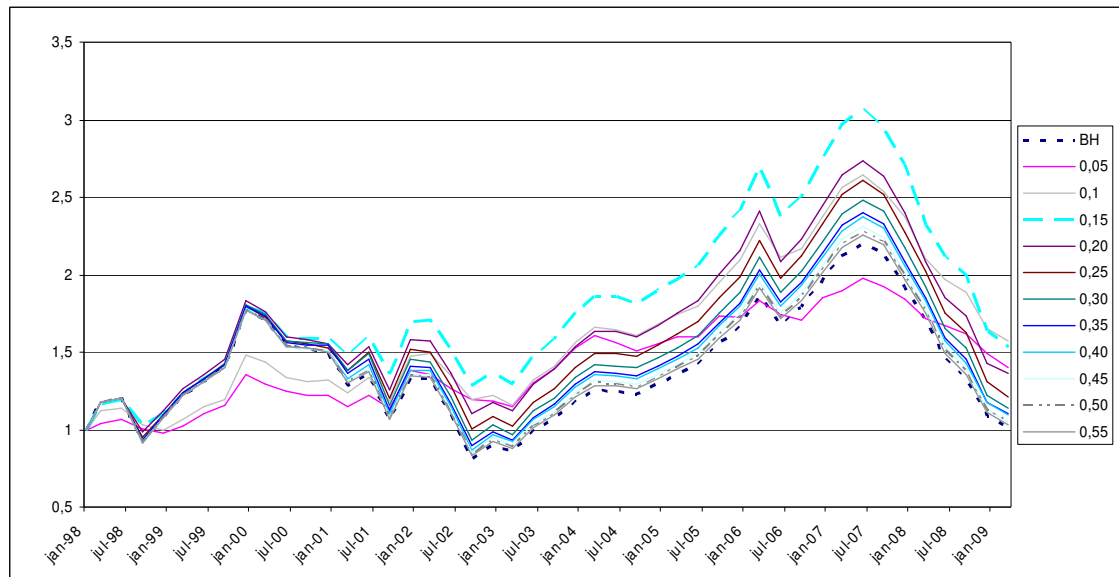
Calculating the cumulative excess returns for the strategies do not improve the statistical significance of the results. SL strategy shows lower variance at all stop-loss levels compared to the BH where the largest affect is obtained with the lowest stop-loss level of 5%. The results are statistically significant only for the 5% stop-loss level (99% confidence level) and for the 10% stop loss level (95% confidence level). These results hold for excess returns as well. Calculating the Sharpe ratio, the 10% stop loss limit shows the highest result of 0,067.

5.2 Performance of the stop-loss strategies during the worst and the best quarters

To better highlight the performance of stop-loss strategies the seven worst and the seven best quarters of the BH strategy are presented in separate tables below.

In table 3 the seven worst average quarterly returns are shown and the SL is compared with the BH. The traditional stop-loss strategy performs adequately reducing the losses during the worst quarters. The lower the stop-loss limit the more effective is the loss reduction. At larger stop-loss levels there were a few quarters where the SL produced larger losses than the BH but the differences are modest.

Worst Qs

Date	0 B-H	0,05 S-L	0,10 S-L	0,15 S-L	0,20 S-L	0,25 S-L	0,30 S-L	0,35 S-L	0,40 S-L	0,45 S-L	0,50 S-L	0,55 S-L
1998-09-30	-0,2385	-0,0571	-0,1004	-0,1423	-0,1847	-0,2090	-0,2219	-0,2278	-0,2358	-0,2368	-0,2385	-0,2385
2001-03-30	-0,1350	-0,0539	-0,0647	-0,0756	-0,0824	-0,0938	-0,1076	-0,1131	-0,1206	-0,1302	-0,1325	-0,1352
2001-09-28	-0,2201	-0,0673	-0,1178	-0,1532	-0,1823	-0,1935	-0,2202	-0,2292	-0,2222	-0,2236	-0,2257	-0,2229
2002-06-28	-0,1765	-0,0648	-0,0949	-0,1180	-0,1363	-0,1480	-0,1581	-0,1670	-0,1686	-0,1737	-0,1738	-0,1755
2002-09-30	-0,2589	-0,0615	-0,1167	-0,1458	-0,1865	-0,2134	-0,2286	-0,2316	-0,2411	-0,2405	-0,2447	-0,2488
2008-06-30	-0,1458	-0,0284	-0,0643	-0,0894	-0,1143	-0,1311	-0,1369	-0,1406	-0,1426	-0,1436	-0,1451	-0,1458
2008-12-31	-0,1792	-0,0786	-0,1283	-0,1785	-0,1766	-0,1979	-0,2010	-0,1917	-0,1800	-0,1903	-0,1798	-0,1755

Table 3 - Worst Quarters, BH vs. SL

The corresponding results shown in table 4 are even better for the trailing stop-loss strategy compared to the BH. The loss reduction effect of this strategy is more prominent and consistent than that of the traditional stop-loss strategy. The cases of underperforming the BH are more seldom and the differences in those cases are smaller.

Worst Qs

Date	0 B-H	0,05 TS-L	0,10 TS-L	0,15 T-SL	0,20 TS-L	0,25 TS-L	0,30 TS-L	0,35 TS-L	0,40 TS-L	0,45 TS-L	0,50 TS-L	0,55 TS-L
1998-09-30	-0,2385	-0,0116	-0,0616	-0,1098	-0,1554	-0,1894	-0,2125	-0,2271	-0,2354	-0,2374	-0,2385	-0,2385
2001-03-30	-0,1350	-0,0209	0,0051	-0,0422	-0,0637	-0,0669	-0,0832	-0,1046	-0,1070	-0,1169	-0,1227	-0,1279
2001-09-28	-0,2201	-0,0550	-0,1045	-0,1417	-0,1743	-0,1974	-0,2156	-0,2159	-0,2185	-0,2212	-0,2195	-0,2195
2002-06-28	-0,1765	-0,0511	-0,0960	-0,1150	-0,1390	-0,1460	-0,1600	-0,1666	-0,1670	-0,1722	-0,1742	-0,1755
2002-09-30	-0,2589	-0,0342	-0,0864	-0,1264	-0,1621	-0,1916	-0,2140	-0,2206	-0,2285	-0,2373	-0,2416	-0,2490
2008-06-30	-0,1458	-0,0064	-0,0324	-0,0663	-0,0994	-0,1226	-0,1329	-0,1407	-0,1414	-0,1436	-0,1451	-0,1458
2008-12-31	-0,1792	-0,0726	-0,1205	-0,1564	-0,1829	-0,1957	-0,2119	-0,1713	-0,1848	-0,1857	-0,1817	-0,1777

Table 4 - Worst Quarters, BH vs. TSL

The next two tables present the performance of the stop-loss strategies during the quarters with the highest return for the BH. As can be seen in table 5 the BH strategy shows higher average returns than the traditional stop-loss strategy. The BH strategy performs at least equally well as

the stop-loss strategy and consistently outperforms the traditional SL strategy at smaller stop-loss levels. At lower stop-loss levels the underperformance of the traditional stop-loss strategy is striking for some of the stocks.

Best Q

Date	0 B-H	0,05 S-L	0,10 S-L	0,15 S-L	0,20 S-L	0,25 S-L	0,30 S-L	0,35 S-L	0,40 S-L	0,45 S-L	0,50 S-L	0,55 S-L
1998-03-31	0,1752	0,0362	0,1220	0,1651	0,1752	0,1752	0,1752	0,1752	0,1752	0,1752	0,1752	0,1752
1998-12-31	0,1738	-0,0259	-0,0355	0,0719	0,1384	0,1510	0,1718	0,1738	0,1738	0,1738	0,1738	0,1738
1999-03-31	0,1319	0,0486	0,0785	0,1200	0,1311	0,1287	0,1319	0,1319	0,1319	0,1319	0,1319	0,1319
1999-12-31	0,2648	0,1716	0,2371	0,2656	0,2634	0,2648	0,2648	0,2648	0,2648	0,2648	0,2648	0,2648
2001-12-31	0,2558	0,2154	0,2464	0,2502	0,2558	0,2558	0,2558	0,2558	0,2558	0,2558	0,2558	0,2558
2003-06-30	0,1538	0,1333	0,1371	0,1373	0,1538	0,1538	0,1538	0,1538	0,1538	0,1538	0,1538	0,1538
2006-03-31	0,1172	0,0631	0,1144	0,1172	0,1172	0,1172	0,1172	0,1172	0,1172	0,1172	0,1172	0,1172

Table 5 - Best Quarters, BH vs. SL

The performance of the trailing stop-loss strategy during the best quarters (see table 6) is less divergent from the BH at larger stop-loss limits, however at lower stop-loss limits the results are pitiful. At small stop-loss limits the trailing stop-loss strategy totally misses the run ups in the market and even delivers losses on several occasions. At larger stop-loss levels the stop-loss strategy catches up with the BH and even manages to outperform during the last quarter of 2001.

Best Q

Date	0 B-H	0,05 TS-L	0,10 TS-L	0,15 T-SL	0,20 TS-L	0,25 TS-L	0,30 TS-L	0,35 TS-L	0,40 TS-L	0,45 TS-L	0,50 TS-L	0,55 TS-L
1998-03-31	0,1752	-0,0279	0,0491	0,1447	0,1752	0,1752	0,1752	0,1752	0,1752	0,1752	0,1752	0,1752
1998-12-31	0,1738	-0,0675	-0,0516	0,0784	0,1410	0,1561	0,1735	0,1718	0,1738	0,1738	0,1738	0,1738
1999-03-31	0,1319	-0,0076	-0,0032	0,1053	0,1196	0,1299	0,1319	0,1319	0,1319	0,1319	0,1319	0,1319
1999-12-31	0,2648	-0,0069	0,1857	0,2584	0,2639	0,2648	0,2648	0,2648	0,2648	0,2648	0,2648	0,2648
2001-12-31	0,2558	0,0881	0,1624	0,2274	0,3051	0,2736	0,2766	0,2779	0,2779	0,2740	0,2693	0,2607
2003-06-30	0,1538	0,0611	0,0909	0,1363	0,1512	0,1538	0,1538	0,1538	0,1538	0,1538	0,1538	0,1538
2006-03-31	0,1172	0,0123	0,1001	0,1163	0,1172	0,1172	0,1172	0,1172	0,1172	0,1172	0,1172	0,1172

Table 6 - Best Quarters, BH vs. TS-L

5.3 Individual stock results

In this part of the chapter the individual stock results are presented briefly. The detailed results are gathered in the appendices.

5.3.1 The TSL strategy stock results

For the study period of 11 years the TSL strategy shows encouraging results at several stop-loss levels. The TSL strategy with 15% loss limit shows better average return than the BH in 37 out

of 54 stocks, or 69% (see appendix A). Although the results often either lack statistical significance or have relatively weak statistical significance (see appendix B). Looking at the excess returns (appendix C) it can be seen that the 15% and 20% stop-loss limit give the highest frequency (61%) of positive average excess returns, whereas the BH gives 56%.

In terms of the compound returns, the TSL performs better than the BH at the stop-loss limits of 5% to 25%. The best result is rendered at the stop-loss limit of 15% where 40 out the 54 stocks have a higher compound return than the corresponding BH position (see Appendix C). The TSL performs in most of the cases better than the BH even in terms of compound excess returns. At the 15% stop-loss level the TSL gives the best result with 46,3% of times surpassing the compound risk free return, compared to the 33,3% of the BH (see appendix E).

In terms of volatility reduction the TSL is very effective, especially at the lower stop-loss levels. The variances are dramatically reduced in many cases. The highest frequency of variance reduction is obtained at 5% and 10% stop-loss limit where 52 out of 54, or 96%, stocks exhibit up to 30 times lower variance than the BH (see appendix F). The results are highly statistically significant, but only at the lowest stop-loss levels (see appendix G).

The risk adjusted average returns on the stocks are aggregated in the appendix H. According to the table the TSL strategy in average performs better than the BH for 63% of the stocks at the 15% stop-loss level. With the same percentage the BH wins over the TSL at the stop-loss limit of 5%. But the results cannot be read straight away, because of the presence of negative average returns for some stocks. If we increase both the returns and the variances by 0,5 the picture is totally different (See appendix I). The TSL performs better than the BH in the stop-loss limit interval 5% to 20%.The best result is achieved at the 15% stop-loss, where in about 76% of the cases the TSL delivers better than the BH results.

5.3.2   The SL strategy stock results

For the study period of 11 years the SL strategy shows mixed results. The SL shows better mean return in the range of 10 to 20 % stop-loss limits compared to the BH. The best result is obtained at 15% stop-loss where for 31 out of 54 stocks, or 57,4% the SL did better (see Appendix J). But the statistical significance of the results is not very impressive, with either lacking or showing only weak statistical significance (see appendix K). The mean excess

returns are slightly better for the SL in the range of 10 to 20% stop-loss limit. The best result is received at the 10% stop-loss, where for 32 out of 54 stocks the stop-loss did better than the BH, but otherwise the BH performs better in leading to positive excess returns (see appendix M).

In terms of compound returns, the SL performs better than the BH at the stop-loss limits of 5 to 20%. The best result is observed at the stop-loss limit of 10% where 34 out the 54 stocks have a higher compound return than the corresponding BH position (see appendix L). The SL performs at most of the stop-loss levels equally good/bad as the BH, but significantly exceeds the BH at the 15 % stop-loss with 22 out 54 stocks delivering a positive result, compared to the BH's record of 18 out of 54 (see appendix N).

In terms of volatility reduction the SL is generally very effective. Only at the levels of 30 and 35% stop-loss limits does the BH show slightly better track record of the volatility reduction frequency. The SL is especially effective at returns variance reduction at the lower stop-loss levels. The highest frequency of variance reduction is obtained at 5% stop-loss level, where the frequency goes up to 94,4% of the stocks (see appendix O). Also the magnitude of the risk reduction is often very large at the lowest levels, with the effect diminishing at wider limits. The results are highly statistically significant although only at the lowest stop-loss levels (see appendix P).

The risk adjusted average returns on the stocks are presented in the appendix Q. According to the table in the appendix the results are highly inconclusive. The BH strategy shows slightly better, than the SL, frequency higher risk-adjusted returns at the 5%, 25% and 30% stop-loss levels, whereas the SL performs slightly better compared to the BH in the small window of 10% to 15% stop-loss levels. But the results should be interpreted with caution, because of the presence of negative average returns for some stocks. If we increase both the returns and the variances by 0,5 the picture is totally different (See appendix R). The SL performs better than the BH in the stop-loss limit interval 5% to 20%. The best result is achieved at the range of 5 to 10% stop-loss limits, where the SL surpasses the BH results in about 70,3% of the cases.

6. ANALYSIS

The aim of this study is to find out whether it is possible to outperform the buy-and-hold strategy using stop-loss rules. The study is conducted on daily stock returns data from constituents of the Swedish OMXS 30 index for the time period from 1998 to 2009. In the previous chapter the results from our study were presented. In this chapter we analyze those results.

We start by looking at how the equally-weighted portfolio performance during the study period. Figure 1 and 2 clearly support the findings of Jegadeesh and Titman (1993;1999) that stock returns show momentum in a short term period of three to twelve months and the findings of DeBondt and Thaler (1985) and Lakonishok, Shleifer and Vishny (1994) that stock returns exhibit mean-reversion in a longer time period of three to five years. The graph for the BH in figure 1 and figure 2 start from one and reverses to about that value twice during the 11 year period. In between, in each of the two mean-reversion cycles, the data has two distinct trends, a positive and a negative momentum. This means that the stock returns in general are positively autocorrelated during the three months holding periods. The conclusion is strongly supported by the results for the TSL in the same figure 1 and the results for the SL in Figure 2. As we can see almost all the TSL stop-loss limits performs better than the BH. Only the tightest stop-loss limits (5% and 10% stop-loss levels) underperformed the BH strategy. The performances of the larger stop-loss limits, those from 15% - 55% stop-loss limits, are healthier than that of the BH strategy.

The stop-loss strategies are supposed to be efficient in downward trends in the stock market since the purpose of stop-loss strategies, as to be found in its name, is to stop losses before they accumulate beyond a given level. Ideally, we would want the stop-loss orders to trigger a position closure in a negative momentum, but at the same time allow the position to follow a positive momentum. As can be seen in tables 3 to 6 of the average quarterly returns for the best and worst quarters the two stop-loss policies perform in the desired fashion, but not close enough to the ideal. The stop-loss strategies clearly call for a trade-off between loss-reduction and profit maximization. In other words, if an investor chooses a too tight stop-loss limit, then he/she gets an effective loss reduction, but also misses much of the upward movements of the stock returns. The results from the tables 3 to 6 are intuitively understandable and expected.

A stop-loss order reacts to an adverse cumulative returns decrease and is not able to distinguish between a relatively temporary decrease in returns in a generally upward trend or a more fundamental decrease characteristic to the general returns trend of a stock or portfolio. The trade-off seems to be plausible at around the 20% stop-loss limit for both the TSL and the SL where the average quarterly returns for the stop-loss strategies are significantly better than for the corresponding BH, results in the tables 3 and 4. At the same time the average returns around the stop-loss level are not significantly lower than the corresponding results for the BH in tables 5 and 6.

Another portfolio performance aspect of interest is the risk of the portfolio, which in our study is approximated by variance. The stop-loss strategies dramatically reduce the portfolio variance at smaller stop-loss limits, which is an intuitive result for stop-loss strategies applied on a portfolio generally exhibiting a positive or a negative trend. In a momentum market environment stop-loss strategies effectively limit the returns volatility. This result is clearly observable in the graph 1 for the TSL strategy, where the stop-loss limit of 5% drastically reduces the volatility of a portfolio, compared to the BH portfolio. But because of the lower and even negative expected return, the volatility reduction is not an advantage at the 5 % stop-loss level. The volatility reduction effect is highly significant statistically at the low stop-loss limits, but weakens steadily and swiftly with wider stop-loss limits, where the volatilities of the stop-loss portfolios converge with the volatility of the BH. This is not surprising because allowing the cumulative return decrease by a larger portion a stop-loss portfolio's price movement pattern moves toward that of the BH portfolio's. Considering the risk adjusted returns it seems thus that the stop-loss strategies' results first-order stochastically dominate the BH strategy results for most of the 11 year period for most of the stop-lost limits. This is illustrated in figure 1 and 2.

Comparing the TSL with the SL reveal significant differences as well. The cumulative return of the TSL is much larger than that of the SL, which is expected in a market where returns exhibit trends and reversals. The TSL is a stop-loss function that in a positive trend contains a profit locking feature. The TSL allows loss of a given portion of the value of the contract calculated on the maximum of the previous or the market price, depending on which is higher. So if a price increases before reversing and leading to loss accumulation, the TSL can lock in some of the profit or make the loss lower, compared to the SL. The SL does not adjust itself to the positive

change in the accumulated returns and allows them to disappear during a reversal before stopping out the position. On the other hand, stop-loss limits under the SL strategy de facto become wider when the value of the position is advancing. Thus the SL becomes ever more "tolerant" to occasional adverse price movements in an otherwise positive price trend, compared to the TSL. These dissimilarities in traits are clearly visible in the different shapes of the 5% stop-loss limit graph in figure 1 and 2.

The equally-weighted portfolio results are of course the individual stock results presented in an aggregated form. The individual stock results for the TSL and the SL display the same patterns as their respective portfolio. The stop-loss strategies show better performance than the BH strategy for the majority of the stocks during the period of 11 years. This result indicates that random walk is not the best approximation for the stock returns processes, but rather the positive autoregressive process, momentum.

The time period of the study contains two bull markets and two bear markets, where at least the first bull-bear market pair, the IT-bubble, has the core features of the momentum life cycle (see part Behavioral Finance).

The stop-loss strategies perform, as designed, best in terms of returns against the worst loser-stocks at the stop-loss levels of 5% to 35% compared to the BH. But the results are rarely statistically significant. This fact can have two possible explanations. The first one is that some stocks that are listed on OMXS 30 are only listed for a relatively short period of time, sometimes for only half a year. Because of that the number of observations for the stock are too small, which in turn makes the statistical inference imprecise and thus results in the acceptance of the null hypothesis of the equality between the average values for the BH and the TSL and/or the SL. Another possibility is, of course, that the differences between the BH and the stop-loss strategies are not large enough, which, again, leads to statistical insignificance of those differences.

The stop-loss strategies perform in a more effective and consistent fashion when it comes to minimizing stock return variances. The effect is highly significant at the lowest stop-loss levels (5% and 10%) for the TSL, both in numbers and statistically, but the effect quickly diminishes with larger stop-loss limits. For the SL the volatility reduction effect is high only at the smallest

stop-loss limit of 5 %, which is also confirmed by the statistical test results. The explanation for these results is essentially the same in the case for the TSL and the SL portfolios.

7. CONCLUSION

In this thesis we look into the performance of the traditional stop-loss rules and the trailing stop-loss rules compared to the performance of the classic buy-and-hold strategy. The evaluation criteria are return and variance. We find strong indications of the stop-loss strategies being able to outperform the buy-and-hold in both criteria. The empirical results indicating that the stop-loss strategies can do better than the buy-and-hold were even clearer cut when compared in terms of the risk-adjusted returns. However, the findings in the study are difficult to affirm with certainty due to a number of reasons.

One of the reasons is the possibility that the results were obtained by sheer luck. We might have happened to choose suitable snapshot of the part of the historical data that best fit our study. The results are most certainly influenced by our arbitrary choice for the starting dates of the holding periods, a problem that might have been mitigated if a sophisticated trading rule were used.

Another reason could be mistakes made when conducting the research. The possibility of that is always there, especially in our case, because much of the work is done manually in Excel. We are aware of the possibility and have done our best to minimize the risk by meticulously checking the results at every step of the study.

The significant results of the study are not always significant in a statistical sense. We are of the opinion that the lack of statistical success is due to the fact that some stocks are included in the OMXS 30 during a too short period of time to give us statistically significant results.

In our study we do not invest the proceeds in a risk free asset for the remaining time during a holding period when a stop-loss strategy has closed a position prematurely. If we had done so the results for the stop-loss strategies would have been even better.

Our empirical results are in line with those in the study conducted by Kaminski and Lo in 2007. They find that stop-loss strategies have a positive marginal impact on both expected returns and risk-adjusted expected returns. The similarities of the results are encouraging and even more so when we consider the fact that our studies differ on many methodological points. Their study is conducted on a U.S. monthly stock returns data for 54 years period. They also use a more sophisticated trading strategy, a so-called filter rule, and switch between stock and bond

positions. We, however, conduct our study on a daily stock returns data of a limited number of Swedish stocks during an 11 year period. We do not use filter rules, nor do we switch to a risk free asset.

The main difference between the two studies, we think, is the starting theoretical premise. Using a filter rule for their study, Kaminsky and Lo question the validity of the Efficient Market Hypothesis, as filter rules are used to test Random Walk processes of type 2 (Campbell, J.Y., Lo, A.W. & MacKinlay, A.C., 1997). We take a more diplomatic stance and try to reconcile the Efficient Market Hypothesis with Behavioral Finance, assuming that the market is mostly efficient but now and then market irrationalities take place. And even when the market as a whole is right, the empirical evidence shows that individual investors are most often plagued by behavioral biases and thus do not act as rational as the classic finance theory assumes, which is also supported by the findings in this study.

Our study strongly indicates that the traditional stop-loss strategy and the trailing stop-loss strategy can outperform the classic buy-and-hold portfolio strategy in terms of mean, cumulative excess returns and variance.

"Don't take "buy-and-hold" literally"

Lewis J Altfest

7.1 Suggestions on further research

In this study we investigate whether stop-loss strategies can deliver better results in terms of return and volatility than the buy-and-hold strategy. The results are encouraging but demand further research on the topic. The study was conducted by taking i) daily equity returns data; for ii) the stocks listed on OMXS 30; during iii) the time period of 1998-2009. We used iv) EMH as the rule of thumb; and chose v)an arbitrary starting date for the holding periods; and likewise vi) the length of three months for a holding period. We put in place vii) rigid stop-loss limits; on the stocks. We let viii) the proceeds lie idle in cash until the next holding period. At the end, we evaluated the results in terms ix) of mean and variance and we present the results for x) the stocks and aggregated in an equally- weighted portfolio.

For further research we would suggest to conduct a study where one or more components or steps in our study is/are changed. A new study could be conducted on a larger data with different frequency from different market and different time horizon. Another suggestion would be to change the theoretical starting point and use some kind of rule for entering a position. It would also be interesting to see whether the results are similar to ours in a study with holding periods of a different length. Replace the rigid stop-loss limits with the floating ones that adapt to changes in the idiosyncratic risk or some fundamentals. How much do the results change if the proceeds are invested in a risk free asset while waiting for the next holding period after a stop-loss has closed the position? The evaluation metric could be replaced, especially for risk. And the final suggestion would be to build a different type of portfolio, for example an index-weighted one. Other approaches to address the issue of stop-loss rules efficiency and add to the still limited literature should not be a problem to establish.

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9. APPENDICES

Appendix A: Average Stock Returns, TSL vs. BH.

name\stop-loss level	BH (1,00)	0,05	0,10	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	0,027635	0,031546	0,04263	0,043644	0,028852	0,022052	0,021548	0,018723	0,017766	0,018836	0,019757	0,017634
ABB B	0,071302	0,049083	0,000757	0,010142	0,1119	0,102641	0,093382	0,084123	0,074863	0,071302	0,071302	0,071302
AGA B	0,051542	0,046513	0,041342	0,070542	0,061042	0,054542	0,051542	0,051542	0,051542	0,051542	0,051542	0,000237
Astra A	0,04652	-0,047895	-0,048535	0,050024	0,041515	0,04652	0,04652	0,04652	0,04652	0,04652	0,04652	0,04652
Astra Zeneca	8,59E-05	-0,001512	0,00034	0,000888	-0,006596	0,000902	-0,001215	8,59E-05	8,59E-05	8,59E-05	8,59E-05	8,59E-05
Astra B	0,042053	-0,045486	-0,054533	0,049233	0,041028	0,042053	0,042053	0,042053	0,042053	0,042053	0,042053	0,042053
Atlas A	0,023961	-0,006964	0,01293	0,021543	0,017191	0,013484	0,018849	0,023961	0,023961	0,023961	0,023961	0,023961
Atlas B	0,022871	-0,00966	0,010758	0,018463	0,017293	0,01332	0,015754	0,022871	0,022871	0,022871	0,022871	0,022871
Celsius	0,067187	-0,017234	0,032498	0,067398	0,079153	0,06348	0,066061	0,061181	0,067187	0,067187	0,067187	0,067187
Electrolux	0,018481	-0,013044	0,011235	0,023294	0,021074	0,015738	0,010796	0,015423	0,018481	0,018481	0,018481	0,018481
Ericsson	0,041294	0,007045	0,036295	0,071444	0,088397	0,083286	0,070718	0,062776	0,054995	0,048767	0,050348	0,048449
HM	0,032666	-0,010006	-0,003645	0,01705	0,020144	0,034027	0,031568	0,030925	0,032666	0,032666	0,032666	0,032666
Investor B	0,008713	-0,009977	-9,13E-05	0,019618	0,010692	0,013518	0,01193	0,009652	0,008658	0,008713	0,008713	0,008713
Sandvik	0,009708	-0,000383	0,011083	0,010671	0,00967	0,00803	0,007525	0,007817	0,007439	0,009708	0,009708	0,009708
Sandvik B	0,005111	-0,017112	0,022595	0,025261	0,010001	0,00319	-0,001311	0,005111	0,005111	0,005111	0,005111	0,005111
SCA B	0,006105	-0,000202	0,003181	0,002201	-0,00297	0,002896	0,001447	0,006105	0,006105	0,006105	0,006105	0,006105
SEB A	-0,000421	-0,001973	-0,002021	0,016639	0,009768	0,007167	0,005222	-0,001132	-0,002162	-0,004353	-0,008156	-0,0024
SvHBank	0,011172	-0,00678	0,001069	0,006956	0,007661	0,00688	0,005705	0,011172	0,011172	0,011172	0,011172	0,011172
Skandia Fors	0,050057	0,014531	-0,006026	0,037732	0,061271	0,042807	0,037211	0,057651	0,057848	0,055002	0,051178	0,049296
Skanska B	0,011158	-0,001878	0,000186	0,015159	0,008061	0,003143	0,002028	0,011158	0,011158	0,011158	0,011158	0,011158
Stora Enso A	0,298984	0,142883	0,309973	0,298984	0,298984	0,298984	0,298984	0,298984	0,298984	0,298984	0,298984	0,298984
Stora Enso R	-0,013386	0,001155	-0,005941	0,008934	0,006266	-0,004005	-0,006588	-0,007408	-0,01001	-0,012697	-0,0125	-0,013386
Stora A	0,012893	-0,009461	0,009131	0,057361	0,040749	0,005931	0,03361	0,026439	0,012893	0,012893	0,012893	0,012893
Stora B	0,030826	-0,006948	0,017424	0,086292	0,056312	0,017006	0,060826	0,041826	0,030826	0,030826	0,030826	0,030826
Trelleborg	-0,015451	-0,039318	-0,069898	0,002966	-0,005561	-0,004508	-0,008417	-0,01272	-0,017415	-0,015451	-0,015451	-0,015451
Volvo	0,012278	0,01001	0,008681	0,015027	0,011394	0,010115	0,009979	0,010187	0,009402	0,007871	0,00746	0,012278
SKF	0,022795	-0,004975	0,006026	0,019493	0,021889	0,014806	0,015671	0,022795	0,022795	0,022795	0,022795	0,022795
Avesta	-0,128018	-0,034236	-0,066905	-0,074912	-0,102968	-0,128018	-0,128018	-0,128018	-0,128018	-0,128018	-0,128018	-0,128018
Autoliv	0,014081	0,00521	0,020797	0,013952	0,009843	0,01712	0,014306	0,013888	0,014081	0,014081	0,014081	0,014081
Kinnevik	0,12017	0,019411	0,110558	0,105154	0,122676	0,107011	0,114562	0,12017	0,12017	0,12017	0,12017	0,12017
Nokia	-0,081699	-0,031712	-0,032801	-0,062388	-0,079205	-0,122711	-0,093809	-0,101452	-0,081699	-0,081699	-0,081699	-0,081699
NOKIA SDB	0,07688	0,008221	0,054978	0,056136	0,070882	0,079475	0,078638	0,076495	0,072384	0,073358	0,07688	0,07688
Scania A	0,026694	0,012361	0,04551	0,036381	0,027829	0,021519	0,02369	0,020507	0,020088	0,026694	0,026694	0,026694
Scania B	0,024929	0,009463	0,047442	0,032605	0,024524	0,019788	0,021644	0,01829	0,018102	0,024929	0,024929	0,024929
ICON	-0,060612	0,000425	-0,016821	-0,021137	0,079271	0,036674	0,047894	0,023927	0,007025	-0,000197	-0,032544	-0,044595
Securitas B	-0,008291	0,003022	0,001383	-0,000769	-0,008064	-0,012179	-0,007425	-0,01102	-0,01102	-0,008291	-0,008291	-0,008291
WMDATA	-0,147446	-0,005534	-0,047832	-0,069933	-0,087591	-0,10525	-0,092808	-0,112329	-0,123971	-0,138731	-0,136942	-0,142734
Framtidsfabrik	-0,393245	-0,162122	-0,000107	-0,03972	-0,018514	-0,046669	-0,161141	-0,178302	-0,187966	-0,29889	-0,297387	-0,313456
Holmen	0,021501	0,024844	0,02513	0,019777	0,020633	0,025347	0,025347	0,022737	0,021501	0,021501	0,021501	0,021501
Telia	-0,010152	0,014295	0,015282	0,001613	-0,006877	-0,013728	-0,015228	-0,013172	-0,010152	-0,010152	-0,010152	-0,010152
Assa	-0,015454	-0,018463	-0,023778	-0,015036	-0,023164	-0,023508	-0,014241	-0,015627	-0,015454	-0,015454	-0,015454	-0,015454
Nordea	-0,003194	-0,0072	-0,00718	0,001082	-0,001801	-0,004928	-0,007033	-0,003932	-0,003932	-0,003194	-0,003194	-0,003194
Tele 2	0,004154	0,009673	0,023185	0,021806	0,016277	0,009219	-0,000278	0,003093	0,005242	0,003324	0,004154	0,004154
Eniro	-0,059894	0,002924	0,006699	-0,001008	-0,017682	-0,028567	-0,037168	-0,041383	-0,048784	-0,056634	-0,055503	-0,060542
Europolitan	-0,047434	-0,016105	-0,026342	-0,026913	-0,046161	-0,062183	-0,084447	-0,061864	-0,047434	-0,047434	-0,047434	-0,047434
Alfa Laval	0,053936	0,015328	0,037317	0,043001	0,050606	0,044627	0,042585	0,053936	0,053936	0,053936	0,053936	0,053936
Swedish Match	0,018655	0,000456	0,012707	0,015375	0,017749	0,018655	0,018655	0,018655	0,018655	0,018655	0,018655	0,018655
Fabege	0,020843	0,025413	0,034978	0,035969	0,022524	0,020843	0,020843	0,020843	0,020843	0,020843	0,020843	0,020843
Whilborg	0,030153	0,032393	0,051317	0,032798	0,030153	0,030153	0,030153	0,030153	0,030153	0,030153	0,030153	0,030153
Boliden	-0,010546	-0,013715	-0,03817	-0,055332	-0,085536	0,02883	0,009756	-0,012169	-0,014206	-0,020463	-0,010546	-0,010546
Vostok GAS	-0,179148	-0,053232	-0,050228	-0,062623	-0,055043	-0,061873	-0,070615	-0,07458	-0,123932	-0,135766	-0,141178	-0,15713
Swedbank	-0,205642	-0,013007	-0,060502	-0,088411	-0,109081	-0,137687	-0,159781	-0,180849	-0,187405	-0,204595	0,212496	-0,224368
SSAB	-0,043299	-0,01038	0,001927	-0,002023	-0,018264	-0,051053	-0,04757	-0,047168	-0,052	-0,059022	-0,059022	-0,043299
Lundin Petrol	-0,052684	-0,032786	-0,07717	-0,099536	-0,06076	-0,08805	-0,055175	-0,098244	-0,102362	-0,112715	-0,052684	-0,052684
TSL>BH		19	25	37	31	20	20	15	11	9	8	5
%		0,351852	0,462963	0,685185	0,574074	0,37037	0,37037	0,277778	0,203704	0,166667	0,148148	0,092593
TSL<BH		35	29	16	21	27	26	21	14	8	5	6
%		0,648148	0,537037	0,296296	0,388889	0,5	0,481481	0,388889	0,259259	0,148148	0,092593	0,111111
TSL=BH		0	0	1	2	7	8	18	29	37	41	43
%		0	0	0,018519	0,037037	0,12963	0,148148	0,333333	0,537037	0,685185	0,759259	0,796296

Appendix B: T-test results of the one-sided hypothesis, μ stock i, TS-L > μ stock i, BH.

e\Stop-loss	0,05	0,1	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	0,452	0,278	0,173	0,461	0,367	0,351	0,288	0,246	0,254	0,253	0,197
ABB B	0,413	0,247	0,275	0,182	0,182	0,182	0,182	0,182	1,000	1,000	1,000
AGA B	0,459	0,379	0,175	0,175	0,175	1,000	1,000	1,000	1,000	1,000	1,000
Astra A	0,099	0,093	0,182	0,182	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Astra Zenec	0,462	0,492	0,464	0,208	0,123	0,080	1,000	1,000	1,000	1,000	1,000
Astra B	0,141	0,116	0,182	0,182	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Atlas A	0,059	0,233	0,368	0,097	0,029	0,161	1,000	1,000	1,000	1,000	1,000
Atlas B	0,054	0,214	0,313	0,152	0,044	0,096	1,000	1,000	1,000	1,000	1,000
Celsius	0,138	0,273	0,497	0,167	0,363	0,173	0,173	1,000	1,000	1,000	1,000
Electrolux	0,119	0,353	0,314	0,309	0,222	0,042	0,082	1,000	1,000	1,000	1,000
Ericsson	0,239	0,449	0,154	0,017	0,011	0,027	0,037	0,082	0,178	0,080	0,086
HM	0,011	0,020	0,124	0,131	0,139	0,143	0,161	1,000	1,000	1,000	1,000
Investor B	0,180	0,299	0,123	0,406	0,165	0,138	0,288	0,161	1,000	1,000	1,000
Sandvik	0,290	0,448	0,448	0,496	0,199	0,086	0,161	0,161	1,000	1,000	1,000
Sandvik B	0,331	0,272	0,058	0,259	0,201	0,172	1,000	1,000	1,000	1,000	1,000
SCA B	0,331	0,385	0,255	0,085	0,170	0,161	1,000	1,000	1,000	1,000	1,000
SEB A	0,475	0,471	0,083	0,164	0,150	0,179	0,460	0,377	0,257	0,139	0,161
SvHBank	0,120	0,152	0,246	0,136	0,123	0,161	1,000	1,000	1,000	1,000	1,000
Skandia For	0,233	0,114	0,370	0,347	0,402	0,321	0,234	0,090	0,192	0,425	0,433
Skanska B	0,232	0,215	0,309	0,319	0,136	0,095	1,000	1,000	1,000	1,000	1,000
Stora Enso	0,301	0,250	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Stora Enso	0,290	0,366	0,071	0,043	0,167	0,143	0,121	0,162	0,376	0,162	1,000
Stora A	0,427	0,485	0,211	0,300	0,451	0,187	0,187	1,000	1,000	1,000	1,000
Stora B	0,408	0,461	0,226	0,371	0,435	0,196	0,196	1,000	1,000	1,000	1,000
Trelleborg	0,311	0,102	0,188	0,288	0,169	0,169	0,169	0,169	1,000	1,000	1,000
Volvo	0,450	0,406	0,383	0,446	0,349	0,146	0,161	0,161	0,161	0,161	1,000
SKF	0,067	0,148	0,338	0,428	0,074	0,106	1,000	1,000	1,000	1,000	1,000
Avesta	0,284	0,324	0,250	0,250	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Autoliv	0,340	0,329	0,491	0,215	0,107	0,437	0,162	1,000	1,000	1,000	1,000
Kinnevik	0,168	0,424	0,358	0,400	0,113	0,169	1,000	1,000	1,000	1,000	1,000
Nokia	0,270	0,116	0,221	0,459	0,080	0,178	0,178	1,000	1,000	1,000	1,000
NOKIA SDB	0,064	0,239	0,224	0,304	0,360	0,340	0,440	0,126	0,101	1,000	1,000
Scania A	0,264	0,053	0,149	0,439	0,219	0,261	0,157	0,161	1,000	1,000	1,000
Scania B	0,257	0,022	0,192	0,478	0,208	0,263	0,151	0,161	1,000	1,000	1,000
ICON	0,152	0,229	0,246	0,023	0,015	0,003	0,011	0,026	0,013	0,094	0,143
Securitas B	0,265	0,216	0,196	0,485	0,225	0,126	0,162	0,162	1,000	1,000	1,000
WMDATA	0,043	0,089	0,086	0,134	0,213	0,030	0,084	0,126	0,206	0,126	0,169
Framtidsfal	0,172	0,037	0,047	0,049	0,057	0,097	0,083	0,094	0,209	0,167	0,161
Holmen	0,429	0,285	0,375	0,435	0,163	0,163	0,163	1,000	1,000	1,000	1,000
Telia	0,141	0,027	0,078	0,314	0,158	0,120	0,162	1,000	1,000	1,000	1,000
Assa	0,447	0,323	0,486	0,163	0,177	0,163	0,163	1,000	1,000	1,000	1,000
Nordea	0,411	0,386	0,321	0,410	0,368	0,257	0,162	0,162	1,000	1,000	1,000
Tele 2	0,439	0,177	0,137	0,094	0,252	0,301	0,399	0,163	0,163	1,000	1,000
Eniro	0,050	0,010	0,014	0,024	0,045	0,059	0,056	0,122	0,326	0,068	0,358
Europolitan	0,278	0,320	0,238	0,477	0,275	0,149	0,178	1,000	1,000	1,000	1,000
Alfa Laval	0,076	0,160	0,199	0,377	0,194	0,164	1,000	1,000	1,000	1,000	1,000
Swedish M:	0,040	0,173	0,238	0,164	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Fabege	0,418	0,205	0,187	0,187	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Whilborg	0,487	0,211	0,211	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Boliden	0,491	0,425	0,375	0,301	0,068	0,130	0,460	0,232	0,170	1,000	1,000
Vostok GAS	0,088	0,062	0,080	0,056	0,062	0,066	0,071	0,055	0,056	0,079	0,195
Swedbank	0,005	0,022	0,037	0,047	0,037	0,092	0,202	0,177	0,469	0,301	0,146
SSAB	0,342	0,216	0,176	0,229	0,411	0,424	0,314	0,126	0,173	0,173	1,000
Lundin Petr	0,417	0,407	0,320	0,447	0,277	0,393	0,141	0,124	0,098	1,000	1,000

Appendix C: Compound Stock Returns, TSL vs. BH.

name\stop-loss level	BH (1,00)	0,05	0,10	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	-0,081463	1,765879	2,489942	2,160334	0,500192	-0,092733	-0,141841	-0,266114	-0,339274	-0,324129	-0,334586	-0,444434
ABB B	0,258886	0,288919	-0,027176	-0,020547	0,767797	0,65173	0,535662	0,419595	0,303527	0,258886	0,258886	0,258886
AGA B	0,377921	0,36496	0,309566	0,647823	0,512872	0,420537	0,377921	0,377921	0,377921	0,377921	0,377921	0,377921
Astra A	0,224964	-0,256345	-0,285508	0,256959	0,179256	0,224964	0,224964	0,224964	0,224964	0,224964	0,224964	0,224964
Astra Zeneca	-0,243789	-0,102194	-0,133076	-0,1698	-0,414059	-0,210459	-0,295036	-0,243789	-0,243789	-0,243789	-0,243789	-0,243789
Astra B	0,17647	-0,244632	-0,312023	0,24031	0,16735	0,17647	0,17647	0,17647	0,17647	0,17647	0,17647	0,17647
Atlas A	0,828935	-0,358568	0,316966	0,734424	0,305823	0,020201	0,356289	0,828935	0,828935	0,828935	0,828935	0,828935
Atlas B	0,700449	-0,440702	0,212238	0,494578	0,271966	-0,000545	0,12002	0,700449	0,700449	0,700449	0,700449	0,700449
Celsius	0,450336	-0,160869	0,196053	0,566848	0,659974	0,389584	0,430559	0,344857	0,450336	0,450336	0,450336	0,450336
Electrolux	0,103291	-0,496801	0,063604	0,616565	0,288626	-0,062269	-0,303172	-0,092491	0,103291	0,103291	0,103291	0,103291
Ericsson	-0,630341	0,103547	1,321341	5,931727	8,279009	5,991579	2,740658	1,42489	0,472606	-0,033055	0,001351	-0,157234
HM	1,866371	-0,411338	-0,340892	0,404307	0,572393	2,103093	1,685345	1,585705	1,866371	1,866371	1,866371	1,866371
Investor B	-0,139449	-0,413378	-0,177067	0,765666	0,090376	0,2239	0,083206	-0,071901	-0,143248	-0,139449	-0,139449	-0,139449
Sandvik	-0,043212	-0,108247	0,228237	0,0857	-0,01174	-0,119846	-0,168808	-0,16037	-0,183801	-0,043212	-0,043212	-0,043212
Sandvik B	-0,069478	-0,171719	0,185973	0,185703	-0,005921	-0,091642	-0,148913	-0,069478	-0,069478	-0,069478	-0,069478	-0,069478
SCA B	-0,040063	-0,104031	-0,06341	-0,163861	-0,370216	-0,190904	-0,259374	-0,040063	-0,040063	-0,040063	-0,040063	-0,040063
SEB A	-0,562437	-0,158179	-0,253392	0,40924	-0,067316	-0,207668	-0,310438	-0,548525	-0,58452	-0,650036	-0,745375	-0,632665
SvHBank	0,194408	-0,317799	-0,150833	0,008289	-0,008289	-0,053528	-0,123417	0,194408	0,194408	0,194408	0,194408	0,194408
Skandia Fors	0,208316	0,337416	-0,39538	0,910152	2,974967	0,812219	0,340107	1,312473	1,171902	0,840776	0,414104	0,22509
Skanska B	0,04829	-0,191495	-0,180723	0,413865	-0,041706	-0,286182	-0,370493	0,04829	0,04829	0,04829	0,04829	0,04829
Stora Enso A	0,67598	0,294112	0,706873	0,67598	0,67598	0,67598	0,67598	0,67598	0,67598	0,67598	0,67598	0,67598
Stora Enso R	-0,709398	-0,052435	-0,357402	0,04921	-0,11931	-0,459876	-0,547305	-0,567943	-0,630857	-0,690825	-0,688781	-0,709398
Stora A	-0,092033	-0,049788	0,02317	0,258117	0,160583	-0,033321	0,066404	0,01156	-0,092033	-0,092033	-0,092033	-0,092033
Stora B	-0,043115	-0,030281	0,047631	0,324043	0,186366	0,004729	0,149546	0,027527	-0,043115	-0,043115	-0,043115	-0,043115
Trelleborg	-0,300001	-0,38921	-0,592407	-0,046575	-0,150475	-0,151685	-0,204673	-0,262985	-0,326622	-0,300001	-0,300001	-0,300001
Volvo	0,048084	0,375835	0,090024	0,327929	0,04245	-0,030763	-0,102025	-0,088728	-0,140033	-0,2402	-0,267074	0,048084
SKF	0,647287	-0,296327	-0,013602	0,568747	0,630036	0,070554	0,104488	0,647287	0,647287	0,647287	0,647287	0,647287
Avesta	-0,246111	-0,068613	-0,129688	-0,144957	-0,198397	-0,246111	-0,246111	-0,246111	-0,246111	-0,246111	-0,246111	-0,246111
Autoliv	0,257771	0,103981	0,790986	0,294486	0,098024	0,458345	0,276971	0,245023	0,257771	0,257771	0,257771	0,257771
Kinnevik	1,577533	0,179856	1,539086	1,236544	1,70105	1,107356	1,368796	1,577533	1,577533	1,577533	1,577533	1,577533
Nokia	-0,511828	-0,21386	-0,25852	-0,415718	-0,494288	-0,654647	-0,563293	-0,595772	-0,511828	-0,511828	-0,511828	-0,511828
NOKIA SDB	3,735665	0,110309	3,013955	2,220918	3,328638	4,7931	4,463979	3,672799	2,57414	2,728751	3,735665	3,735665
Scania A	0,657494	0,465426	3,940894	2,036271	1,009025	0,313979	0,418197	0,159688	0,124728	0,657494	0,657494	0,657494
Scania B	0,584176	0,370702	4,517306	1,642441	0,776061	0,247715	0,336149	0,081677	0,064607	0,584176	0,584176	0,584176
ICON	-0,987236	-0,265627	-0,62528	-0,66718	0,787186	-0,126318	0,114785	-0,506295	-0,734039	-0,783804	-0,936959	-0,955073
Securitas B	-0,501529	-0,000806	-0,192365	-0,270996	-0,471368	-0,573521	-0,476672	-0,566962	-0,566962	-0,501529	-0,501529	-0,501529
WMDATA	-0,923887	-0,089404	-0,499846	-0,660546	-0,735719	-0,797224	-0,79006	-0,844778	-0,870961	-0,904573	-0,900649	-0,913408
Framtidsfabrik	-0,932604	-0,520232	-0,184546	-0,277281	-0,142049	-0,252238	-0,563935	-0,610116	-0,634478	-0,829305	-0,824849	-0,843725
Holmen	0,344136	0,75497	0,541891	0,312682	0,338575	0,553223	0,553223	0,411342	0,344136	0,344136	0,344136	0,344136
Telia	-0,568424	0,50763	0,32147	-0,252491	-0,48408	-0,632011	-0,663514	-0,635879	-0,568424	-0,568424	-0,568424	-0,568424
Assa	-0,530161	-0,452454	-0,586623	-0,48096	-0,623254	-0,630209	-0,5065	-0,533541	-0,530161	-0,530161	-0,530161	-0,530161
Nordea	-0,330561	-0,276082	-0,338166	-0,1501	-0,251183	-0,357828	-0,41869	-0,357542	-0,357542	-0,330561	-0,330561	-0,330561
Tele 2	-0,475685	0,214434	0,441224	0,287998	-0,094323	-0,315418	-0,540499	-0,491619	-0,443153	-0,500522	-0,475685	-0,475685
Eniro	-0,942705	-0,006653	0,011336	-0,243306	-0,601398	-0,734507	-0,818139	-0,846693	-0,89072	-0,926313	-0,924939	-0,944048
Europolitan	-0,368329	-0,121597	-0,193162	-0,224772	-0,351063	-0,441691	-0,552104	-0,454154	-0,368329	-0,368329	-0,368329	-0,368329
Alfa Laval	2,024773	0,332813	0,974114	1,254656	1,778819	1,327894	1,143043	2,024773	2,024773	2,024773	2,024773	2,024773
Swedish Match	0,463075	-0,05411	0,257546	0,332723	0,423532	0,463075	0,463075	0,463075	0,463075	0,463075	0,463075	0,463075
Fabege	0,085125	0,119273	0,171251	0,177258	0,095362	0,085125	0,085125	0,085125	0,085125	0,085125	0,085125	0,085125
Whilborg	0,088495	0,095479	0,160461	0,09749	0,088495	0,088495	0,088495	0,088495	0,088495	0,088495	0,088495	0,088495
Boliden	-0,647739	-0,16848	-0,400783	-0,517075	-0,669036	-0,342055	-0,506836	-0,649973	-0,669601	-0,707109	-0,647739	-0,647739
Vostok GAS	-0,99184	-0,511509	-0,538948	-0,607602	-0,577855	-0,620376	-0,677229	-0,698216	-0,901709	-0,923456	-0,932043	-0,955194
Swedbank	-0,898803	-0,11547	-0,436736	-0,575116	-0,657029	-0,748844	-0,807463	-0,851582	-0,864881	-0,895704	-0,9085	-0,926217
SSAB	-0,527188	-0,129764	-0,074593	-0,16389	-0,302019	-0,519618	-0,527624	-0,546576	-0,585016	-0,631485	-0,631485	-0,527188
Lundin Petrol	-0,337143	-0,163923	-0,334207	-0,431244	-0,324588	-0,43347	-0,348281	-0,541358	-0,556431	-0,594328	-0,337143	-0,337143
TSL>BH		30	32	40	34	24	21	16	11	9	8	6
%		0,555556	0,592593	0,740741	0,62963	0,444444	0,388889	0,296296	0,203704	0,166667	0,148148	0,111111
TSL<BH		24	22	13	18	23	25	20	14	8	5	4
%		0,444444	0,407407	0,240741	0,333333	0,425926	0,462963	0,37037	0,259259	0,148148	0,092593	0,074074
TSL=BH		0	0	1	2	7	8	18	29	37	41	44
%		0	0	0,018519	0,037037	0,12963	0,148148	0,333333	0,537037	0,685185	0,759259	0,814815

Appendix D: Average Excess Stock Returns, TSL vs. BH.

Name\Stop-loss level	BH 1,00	TS-L 0,05	TS-L 0,10	TS-L 0,15	TS-L 0,20	TS-L 0,25	TS-L 0,30	TS-L 0,35	TS-L 0,40	TS-L 0,45	TS-L 0,50	TS-L 0,55
ABB A	0,0149	0,0213	0,0311	0,0320	0,0189	0,0129	0,0124	0,0099	0,0090	0,0100	0,0108	0,0089
ABB B	0,0083	0,0053	-0,0011	0,0001	0,0137	0,0124	0,0112	0,0100	0,0087	0,0083	0,0083	0,0083
AGA B	0,0076	0,0067	0,0058	0,0109	0,0093	0,0081	0,0076	0,0076	0,0076	0,0076	0,0076	0,0002
Astra A	0,0050	-0,0076	-0,0077	0,0054	0,0043	0,0050	0,0050	0,0050	0,0050	0,0050	0,0050	0,0050
Astra Zeneca	-0,0065	-0,0079	-0,0063	-0,0058	-0,0123	-0,0058	-0,0076	-0,0065	-0,0065	-0,0065	-0,0065	-0,0065
Astra B	0,0044	-0,0073	-0,0085	0,0053	0,0042	0,0044	0,0044	0,0044	0,0044	0,0044	0,0044	0,0044
Atlas A	0,0161	-0,0148	0,0051	0,0137	0,0094	0,0056	0,0110	0,0161	0,0161	0,0161	0,0161	0,0161
Atlas B	0,0150	-0,0175	0,0029	0,0106	0,0095	0,0055	0,0079	0,0150	0,0150	0,0150	0,0150	0,0150
Celsius	0,0116	-0,0053	0,0047	0,0117	0,0140	0,0109	0,0114	0,0104	0,0116	0,0116	0,0116	0,0116
Electrolux	0,0106	-0,0209	0,0034	0,0155	0,0132	0,0079	0,0030	0,0076	0,0106	0,0106	0,0106	0,0106
Ericsson	0,0335	-0,0008	0,0285	0,0636	0,0806	0,0754	0,0629	0,0549	0,0472	0,0409	0,0425	0,0406
HM	0,0248	-0,0178	-0,0115	0,0092	0,0123	0,0262	0,0237	0,0231	0,0248	0,0248	0,0248	0,0248
Investor B	0,0009	-0,0178	-0,0079	0,0118	0,0029	0,0057	0,0041	0,0018	0,0008	0,0009	0,0009	0,0009
Sandvik	0,0019	-0,0082	0,0032	0,0028	0,0018	0,0002	-0,0003	0,0000	-0,0004	0,0019	0,0019	0,0019
Sandvik B	-0,0009	-0,0058	0,0030	0,0036	0,0002	-0,0013	-0,0023	-0,0009	-0,0009	-0,0009	-0,0009	-0,0009
SCA B	-0,0017	-0,0080	-0,0047	-0,0056	-0,0108	-0,0049	-0,0064	-0,0017	-0,0017	-0,0017	-0,0017	-0,0017
SEB A	-0,0083	-0,0098	-0,0099	0,0088	0,0019	-0,0007	-0,0026	-0,0090	-0,0100	-0,0122	-0,0160	-0,0102
SvHBank	0,0033	-0,0146	-0,0068	-0,0009	-0,0002	-0,0010	-0,0021	0,0033	0,0033	0,0033	0,0033	0,0033
Skandia Fors	0,0319	0,0050	-0,0105	0,0226	0,0404	0,0264	0,0222	0,0376	0,0378	0,0356	0,0327	0,0313
Skanska B	0,0033	-0,0097	-0,0077	0,0073	0,0002	-0,0047	-0,0058	0,0033	0,0033	0,0033	0,0033	0,0033
Stora Enso A	0,0129	0,0060	0,0134	0,0129	0,0129	0,0129	0,0129	0,0129	0,0129	0,0129	0,0129	0,0129
Stora Enso R	-0,0182	-0,0056	-0,0117	0,0012	-0,0012	-0,0101	-0,0123	-0,0130	-0,0153	-0,0176	-0,0174	-0,0182
Stora A	0,0003	-0,0021	-0,0001	0,0053	0,0034	-0,0004	0,0026	0,0018	0,0003	0,0003	0,0003	0,0003
Stora B	0,0018	-0,0015	0,0006	0,0068	0,0041	0,0006	0,0045	0,0028	0,0018	0,0018	0,0018	0,0018
Trelleborg	-0,0066	-0,0129	-0,0211	-0,0017	-0,0039	-0,0037	-0,0047	-0,0059	-0,0071	-0,0066	-0,0066	-0,0066
Volvo	0,0044	0,0022	0,0008	0,0072	0,0036	0,0023	0,0021	0,0024	0,0016	0,0000	-0,0004	0,0044
SKF	0,0150	-0,0128	-0,0018	0,0117	0,0141	0,0070	0,0078	0,0150	0,0150	0,0150	0,0150	0,0150
Avesta	-0,0062	-0,0020	-0,0035	-0,0038	-0,0051	-0,0062	-0,0062	-0,0062	-0,0062	-0,0062	-0,0062	-0,0062
Autoliv	0,0055	-0,0023	0,0115	0,0054	0,0018	0,0082	0,0057	0,0054	0,0055	0,0055	0,0055	0,0055
Kinnevik	0,0296	0,0027	0,0270	0,0256	0,0303	0,0261	0,0281	0,0296	0,0296	0,0296	0,0296	0,0296
Nokia	-0,0140	-0,0062	-0,0064	-0,0110	-0,0136	-0,0204	-0,0159	-0,0170	-0,0140	-0,0140	-0,0140	-0,0140
NOKIA SDB	0,0583	0,0004	0,0399	0,0408	0,0533	0,0605	0,0598	0,0580	0,0546	0,0554	0,0583	0,0583
Scania B	0,0171	0,0016	0,0396	0,0248	0,0167	0,0120	0,0138	0,0103	0,0105	0,0171	0,0171	0,0171
ICON	-0,0408	-0,0042	-0,0146	-0,0171	0,0431	0,0175	0,0243	0,0099	-0,0003	-0,0046	-0,0240	-0,0312
Securitas B	-0,0131	-0,0038	-0,0051	-0,0069	-0,0129	-0,0163	-0,0123	-0,0153	-0,0153	-0,0131	-0,0131	-0,0131
WMDATA	-0,0419	-0,0041	-0,0154	-0,0213	-0,0260	-0,0307	-0,0274	-0,0326	-0,0357	-0,0396	-0,0391	-0,0407
Framtidsfabrik	-0,0358	-0,0153	-0,0009	-0,0044	-0,0025	-0,0050	-0,0152	-0,0167	-0,0176	-0,0274	-0,0273	-0,0287
Holmen	0,0082	0,0102	0,0103	0,0072	0,0077	0,0105	0,0105	0,0089	0,0082	0,0082	0,0082	0,0082
Telia	-0,0142	0,0054	0,0062	-0,0047	-0,0115	-0,0170	-0,0182	-0,0166	-0,0142	-0,0142	-0,0142	-0,0142
Assa	-0,0145	-0,0164	-0,0198	-0,0142	-0,0194	-0,0197	-0,0137	-0,0146	-0,0145	-0,0145	-0,0145	-0,0145
Nordea	-0,0083	-0,0114	-0,0114	-0,0050	-0,0072	-0,0096	-0,0113	-0,0089	-0,0089	-0,0083	-0,0083	-0,0083
Tele 2	-0,0021	0,0017	0,0110	0,0101	0,0063	0,0014	-0,0051	-0,0028	-0,0013	-0,0026	-0,0021	-0,0021
Eniro	-0,0462	-0,0029	-0,0003	-0,0056	-0,0171	-0,0246	-0,0305	-0,0334	-0,0385	-0,0440	-0,0432	-0,0466
Europolitan	-0,0089	-0,0040	-0,0056	-0,0057	-0,0087	-0,0112	-0,0146	-0,0111	-0,0089	-0,0089	-0,0089	-0,0089
Alfa Laval	0,0263	0,0049	0,0171	0,0203	0,0245	0,0212	0,0200	0,0263	0,0263	0,0263	0,0263	0,0263
Swedish Match	0,0067	-0,0034	0,0034	0,0049	0,0062	0,0067	0,0067	0,0067	0,0067	0,0067	0,0067	0,0067
Fabege	0,0017	0,0023	0,0033	0,0034	0,0019	0,0017	0,0017	0,0017	0,0017	0,0017	0,0017	0,0017
Whilborg	0,0017	0,0019	0,0032	0,0019	0,0017	0,0017	0,0017	0,0017	0,0017	0,0017	0,0017	0,0017
Boliden	-0,0045	-0,0053	-0,0112	-0,0154	-0,0228	0,0051	0,0005	-0,0049	-0,0054	-0,0069	-0,0045	-0,0045
Vostok GAS	-0,0457	-0,0149	-0,0142	-0,0172	-0,0154	-0,0170	-0,0192	-0,0201	-0,0322	-0,0351	-0,0364	-0,0403
Swedbank	-0,0427	-0,0042	-0,0137	-0,0193	-0,0234	-0,0292	-0,0336	-0,0378	-0,0391	-0,0425	-0,0441	-0,0465
SSAB	-0,0103	-0,0037	-0,0012	-0,0020	-0,0053	-0,0118	-0,0111	-0,0111	-0,0120	-0,0134	-0,0134	-0,0103
Lundin Petrol	-0,0067	-0,0045	-0,0094	-0,0119	-0,0076	-0,0106	-0,0070	-0,0118	-0,0122	-0,0134	-0,0067	-0,0067
>0	30,0000	15,0000	23,0000	33,0000	33,0000	30,0000	29,0000	30,0000	29,0000	30,0000	29,0000	30,0000
%	0,5556	0,2778	0,4259	0,6111	0,6111	0,5556	0,5370	0,5556	0,5370	0,5556	0,5370	0,5556

Appendix E: Compound Excess Stock Returns. TSL vs. BH.

Name\Stop-loss level	1,00	0,05	0,10	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	-0,417	1,050	1,583	1,330	0,095	-0,343	-0,379	-0,470	-0,525	-0,514	-0,523	-0,603
ABB B	0,189	0,220	-0,081	-0,076	0,678	0,566	0,455	0,343	0,232	0,189	0,189	0,189
AGA B	0,284	0,272	0,220	0,539	0,411	0,324	0,284	0,284	0,284	0,284	0,284	0,284
Astra A	0,159	-0,299	-0,327	0,190	0,115	0,159	0,159	0,159	0,159	0,159	0,159	0,159
Astra Zeneca	-0,442	-0,335	-0,358	-0,386	-0,568	-0,417	-0,480	-0,442	-0,442	-0,442	-0,442	-0,442
Astra B	0,113	-0,288	-0,352	0,174	0,104	0,113	0,113	0,113	0,113	0,113	0,113	0,113
Atlas A	0,277	-0,552	-0,078	0,214	-0,089	-0,291	-0,055	0,277	0,277	0,277	0,277	0,277
Atlas B	0,186	-0,610	-0,152	0,044	-0,113	-0,306	-0,222	0,186	0,186	0,186	0,186	0,186
Celsius	0,338	-0,228	0,103	0,447	0,534	0,281	0,320	0,240	0,338	0,338	0,338	0,338
Electrolux	-0,232	-0,649	-0,257	0,132	-0,099	-0,348	-0,517	-0,370	-0,232	-0,232	-0,232	-0,232
Ericsson	-0,755	-0,227	0,631	3,894	5,534	3,898	1,599	0,674	0,009	-0,342	-0,319	-0,429
HM	1,016	-0,589	-0,541	-0,018	0,099	1,185	0,887	0,817	1,016	1,016	1,016	1,016
Investor B	-0,404	-0,591	-0,426	0,239	-0,239	-0,147	-0,246	-0,356	-0,406	-0,404	-0,404	-0,404
Sandvik	-0,334	-0,376	-0,141	-0,243	-0,312	-0,388	-0,423	-0,417	-0,433	-0,334	-0,334	-0,334
Sandvik B	-0,154	-0,246	0,082	0,082	-0,095	-0,174	-0,227	-0,154	-0,154	-0,154	-0,154	-0,154
SCA B	-0,329	-0,372	-0,345	-0,416	-0,562	-0,435	-0,484	-0,329	-0,329	-0,329	-0,329	-0,329
SEB A	-0,699	-0,411	-0,480	-0,013	-0,350	-0,449	-0,521	-0,688	-0,713	-0,758	-0,825	-0,747
SvHBank	-0,163	-0,523	-0,406	-0,294	-0,306	-0,338	-0,386	-0,163	-0,163	-0,163	-0,163	-0,163
Skandia Fors	-0,099	0,021	-0,541	0,458	2,047	0,376	0,012	0,754	0,643	0,389	0,061	-0,084
Skanska B	-0,271	-0,434	-0,429	-0,011	-0,332	-0,505	-0,564	-0,271	-0,271	-0,271	-0,271	-0,271
Stora Enso A	0,656	0,276	0,687	0,656	0,656	0,656	0,656	0,656	0,656	0,656	0,656	0,656
Stora Enso R	-0,787	-0,297	-0,526	-0,223	-0,349	-0,603	-0,668	-0,683	-0,729	-0,774	-0,772	-0,787
Stora A	-0,138	-0,096	-0,026	0,200	0,106	-0,081	0,015	-0,038	-0,138	-0,138	-0,138	-0,138
Stora B	-0,084	-0,070	0,005	0,273	0,140	-0,037	0,103	-0,016	-0,084	-0,084	-0,084	-0,084
Trelleborg	-0,378	-0,456	-0,639	-0,148	-0,242	-0,243	-0,291	-0,344	-0,402	-0,378	-0,378	-0,378
Volvo	-0,271	-0,034	-0,238	-0,072	-0,274	-0,325	-0,377	-0,367	-0,403	-0,474	-0,492	-0,271
SKF	0,150	-0,509	-0,310	0,099	0,140	-0,255	-0,232	0,150	0,150	0,150	0,150	0,150
Avesta	-0,265	-0,089	-0,150	-0,165	-0,218	-0,265	-0,265	-0,265	-0,265	-0,265	-0,265	-0,265
Autoliv	-0,086	-0,194	0,309	-0,059	-0,203	0,062	-0,071	-0,095	-0,086	-0,086	-0,086	-0,086
Kinnevik	1,319	0,057	1,287	1,010	1,432	0,892	1,129	1,319	1,319	1,319	1,319	1,319
Nokia	-0,542	-0,259	-0,302	-0,451	-0,525	-0,677	-0,591	-0,621	-0,542	-0,542	-0,542	-0,542
NOKIA SDB	2,523	-0,174	2,004	1,401	2,227	3,325	3,076	2,477	1,646	1,762	2,523	2,523
Scania B	0,104	-0,037	2,907	0,857	0,243	-0,130	-0,069	-0,248	-0,260	0,104	0,104	0,104
ICON	-0,991	-0,404	-0,698	-0,733	0,449	-0,296	-0,101	-0,606	-0,790	-0,830	-0,951	-0,965
Securitas B	-0,629	-0,248	-0,394	-0,454	-0,606	-0,683	-0,610	-0,678	-0,678	-0,629	-0,629	-0,629
WMDATA	-0,935	-0,192	-0,559	-0,703	-0,769	-0,823	-0,818	-0,866	-0,889	-0,918	-0,915	-0,926
Framtidsfabrik	-0,939	-0,543	-0,220	-0,309	-0,177	-0,284	-0,585	-0,630	-0,653	-0,840	-0,836	-0,854
Holmen	0,111	0,457	0,277	0,086	0,107	0,286	0,286	0,167	0,111	0,111	0,111	0,111
Telia	-0,677	0,151	0,005	-0,435	-0,612	-0,725	-0,749	-0,728	-0,677	-0,677	-0,677	-0,677
Assa	-0,621	-0,556	-0,666	-0,581	-0,697	-0,702	-0,602	-0,624	-0,621	-0,621	-0,621	-0,621
Nordea	-0,490	-0,446	-0,495	-0,351	-0,429	-0,511	-0,557	-0,511	-0,511	-0,490	-0,490	-0,490
Tele 2	-0,587	-0,027	0,155	0,030	-0,280	-0,458	-0,638	-0,599	-0,561	-0,607	-0,587	-0,587
Eniro	-0,956	-0,206	-0,193	-0,398	-0,686	-0,792	-0,858	-0,880	-0,915	-0,943	-0,942	-0,957
Europolitan	-0,414	-0,181	-0,248	-0,279	-0,397	-0,483	-0,586	-0,495	-0,414	-0,414	-0,414	-0,414
Alfa Laval	1,577	0,133	0,679	0,919	1,369	0,981	0,821	1,577	1,577	1,577	1,577	1,577
Swedish Match	0,243	-0,198	0,067	0,132	0,209	0,243	0,243	0,243	0,243	0,243	0,243	0,243
Fabege	0,058	0,091	0,142	0,148	0,068	0,058	0,058	0,058	0,058	0,058	0,058	0,058
Whilborg	0,076	0,083	0,147	0,085	0,076	0,076	0,076	0,076	0,076	0,076	0,076	0,076
Boliden	-0,684	-0,239	-0,453	-0,561	-0,700	-0,405	-0,555	-0,686	-0,704	-0,738	-0,684	-0,684
Vostok GAS	-0,993	-0,553	-0,579	-0,642	-0,615	-0,655	-0,707	-0,726	-0,911	-0,931	-0,939	-0,960
Swedbank	-0,908	-0,179	-0,479	-0,608	-0,684	-0,769	-0,824	-0,864	-0,877	-0,905	-0,917	-0,933
SSAB	-0,566	-0,193	-0,141	-0,225	-0,354	-0,557	-0,566	-0,584	-0,619	-0,662	-0,662	-0,566
Lundin Petrol	-0,366	-0,198	-0,362	-0,456	-0,352	-0,457	-0,377	-0,563	-0,578	-0,614	-0,366	-0,366
>0	18	11	18	25	22	17	18	19	19	19	19	18
%	0,333333	0,203704	0,333333	0,462963	0,407407	0,314815	0,333333	0,351852	0,351852	0,351852	0,351852	0,333333

Appendix F: Stock Returns Variance, TSL vs. BH.

Namn\Stop-loss level	0,00	0,05	0,10	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	0,052	0,013	0,026	0,033	0,040	0,049	0,050	0,052	0,054	0,054	0,055	0,057
ABB B	0,068	0,016	0,013	0,037	0,032	0,038	0,046	0,054	0,064	0,068	0,068	0,068
AGA B	0,025	0,018	0,018	0,016	0,020	0,023	0,025	0,025	0,025	0,025	0,025	0,000
Astra A	0,029	0,001	0,015	0,028	0,033	0,029	0,029	0,029	0,029	0,029	0,029	0,029
Astra Zeneca	0,014	0,003	0,009	0,012	0,014	0,014	0,015	0,014	0,014	0,014	0,014	0,014
Astra B	0,036	0,000	0,015	0,032	0,036	0,036	0,036	0,036	0,036	0,036	0,036	0,036
Atlas A	0,021	0,006	0,015	0,019	0,023	0,026	0,024	0,021	0,021	0,021	0,021	0,021
Atlas B	0,023	0,007	0,014	0,020	0,024	0,027	0,026	0,023	0,023	0,023	0,023	0,023
Celsius	0,058	0,005	0,032	0,039	0,050	0,060	0,058	0,062	0,058	0,058	0,058	0,058
Electrolux	0,035	0,004	0,023	0,029	0,033	0,036	0,039	0,037	0,035	0,035	0,035	0,035
Ericsson	0,124	0,010	0,045	0,072	0,101	0,103	0,103	0,102	0,107	0,112	0,112	0,114
HM	0,019	0,004	0,012	0,020	0,021	0,018	0,019	0,020	0,019	0,019	0,019	0,019
Investor B	0,021	0,004	0,009	0,014	0,017	0,017	0,019	0,021	0,021	0,021	0,021	0,021
Sandvik	0,022	0,005	0,014	0,019	0,021	0,022	0,023	0,023	0,023	0,022	0,022	0,022
Sandvik B	0,027	0,004	0,013	0,019	0,024	0,028	0,031	0,027	0,027	0,027	0,027	0,027
SCA B	0,014	0,005	0,010	0,013	0,015	0,015	0,016	0,014	0,014	0,014	0,014	0,014
SEB A	0,031	0,004	0,009	0,018	0,023	0,024	0,026	0,030	0,031	0,033	0,036	0,033
SvHBank	0,015	0,004	0,010	0,014	0,016	0,016	0,017	0,015	0,015	0,015	0,015	0,015
Skandia Fors	0,080	0,013	0,019	0,043	0,045	0,054	0,060	0,069	0,071	0,073	0,078	0,080
Skanska B	0,019	0,006	0,010	0,015	0,018	0,021	0,023	0,019	0,019	0,019	0,019	0,019
Stora Enso A	0,023	0,024	0,018	0,023	0,023	0,023	0,023	0,023	0,023	0,023	0,023	0,023
Stora Enso R	0,032	0,006	0,012	0,017	0,020	0,024	0,027	0,027	0,029	0,031	0,031	0,032
Stora A	0,067	0,002	0,012	0,027	0,026	0,030	0,048	0,054	0,067	0,067	0,067	0,067
Stora B	0,095	0,002	0,016	0,037	0,034	0,041	0,064	0,083	0,095	0,095	0,095	0,095
Trelleborg	0,026	0,002	0,005	0,015	0,017	0,019	0,021	0,024	0,028	0,026	0,026	0,026
Volvo	0,022	0,006	0,014	0,018	0,021	0,022	0,024	0,024	0,024	0,026	0,026	0,022
SKF	0,024	0,006	0,014	0,020	0,023	0,027	0,027	0,024	0,024	0,024	0,024	0,024
Avesta	0,013	0,003	0,001	0,001	0,006	0,013	0,013	0,013	0,013	0,013	0,013	0,013
Autoliv	0,018	0,006	0,013	0,016	0,016	0,017	0,017	0,018	0,018	0,018	0,018	0,018
Kinnevik	0,109	0,013	0,092	0,105	0,105	0,119	0,113	0,109	0,109	0,109	0,109	0,109
Nokia	0,036	0,005	0,023	0,028	0,033	0,042	0,041	0,044	0,036	0,036	0,036	0,036
NOKIA SDB	0,086	0,012	0,044	0,068	0,082	0,082	0,083	0,086	0,090	0,090	0,086	0,086
Scania A	0,033	0,009	0,022	0,026	0,027	0,034	0,034	0,036	0,036	0,033	0,033	0,033
Scania B	0,031	0,005	0,020	0,024	0,025	0,032	0,032	0,034	0,034	0,031	0,031	0,031
ICON	0,130	0,027	0,043	0,041	0,212	0,113	0,118	0,128	0,136	0,128	0,134	0,121
Securitas B	0,020	0,007	0,015	0,016	0,018	0,021	0,020	0,022	0,022	0,020	0,020	0,020
WMDATA	0,082	0,005	0,016	0,038	0,041	0,045	0,063	0,065	0,066	0,075	0,073	0,078
Framtidsfabrik	0,188	0,012	0,142	0,104	0,050	0,060	0,064	0,079	0,085	0,132	0,128	0,134
Holmen	0,020	0,007	0,017	0,019	0,019	0,017	0,017	0,019	0,020	0,020	0,020	0,020
Telia	0,026	0,006	0,016	0,021	0,024	0,027	0,029	0,028	0,026	0,026	0,026	0,026
Assa	0,020	0,004	0,014	0,015	0,020	0,021	0,020	0,020	0,020	0,020	0,020	0,020
Nordea	0,015	0,004	0,009	0,011	0,013	0,015	0,016	0,016	0,016	0,015	0,015	0,015
Tele 2	0,053	0,008	0,027	0,032	0,045	0,049	0,054	0,053	0,052	0,054	0,053	0,053
Eniro	0,045	0,007	0,014	0,017	0,022	0,025	0,030	0,032	0,036	0,041	0,041	0,046
Europolitan	0,034	0,005	0,009	0,020	0,031	0,038	0,050	0,043	0,034	0,034	0,034	0,034
Alfa Laval	0,019	0,008	0,021	0,021	0,019	0,022	0,024	0,019	0,019	0,019	0,019	0,019
Swedish Match	0,007	0,006	0,008	0,008	0,007	0,007	0,007	0,007	0,007	0,007	0,007	0,007
Fabege	0,011	0,007	0,008	0,008	0,011	0,011	0,011	0,011	0,011	0,011	0,011	0,011
Whilborg	0,005	0,005	0,001	0,004	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005
Boliden	0,256	0,007	0,017	0,019	0,022	0,229	0,241	0,255	0,258	0,264	0,256	0,256
Vostok GAS	0,161	0,019	0,040	0,043	0,045	0,049	0,056	0,058	0,099	0,108	0,113	0,128
Swedbank	0,031	0,001	0,003	0,005	0,006	0,009	0,014	0,019	0,022	0,029	0,034	0,041
SSAB	0,075	0,012	0,025	0,043	0,049	0,062	0,070	0,077	0,082	0,089	0,089	0,075
Lundin Petrol	0,058	0,006	0,002	0,016	0,036	0,046	0,060	0,093	0,095	0,104	0,058	0,058
BH>TS-L	52	52	50	42	28	23	18	11	9	7	6	
%	0,963	0,963	0,926	0,778	0,519	0,426	0,333	0,204	0,167	0,130	0,111	
BH<TS-L	2	2	3	10	19	23	18	14	8	6	5	
%	0,037037	0,037037	0,055556	0,185185	0,351852	0,425926	0,333333	0,259259	0,148148	0,111111	0,092593	
BH=TS-L	0	0	1	2	7	8	18	29	37	41	43	
%	0	0	0,018519	0,037037	0,12963	0,148148	0,333333	0,537037	0,685185	0,759259	0,796296	

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Appendix G: F-test (Excel) results of the two-sided hypothesis, Var stock i, TS-L ≠ Var stock i, BH.

Namn\Stop-loss level	0,05	0,1	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	0,0000	0,0316	0,1566	0,4291	0,8486	0,9080	0,9902	0,9171	0,9096	0,8773	0,7741
ABB B	0,1406	0,0963	0,5230	0,4277	0,5468	0,6777	0,8138	0,9492	1,0000	1,0000	1,0000
AGA B	0,6672	0,6900	0,5660	0,7631	0,9232	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Astra A	0,0007	0,4890	0,9417	0,9165	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Astra Zeneca	0,0000	0,1309	0,5521	0,9969	0,9217	0,8747	1,0000	1,0000	1,0000	1,0000	1,0000
Astra B	0,0002	0,3622	0,9007	0,9855	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Atlas A	0,0001	0,2076	0,7476	0,8064	0,5320	0,7074	1,0000	1,0000	1,0000	1,0000	1,0000
Atlas B	0,0001	0,1262	0,7116	0,7957	0,5865	0,6239	1,0000	1,0000	1,0000	1,0000	1,0000
Celsius	0,0018	0,4204	0,6044	0,8507	0,9558	0,9843	0,9143	1,0000	1,0000	1,0000	1,0000
Electrolux	0,0000	0,1690	0,5016	0,8853	0,8944	0,7156	0,8582	1,0000	1,0000	1,0000	1,0000
Ericsson	0,0000	0,0012	0,0776	0,5007	0,5476	0,5431	0,5270	0,6361	0,7409	0,7451	0,7927
HM	0,0000	0,1311	0,8089	0,7345	0,8967	0,9156	0,8689	1,0000	1,0000	1,0000	1,0000
Investor B	0,0000	0,0039	0,1667	0,4748	0,4882	0,6824	0,8899	0,9938	1,0000	1,0000	1,0000
Sandvik	0,0000	0,1587	0,6399	0,8693	0,9503	0,8378	0,8383	0,8034	1,0000	1,0000	1,0000
Sandvik B	0,0058	0,2825	0,6002	0,8609	0,9621	0,8384	1,0000	1,0000	1,0000	1,0000	1,0000
SCA B	0,0006	0,2278	0,7365	0,9228	0,8161	0,6903	1,0000	1,0000	1,0000	1,0000	1,0000
SEB A	0,0000	0,0001	0,0843	0,2962	0,4068	0,5426	0,9128	0,9951	0,8503	0,5996	0,8389
SvHBank	0,0000	0,1988	0,8963	0,8087	0,7448	0,6342	1,0000	1,0000	1,0000	1,0000	1,0000
Skandia Fors	0,0000	0,0001	0,0767	0,1044	0,2740	0,4031	0,6675	0,7235	0,8064	0,9365	0,9962
Skanska B	0,0002	0,0236	0,4389	0,8183	0,8284	0,5757	1,0000	1,0000	1,0000	1,0000	1,0000
Stora Enso A	0,9813	0,9309	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Stora Enso R	0,0000	0,0027	0,0485	0,1571	0,3732	0,5714	0,6124	0,7610	0,9359	0,9319	1,0000
Stora A	0,0039	0,1199	0,3908	0,3827	0,4529	0,7479	0,8368	1,0000	1,0000	1,0000	1,0000
Stora B	0,0093	0,1766	0,4657	0,4187	0,5058	0,7512	0,9120	1,0000	1,0000	1,0000	1,0000
Trelleborg	0,0002	0,0070	0,3717	0,4851	0,5996	0,7318	0,8933	0,9231	1,0000	1,0000	1,0000
Volvo	0,0000	0,1568	0,5122	0,8694	0,9437	0,8180	0,8357	0,7675	0,6298	0,5929	1,0000
SKF	0,0000	0,0775	0,5929	0,9039	0,6917	0,6834	1,0000	1,0000	1,0000	1,0000	1,0000
Avesta	0,5392	0,2926	0,4167	0,7677	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Autoliv	0,0009	0,3774	0,7768	0,7798	0,8281	0,9676	0,9858	1,0000	1,0000	1,0000	1,0000
Kinnevik	0,0015	0,7790	0,9536	0,9473	0,8933	0,9544	1,0000	1,0000	1,0000	1,0000	1,0000
Nokia	0,0291	0,5766	0,7645	0,8984	0,8555	0,8964	0,8151	1,0000	1,0000	1,0000	1,0000
NOKIA SDB	0,0000	0,0459	0,4706	0,9014	0,8968	0,9215	0,9963	0,8829	0,8981	1,0000	1,0000
Scania A	0,0000	0,1762	0,4163	0,4854	0,9588	0,9229	0,7749	0,7505	1,0000	1,0000	1,0000
Scania B	0,0000	0,1600	0,3987	0,4949	0,9331	0,9131	0,7516	0,7368	1,0000	1,0000	1,0000
ICON	0,0002	0,0063	0,0046	0,2165	0,7272	0,8085	0,9665	0,9075	0,9788	0,9368	0,8612
Securitas B	0,0013	0,4139	0,5168	0,7783	0,9116	0,9298	0,8286	0,8286	1,0000	1,0000	1,0000
WMDATA	0,0001	0,0124	0,2240	0,2658	0,3267	0,6745	0,7110	0,7173	0,8773	0,8551	0,9308
Framtidsfabrik	0,0474	0,8238	0,6401	0,3070	0,3717	0,4010	0,4971	0,5301	0,7809	0,7633	0,7891
Holmen	0,0077	0,7442	0,9194	0,9292	0,7231	0,7231	0,9049	1,0000	1,0000	1,0000	1,0000
Telia	0,0000	0,1682	0,4869	0,7663	0,8893	0,7788	0,8151	1,0000	1,0000	1,0000	1,0000
Assa	0,0001	0,2896	0,4718	0,9754	0,9848	0,9295	0,9894	1,0000	1,0000	1,0000	1,0000
Nordea	0,0003	0,1660	0,4031	0,6028	0,9148	0,9180	0,9169	0,9169	1,0000	1,0000	1,0000
Tele 2	0,0000	0,0707	0,1618	0,6636	0,8090	0,9739	0,9899	0,9589	0,9671	1,0000	1,0000
Eniro	0,0000	0,0016	0,0081	0,0511	0,1099	0,2707	0,3369	0,5305	0,7975	0,8061	0,9857
Europolitan	0,0383	0,1246	0,5163	0,8886	0,9023	0,6693	0,7956	1,0000	1,0000	1,0000	1,0000
Alfa Laval	0,0518	0,7499	0,7368	0,9502	0,7215	0,5560	1,0000	1,0000	1,0000	1,0000	1,0000
Swedish Match	0,6693	0,8852	0,7626	0,9038	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Fabege	0,6676	0,7179	0,7028	0,9638	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Whilborg	0,9939	0,4874	0,9379	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Boliden	0,0000	0,0002	0,0003	0,0006	0,8644	0,9276	0,9968	0,9862	0,9595	1,0000	1,0000
Vostok GAS	0,0024	0,0402	0,0500	0,0589	0,0745	0,1097	0,1242	0,4600	0,5447	0,5849	0,7232
Swedbank	0,0001	0,0025	0,0158	0,0338	0,1025	0,2820	0,4890	0,6172	0,9433	0,9046	0,6916
SSAB	0,0167	0,1458	0,4448	0,5670	0,7931	0,9288	0,9798	0,9046	0,8226	0,8226	1,0000
Lundin Petrol	0,0466	0,0082	0,2470	0,6479	0,8202	0,9830	0,6640	0,6432	0,5903	1,0000	1,0000

Appendix H: Risk-Adjusted Stock Returns (Goodness Index), TSL vs. BH.

Name\Stop-loss level	1	0,05	0,1	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	0,532	2,383	1,654	1,330	0,718	0,452	0,431	0,362	0,331	0,350	0,362	0,310
ABB A	1,055	3,058	0,058	0,275	3,518	2,685	2,045	1,553	1,176	1,055	1,055	1,055
AGA B	2,062	2,608	2,262	4,433	3,094	2,353	2,062	2,062	2,062	2,062	2,062	2,609
Astra A	1,577	-76,946	-3,171	1,817	1,276	1,577	1,577	1,577	1,577	1,577	1,577	1,577
Astra Zeneca	0,006	-0,574	0,040	0,077	-0,473	0,067	-0,083	0,006	0,006	0,006	0,006	0,006
Astra B	1,174	-101,155	-3,628	1,545	1,126	1,174	1,174	1,174	1,174	1,174	1,174	1,174
Atlas A	1,122	-1,122	0,888	1,112	0,747	0,522	0,787	1,122	1,122	1,122	1,122	1,122
Atlas B	1,016	-1,403	0,761	0,917	0,710	0,502	0,603	1,016	1,016	1,016	1,016	1,016
Celsius	1,168	-3,727	1,021	1,711	1,578	1,059	1,132	0,983	1,168	1,168	1,168	1,168
Electrolux	0,528	-2,936	0,488	0,816	0,629	0,432	0,276	0,418	0,528	0,528	0,528	0,528
Ericsson	0,334	0,677	0,800	0,990	0,877	0,808	0,688	0,615	0,513	0,436	0,449	0,424
HM	1,737	-2,791	-0,307	0,843	0,967	1,882	1,626	1,564	1,737	1,737	1,737	1,737
Investor B	0,407	-2,609	-0,010	1,397	0,621	0,780	0,631	0,470	0,404	0,407	0,407	0,407
Sandvik	0,450	-0,084	0,789	0,570	0,471	0,365	0,328	0,340	0,320	0,450	0,450	0,450
Sandvik B	0,191	-4,853	1,777	1,352	0,421	0,115	-0,043	0,191	0,191	0,191	0,191	0,191
SCA B	0,431	-0,042	0,324	0,172	-0,203	0,190	0,090	0,431	0,431	0,431	0,431	0,431
SEB A	-0,014	-0,501	-0,216	0,906	0,432	0,297	0,202	-0,038	-0,070	-0,132	-0,224	-0,073
SvHBank	0,750	-1,895	0,106	0,486	0,478	0,418	0,331	0,750	0,750	0,750	0,750	0,750
Skandia Fors	0,625	1,091	-0,316	0,881	1,358	0,786	0,624	0,837	0,818	0,749	0,657	0,615
Skanska B	0,576	-0,308	0,019	0,989	0,446	0,152	0,088	0,576	0,576	0,576	0,576	0,576
Stora Enso A	13,137	5,919	16,927	13,137	13,137	13,137	13,137	13,137	13,137	13,137	13,137	13,137
Stora Enso R	-0,420	0,208	-0,507	0,537	0,313	-0,168	-0,249	-0,274	-0,347	-0,409	-0,403	-0,420
Stora A	0,191	-5,310	0,774	2,151	1,554	0,197	0,702	0,488	0,191	0,191	0,191	0,191
Stora B	0,325	-3,642	1,095	2,303	1,668	0,417	0,955	0,506	0,325	0,325	0,325	0,325
Trelleborg	-0,589	-19,941	-15,483	0,197	-0,327	-0,238	-0,396	-0,527	-0,625	-0,589	-0,589	-0,589
Volvo	0,552	1,607	0,601	0,825	0,539	0,465	0,419	0,430	0,387	0,306	0,285	0,552
SKF	0,963	-0,806	0,436	0,968	0,959	0,555	0,585	0,963	0,963	0,963	0,963	0,963
Avesta	-9,902	-13,034	-94,558	-50,284	-16,806	-9,902	-9,902	-9,902	-9,902	-9,902	-9,902	-9,902
Autoliv	0,795	0,883	1,562	0,863	0,608	1,037	0,818	0,780	0,795	0,795	0,795	0,795
Kinnevik	1,101	1,468	1,204	0,999	1,171	0,902	1,013	1,101	1,101	1,101	1,101	1,101
Nokia	-2,252	-6,368	-1,457	-2,220	-2,434	-2,897	-2,315	-2,292	-2,252	-2,252	-2,252	-2,252
NOKIA SDB	0,895	0,662	1,247	0,830	0,860	0,966	0,946	0,889	0,803	0,819	0,895	0,895
Scania A	0,809	1,406	2,082	1,412	1,043	0,642	0,697	0,570	0,553	0,809	0,809	0,809
Scania B	0,804	1,857	2,345	1,358	0,972	0,622	0,675	0,536	0,527	0,804	0,804	0,804
ICON	-0,468	0,016	-0,393	-0,516	0,374	0,325	0,407	0,188	0,052	-0,002	-0,243	-0,369
Securitas B	-0,410	0,451	0,090	-0,047	-0,439	-0,580	-0,378	-0,507	-0,507	-0,410	-0,410	-0,410
WMDATA	-1,797	-1,137	-2,939	-1,821	-2,135	-2,360	-1,466	-1,721	-1,890	-1,860	-1,868	-1,836
Framtidsfabrik	-2,096	-13,865	-0,001	-0,382	-0,369	-0,783	-2,516	-2,252	-2,222	-2,260	-2,315	-2,338
Holmen	1,085	3,779	1,447	1,039	1,079	1,476	1,476	1,204	1,085	1,085	1,085	1,085
Telia	-0,390	2,338	0,941	0,079	-0,293	-0,503	-0,532	-0,468	-0,390	-0,390	-0,390	-0,390
Assa	-0,758	-4,164	-1,749	-0,971	-1,150	-1,145	-0,722	-0,763	-0,758	-0,758	-0,758	-0,758
Nordea	-0,210	-1,706	-0,762	0,095	-0,141	-0,335	-0,445	-0,249	-0,249	-0,210	-0,210	-0,210
Tele 2	0,078	1,237	0,855	0,689	0,360	0,190	-0,005	0,058	0,101	0,062	0,078	0,078
Eniro	-1,319	0,413	0,487	-0,060	-0,805	-1,138	-1,230	-1,299	-1,354	-1,371	-1,338	-1,325
Europolitan	-1,378	-3,047	-2,958	-1,363	-1,511	-1,628	-1,705	-1,442	-1,378	-1,378	-1,378	-1,378
Alfa Laval	2,900	1,858	1,759	2,013	2,652	2,071	1,795	2,900	2,900	2,900	2,900	2,900
Swedish Match	2,639	0,077	1,694	1,920	2,389	2,639	2,639	2,639	2,639	2,639	2,639	2,639
Fabege	1,847	3,562	4,557	4,789	2,094	1,847	1,847	1,847	1,847	1,847	1,847	1,847
Whilborg	6,613	7,018	34,926	8,146	6,613	6,613	6,613	6,613	6,613	6,613	6,613	6,613
Boliden	-0,041	-2,075	-2,300	-2,848	-3,840	0,126	0,040	-0,048	-0,055	-0,077	-0,041	-0,041
Vostok GAS	-1,116	-2,774	-1,242	-1,450	-1,211	-1,264	-1,269	-1,284	-1,249	-1,254	-1,254	-1,231
Swedbank	-6,625	-10,938	-22,154	-18,517	-17,817	-15,109	-11,395	-9,677	-8,703	-6,943	-6,273	-5,410
SSAB	-0,576	-0,881	0,076	-0,047	-0,369	-0,822	-0,675	-0,616	-0,633	-0,666	-0,666	-0,576
Lundin Petrol	-0,905	-5,632	-34,049	-6,078	-1,701	-1,927	-0,927	-1,061	-1,072	-1,088	-0,905	-0,905
BH<TSL		20	26	34	26	20	17	12	6	4	5	4
%		0,370	0,481	0,630	0,481	0,370	0,315	0,222	0,111	0,074	0,093	0,074
BH>TSL		34	28	19	26	27	29	24	19	13	8	7
%		0,630	0,519	0,352	0,481	0,500	0,537	0,444	0,352	0,241	0,148	0,130
BH>TSL		0	0	1	2	7	8	18	29	37	41	43
%		0,000	0,000	0,019	0,037	0,130	0,148	0,333	0,537	0,685	0,759	0,796

Appendix I: Manipulated Risk-Adjusted Stock Returns, TSL vs. BH.
(return+0,5) / (var+0,5).

Name\Stop-loss level	1	0,05	0,1	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	0,956	1,036	1,032	1,020	0,979	0,951	0,948	0,940	0,935	0,937	0,937	0,929
ABB A	1,007	1,064	0,976	0,950	1,151	1,120	1,087	1,054	1,020	1,007	1,007	1,007
AGA B	1,051	1,055	1,045	1,106	1,079	1,060	1,051	1,051	1,051	1,051	1,051	1,000
Astra A	1,032	0,903	0,876	1,043	1,017	1,032	1,032	1,032	1,032	1,032	1,032	1,032
Astra Zeneca	0,973	0,992	0,984	0,979	0,960	0,975	0,969	0,973	0,973	0,973	0,973	0,973
Astra B	1,012	0,908	0,865	1,033	1,009	1,012	1,012	1,012	1,012	1,012	1,012	1,012
Atlas A	1,005	0,974	0,997	1,004	0,989	0,977	0,990	1,005	1,005	1,005	1,005	1,005
Atlas B	1,001	0,967	0,993	0,997	0,987	0,975	0,980	1,001	1,001	1,001	1,001	1,001
Celsius	1,017	0,957	1,001	1,052	1,053	1,006	1,014	0,998	1,017	1,017	1,017	1,017
Electrolux	0,969	0,965	0,977	0,990	0,977	0,961	0,948	0,960	0,969	0,969	0,969	0,969
Ericsson	0,868	0,993	0,983	0,999	0,979	0,967	0,947	0,935	0,914	0,897	0,899	0,893
HM	1,027	0,973	0,970	0,994	0,999	1,031	1,023	1,021	1,027	1,027	1,027	1,027
Investor B	0,976	0,973	0,983	1,011	0,987	0,993	0,987	0,979	0,975	0,976	0,976	0,976
Sandvik	0,977	0,990	0,994	0,984	0,979	0,973	0,970	0,971	0,970	0,977	0,977	0,977
Sandvik B	0,959	0,959	1,019	1,013	0,974	0,954	0,940	0,959	0,959	0,959	0,959	0,959
SCA B	0,984	0,990	0,987	0,979	0,966	0,976	0,972	0,984	0,984	0,984	0,984	0,984
SEB A	0,941	0,988	0,978	0,997	0,975	0,968	0,961	0,941	0,938	0,930	0,917	0,933
SvHBank	0,993	0,979	0,982	0,986	0,984	0,981	0,978	0,993	0,993	0,993	0,993	0,993
Skandia Fors	0,948	1,002	0,952	0,991	1,030	0,979	0,960	0,980	0,977	0,968	0,954	0,947
Skanska B	0,984	0,984	0,981	1,000	0,981	0,966	0,960	0,984	0,984	0,984	0,984	0,984
Stora Enso A	1,528	1,227	1,563	1,528	1,528	1,528	1,528	1,528	1,528	1,528	1,528	1,528
Stora Enso R	0,915	0,991	0,965	0,985	0,973	0,947	0,937	0,935	0,926	0,918	0,918	0,915
Stora A	0,904	0,978	0,995	1,058	1,028	0,955	0,974	0,950	0,904	0,904	0,904	0,904
Stora B	0,892	0,982	1,003	1,091	1,042	0,956	0,995	0,930	0,892	0,892	0,892	0,892
Trelleborg	0,921	0,918	0,853	0,976	0,956	0,955	0,943	0,930	0,914	0,921	0,921	0,921
Volvo	0,981	1,007	0,989	0,994	0,981	0,978	0,974	0,974	0,972	0,966	0,964	0,981
SKF	0,998	0,978	0,985	0,999	0,998	0,977	0,979	0,998	0,998	0,998	0,998	0,998
Avesta	0,725	0,927	0,865	0,848	0,784	0,725	0,725	0,725	0,725	0,725	0,725	0,725
Autoliv	0,993	0,999	1,015	0,996	0,988	1,001	0,994	0,992	0,993	0,993	0,993	0,993
Kinnevik	1,018	1,012	1,032	1,000	1,030	0,981	1,002	1,018	1,018	1,018	1,018	1,018
Nokia	0,780	0,927	0,894	0,829	0,790	0,696	0,751	0,732	0,780	0,780	0,780	0,780
NOKIA SDB	0,985	0,992	1,020	0,980	0,980	0,995	0,992	0,984	0,970	0,972	0,985	0,985
Scania A	0,988	1,007	1,045	1,020	1,002	0,978	0,981	0,971	0,970	0,988	0,988	0,988
Scania B	0,989	1,009	1,052	1,016	0,999	0,977	0,980	0,970	0,970	0,989	0,989	0,989
ICON	0,698	0,949	0,890	0,885	0,814	0,876	0,887	0,835	0,798	0,796	0,738	0,733
Securitas B	0,945	0,993	0,973	0,967	0,949	0,936	0,948	0,937	0,937	0,945	0,945	0,945
WMDATA	0,606	0,979	0,876	0,799	0,762	0,725	0,723	0,686	0,665	0,629	0,633	0,618
Framtidsfabrik	0,155	0,660	0,779	0,762	0,875	0,810	0,601	0,555	0,534	0,318	0,322	0,294
Holmen	1,003	1,036	1,015	1,001	1,003	1,016	1,016	1,007	1,003	1,003	1,003	1,003
Telia	0,931	1,016	0,998	0,964	0,942	0,922	0,917	0,922	0,931	0,931	0,931	0,931
Assa	0,931	0,955	0,927	0,941	0,917	0,915	0,935	0,931	0,931	0,931	0,931	0,931
Nordea	0,964	0,977	0,967	0,980	0,972	0,962	0,956	0,962	0,962	0,964	0,964	0,964
Tele 2	0,911	1,004	0,993	0,982	0,947	0,928	0,902	0,909	0,915	0,909	0,911	0,911
Eniro	0,807	0,992	0,986	0,966	0,924	0,898	0,873	0,862	0,842	0,819	0,821	0,805
Europolitan	0,847	0,958	0,931	0,910	0,855	0,813	0,756	0,807	0,847	0,847	0,847	0,847
Alfa Laval	1,068	1,014	1,031	1,041	1,061	1,044	1,036	1,068	1,068	1,068	1,068	1,068
Swedish Match	1,023	0,989	1,010	1,015	1,020	1,023	1,023	1,023	1,023	1,023	1,023	1,023
Fabege	1,019	1,036	1,054	1,056	1,023	1,019	1,019	1,019	1,019	1,019	1,019	1,019
Whilborg	1,051	1,055	1,099	1,057	1,051	1,051	1,051	1,051	1,051	1,051	1,051	1,051
Boliden	0,648	0,960	0,894	0,856	0,794	0,726	0,688	0,646	0,641	0,628	0,648	0,648
Vostok GAS	0,486	0,861	0,832	0,805	0,816	0,798	0,773	0,762	0,628	0,599	0,586	0,546
Swedbank	0,554	0,972	0,874	0,815	0,772	0,712	0,662	0,615	0,599	0,558	0,539	0,509
SSAB	0,794	0,957	0,955	0,917	0,877	0,799	0,793	0,785	0,770	0,749	0,749	0,794
Lundin Petrol	0,801	0,924	0,842	0,776	0,820	0,755	0,795	0,678	0,668	0,642	0,801	0,801
BH<TSL		39	39	41	36	24	21	16	11	9	8	5
%		0,7222222	0,722222	0,759259	0,666667	0,444444	0,388889	0,296296	0,203704	0,166667	0,148148	0,092593
BH>TSL		15	15	12	16	23	25	20	14	8	5	6
%		0,2777778	0,277778	0,222222	0,296296	0,425926	0,462963	0,37037	0,259259	0,148148	0,092593	0,111111
BH=TSL		0	0	1	2	7	8	18	29	37	41	43
%		0	0	0,018519	0,037037	0,12963	0,148148	0,333333	0,537037	0,685185	0,759259	0,796296

Appendix J: Average Stock Returns, SL vs. BH.

Name\Stop-loss level	1,00	0,05	0,10	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	0,0276	0,0133	0,0283	0,0362	0,0189	0,0202	0,0164	0,0157	0,0239	0,0224	0,0159	0,0149
ABB B	0,0713	0,0421	0,0170	0,0528	0,1026	0,0934	0,0841	0,0777	0,0699	0,0713	0,0713	0,0713
AGA B	0,0515	0,0212	0,0650	0,0595	0,0515	0,0515	0,0515	0,0515	0,0515	0,0515	0,0515	0,0002
Astra A	0,0465	-0,0162	-0,0163	0,0500	0,0455	0,0465	0,0465	0,0465	0,0465	0,0465	0,0465	0,0465
Astra Zeneca	0,0001	0,0048	-0,0027	-0,0038	-0,0031	0,0004	-0,0009	0,0001	0,0001	0,0001	0,0001	0,0001
Astra B	0,0421	-0,0169	-0,0210	0,0492	0,0421	0,0421	0,0421	0,0421	0,0421	0,0421	0,0421	0,0421
Atlas A	0,0240	0,0129	0,0104	0,0155	0,0189	0,0189	0,0196	0,0186	0,0240	0,0240	0,0240	0,0240
Atlas B	0,0229	0,0119	0,0072	0,0135	0,0172	0,0171	0,0186	0,0229	0,0229	0,0229	0,0229	0,0229
Celsius	0,0672	0,0228	0,0639	0,0839	0,0701	0,0589	0,0612	0,0672	0,0672	0,0672	0,0672	0,0672
Electrolux	0,0185	-0,0137	0,0175	0,0258	0,0150	0,0134	0,0082	0,0167	0,0185	0,0185	0,0185	0,0185
Ericsson	0,0413	0,0672	0,0722	0,0825	0,0681	0,0595	0,0605	0,0567	0,0532	0,0519	0,0490	0,0469
HM	0,0327	0,0054	0,0157	0,0163	0,0188	0,0307	0,0317	0,0327	0,0327	0,0327	0,0327	0,0327
Investor B	0,0087	-0,0036	0,0054	0,0145	0,0085	0,0156	0,0113	0,0091	0,0087	0,0087	0,0087	0,0087
Sandvik	0,0097	0,0181	0,0099	0,0073	0,0110	0,0107	0,0075	0,0078	0,0074	0,0097	0,0097	0,0097
Sandvik B	0,0051	-0,0003	0,0095	0,0190	0,0066	0,0047	-0,0013	0,0051	0,0051	0,0051	0,0051	0,0051
SCA B	0,0061	0,0033	0,0067	0,0035	0,0005	0,0018	0,0061	0,0061	0,0061	0,0061	0,0061	0,0061
SEB A	-0,0004	0,0038	0,0172	0,0111	0,0088	0,0058	0,0011	-0,0031	-0,0031	-0,0071	-0,0024	-0,0004
SvHBank	0,0112	-0,0046	0,0002	0,0127	0,0061	0,0057	0,0057	0,0112	0,0112	0,0112	0,0112	0,0112
Skandia Fors	0,0501	0,0035	0,0151	0,0491	0,0299	0,0219	0,0611	0,0614	0,0561	0,0547	0,0512	0,0503
Skanska B	0,0112	0,0066	0,0166	0,0057	0,0104	0,0064	0,0043	0,0112	0,0112	0,0112	0,0112	0,0112
Stora Enso A	0,2990	0,2990	0,2990	0,2990	0,2990	0,2990	0,2990	0,2990	0,2990	0,2990	0,2990	0,2990
Stora Enso R	-0,0134	-0,0012	0,0084	0,0021	0,0019	-0,0046	-0,0071	-0,0086	-0,0121	-0,0142	-0,0131	-0,0134
Stora A	0,0129	0,0248	0,0735	0,0615	0,0527	0,0432	0,0336	0,0217	0,0129	0,0129	0,0129	0,0129
Stora B	0,0308	0,0377	0,1058	0,0928	0,0768	0,0678	0,0508	0,0418	0,0308	0,0308	0,0308	0,0308
Trelleborg	-0,0155	-0,0216	-0,0382	0,0032	-0,0019	-0,0065	-0,0100	-0,0131	-0,0174	-0,0155	-0,0155	-0,0155
Volvo	0,0123	0,0151	0,0140	0,0102	0,0070	0,0070	0,0097	0,0102	0,0094	0,0079	0,0123	0,0123
SKF	0,0228	0,0166	0,0120	0,0230	0,0184	0,0183	0,0190	0,0228	0,0228	0,0228	0,0228	0,0228
Avesta	-0,1280	-0,0653	-0,0749	-0,1030	-0,1250	-0,1280	-0,1280	-0,1280	-0,1280	-0,1280	-0,1280	-0,1280
Autoliv	0,0141	0,0101	0,0015	-0,0023	0,0133	0,0141	0,0141	0,0141	0,0141	0,0141	0,0141	0,0141
Kinnevik	0,1202	0,0565	0,0962	0,0856	0,1090	0,1042	0,1202	0,1202	0,1202	0,1202	0,1202	0,1202
Nokia	-0,0817	-0,0141	-0,0536	-0,0750	-0,0970	-0,0914	-0,0998	-0,0817	-0,0817	-0,0817	-0,0817	-0,0817
NOKIA SDB	0,0769	0,0504	0,0643	0,0582	0,0720	0,0865	0,0795	0,0764	0,0742	0,0697	0,0769	0,0769
Scania A	0,0267	0,0235	0,0343	0,0268	0,0272	0,0242	0,0201	0,0203	0,0267	0,0267	0,0267	0,0267
Scania B	0,0249	0,0271	0,0359	0,0257	0,0260	0,0220	0,0185	0,0183	0,0249	0,0249	0,0249	0,0249
ICON	-0,0606	0,0263	0,0082	-0,0053	-0,0039	-0,0146	-0,0374	-0,0473	-0,0323	-0,0440	-0,0518	-0,0553
Securitas B	-0,0083	-0,0020	-0,0007	-0,0100	-0,0108	-0,0081	-0,0103	-0,0078	-0,0083	-0,0083	-0,0083	-0,0083
WMDATA	-0,1474	-0,0385	-0,1032	-0,0944	-0,1121	-0,1204	-0,1031	-0,1159	-0,1366	-0,1419	-0,1482	-0,1445
Framtidsfabrik	-0,3932	-0,1156	-0,0411	-0,0685	-0,1496	-0,1496	-0,1922	-0,2700	-0,2869	-0,3187	-0,3373	-0,3420
Holmen	0,0215	0,0239	0,0239	0,0186	0,0206	0,0253	0,0236	0,0215	0,0215	0,0215	0,0215	0,0215
Telia	-0,0102	0,0130	0,0082	-0,0026	-0,0057	-0,0141	-0,0145	-0,0121	-0,0132	-0,0102	-0,0102	-0,0102
Assa	-0,0155	-0,0037	-0,0242	-0,0179	-0,0125	-0,0142	-0,0170	-0,0155	-0,0155	-0,0155	-0,0155	-0,0155
Nordea	-0,0032	-0,0060	-0,0033	-0,0043	-0,0077	-0,0072	-0,0015	-0,0039	-0,0032	-0,0032	-0,0032	-0,0032
Tele 2	0,0042	0,0203	0,0354	0,0218	0,0076	0,0030	0,0030	0,0031	0,0052	0,0044	0,0042	0,0042
Eniro	-0,0599	-0,0282	-0,0025	-0,0117	-0,0282	-0,0381	-0,0476	-0,0500	-0,0574	-0,0560	-0,0623	-0,0651
Europolitan	-0,0474	0,0203	-0,0146	-0,0214	-0,0459	-0,0665	-0,0902	-0,0948	-0,0474	-0,0474	-0,0474	-0,0474
Alfa Laval	0,0539	0,0109	0,0243	0,0392	0,0456	0,0441	0,0426	0,0539	0,0539	0,0539	0,0539	0,0539
Swedish Match	0,0187	0,0047	0,0137	0,0160	0,0187	0,0187	0,0187	0,0187	0,0187	0,0187	0,0187	0,0187
Fabege	0,0208	0,0177	0,0225	0,0208	0,0208	0,0208	0,0208	0,0208	0,0208	0,0208	0,0208	0,0208
Whilborg	0,0302	-0,0093	0,0302	0,0302	0,0302	0,0302	0,0302	0,0302	0,0302	0,0302	0,0302	0,0302
Boliden	-0,0105	-0,0321	0,0598	0,0513	0,0332	0,0091	0,0002	-0,0200	-0,0218	-0,0205	-0,0105	-0,0105
Vostok GAS	-0,1791	-0,0095	-0,0556	-0,0557	-0,0521	-0,0969	-0,1037	-0,1168	-0,1206	-0,1358	-0,1393	-0,1571
Swedbank	-0,2056	-0,0595	-0,1116	-0,1414	-0,1385	-0,1606	-0,1775	-0,1985	-0,1998	-0,2095	-0,2244	-0,2284
SSAB	-0,0433	-0,0002	0,0121	-0,0205	-0,0134	-0,0358	-0,0317	-0,0461	-0,0489	-0,0623	-0,0609	-0,0433
Lundin Petroleum	-0,0527	-0,0755	-0,0816	-0,1314	-0,0236	-0,0301	-0,0552	-0,0982	-0,1127	-0,0906	-0,0527	-0,0527
BH<SL		24	30	31	26	23	20	15	10	8	6	6
%		44,44%	55,56%	57,41%	48,15%	42,59%	37,04%	27,78%	18,52%	14,81%	11,11%	11,11%
BH>SL		29	22	20	22	22	23	16	12	9	6	4
%		53,70%	40,74%	37,04%	40,74%	40,74%	42,59%	29,63%	22,22%	16,67%	11,11%	7,41%
BH=SL		1	2	3	6	9	11	23	32	37	42	44
%		1,85%	3,70%	5,56%	11,11%	16,67%	20,37%	42,59%	59,26%	68,52%	77,78%	81,48%

Appendix K: T-test results of the one-sided hypothesis, μ stock i,SL > μ stock i,BH.

Name\Stop-loss level	1,00	0,05	0,10	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	1,000	0,317	0,489	0,284	0,293	0,323	0,248	0,222	0,386	0,336	0,208	0,188
ABB B	1,000	0,374	0,290	0,411	0,182	0,182	0,182	0,182	0,182	1,000	1,000	1,000
AGA B	1,000	0,221	0,175	0,175	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Astra A	1,000	0,187	0,172	0,182	0,182	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Astra Zeneca	1,000	0,363	0,392	0,309	0,301	0,257	0,162	1,000	1,000	1,000	1,000	1,000
Astra B	1,000	0,223	0,208	0,182	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Atlas A	1,000	0,230	0,138	0,093	0,141	0,096	0,161	0,161	1,000	1,000	1,000	1,000
Atlas B	1,000	0,240	0,106	0,092	0,118	0,056	0,161	1,000	1,000	1,000	1,000	1,000
Celsius	1,000	0,260	0,468	0,064	0,336	0,139	0,173	1,000	1,000	1,000	1,000	1,000
Electrolux	1,000	0,093	0,476	0,102	0,200	0,056	0,019	0,161	1,000	1,000	1,000	1,000
Ericsson	1,000	0,198	0,108	0,017	0,056	0,110	0,043	0,065	0,080	0,076	0,080	0,080
HM	1,000	0,041	0,075	0,065	0,080	0,141	0,161	1,000	1,000	1,000	1,000	1,000
Investor B	1,000	0,256	0,415	0,275	0,489	0,041	0,192	0,414	0,161	1,000	1,000	1,000
Sandvik	1,000	0,250	0,489	0,357	0,317	0,135	0,086	0,161	0,161	1,000	1,000	1,000
Sandvik B	1,000	0,450	0,425	0,101	0,370	0,172	0,172	1,000	1,000	1,000	1,000	1,000
SCA B	1,000	0,399	0,458	0,291	0,125	0,135	1,000	1,000	1,000	1,000	1,000	1,000
SEB A	1,000	0,424	0,144	0,126	0,117	0,208	0,418	0,339	0,339	0,177	0,161	1,000
SvHBank	1,000	0,096	0,133	0,285	0,091	0,112	0,161	1,000	1,000	1,000	1,000	1,000
Skandia Fors	1,000	0,156	0,203	0,488	0,284	0,207	0,192	0,101	0,142	0,206	0,425	0,483
Skanska B	1,000	0,376	0,266	0,271	0,451	0,222	0,152	1,000	1,000	1,000	1,000	1,000
Stora Enso A	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Stora Enso R	1,000	0,294	0,084	0,123	0,050	0,088	0,127	0,131	0,250	0,359	0,162	1,000
Stora A	1,000	0,457	0,187	0,187	0,187	0,187	0,187	0,187	1,000	1,000	1,000	1,000
Stora B	1,000	0,481	0,196	0,196	0,196	0,196	0,196	0,196	1,000	1,000	1,000	1,000
Trelleborg	1,000	0,444	0,277	0,152	0,180	0,169	0,169	0,169	0,169	1,000	1,000	1,000
Volvo	1,000	0,425	0,431	0,392	0,185	0,193	0,118	0,161	0,161	0,161	1,000	1,000
SKF	1,000	0,334	0,193	0,485	0,167	0,180	0,195	1,000	1,000	1,000	1,000	1,000
Avesta	1,000	0,299	0,250	0,250	0,250	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Autoliv	1,000	0,364	0,142	0,085	0,203	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Kinnevik	1,000	0,125	0,265	0,169	0,056	0,085	1,000	1,000	1,000	1,000	1,000	1,000
Nokia	1,000	0,085	0,183	0,406	0,316	0,165	0,178	1,000	1,000	1,000	1,000	1,000
NOKIA SDB	1,000	0,172	0,319	0,235	0,349	0,038	0,105	0,433	0,153	0,055	1,000	1,000
Scania A	1,000	0,425	0,212	0,497	0,459	0,298	0,144	0,161	1,000	1,000	1,000	1,000
Scania B	1,000	0,445	0,110	0,462	0,419	0,287	0,157	0,161	1,000	1,000	1,000	1,000
ICON	1,000	0,047	0,072	0,097	0,051	0,083	0,218	0,319	0,073	0,162	0,273	0,351
Securitas B	1,000	0,331	0,216	0,413	0,345	0,478	0,244	0,162	1,000	1,000	1,000	1,000
WMDATA	1,000	0,045	0,215	0,155	0,252	0,228	0,028	0,051	0,149	0,290	0,470	0,169
Framtidsfabrik	1,000	0,142	0,039	0,039	0,050	0,050	0,051	0,132	0,138	0,181	0,221	0,142
Holmen	1,000	0,444	0,321	0,318	0,435	0,163	0,163	1,000	1,000	1,000	1,000	1,000
Telia	1,000	0,078	0,045	0,148	0,061	0,118	0,150	0,162	0,162	1,000	1,000	1,000
Assa	1,000	0,242	0,303	0,400	0,211	0,163	0,136	1,000	1,000	1,000	1,000	1,000
Nordea	1,000	0,432	0,498	0,451	0,285	0,262	0,162	1,000	1,000	1,000	1,000	1,000
Tele 2	1,000	0,305	0,020	0,085	0,321	0,442	0,434	0,399	0,163	0,163	1,000	1,000
Eniro	1,000	0,173	0,010	0,010	0,028	0,049	0,144	0,145	0,374	0,180	0,324	0,144
Europolitan	1,000	0,069	0,164	0,142	0,470	0,218	0,116	0,105	1,000	1,000	1,000	1,000
Alfa Laval	1,000	0,025	0,015	0,086	0,160	0,164	0,164	1,000	1,000	1,000	1,000	1,000
Swedish Match	1,000	0,057	0,135	0,204	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Fabege	1,000	0,299	0,187	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Whilborg	1,000	0,178	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Boliden	1,000	0,444	0,063	0,027	0,068	0,180	0,240	0,268	0,145	0,170	1,000	1,000
Vostok GAS	1,000	0,042	0,073	0,065	0,055	0,047	0,051	0,045	0,049	0,056	0,069	0,195
Swedbank	1,000	0,012	0,023	0,087	0,053	0,096	0,082	0,242	0,295	0,353	0,146	0,173
SSAB	1,000	0,287	0,156	0,326	0,217	0,400	0,207	0,418	0,236	0,130	0,173	1,000
Lundin Petroleum	1,000	0,416	0,398	0,235	0,121	0,106	0,393	0,141	0,098	0,187	1,000	1,000

Appendix L: Compound Stock Returns, SL vs. BH.

Namn\Stop-loss level	1,00	0,05	0,10	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	-0,0815	0,2529	0,7730	1,1214	-0,2186	-0,1916	-0,3553	-0,3948	-0,0881	-0,1834	-0,5268	-0,5653
ABB B	0,2589	0,2072	0,0226	0,2392	0,6517	0,5357	0,4196	0,3392	0,2410	0,2589	0,2589	0,2589
AGA B	0,3779	0,1127	0,5697	0,4916	0,3779	0,3779	0,3779	0,3779	0,3779	0,3779	0,3779	0,3779
Astra A	0,2250	-0,1167	-0,1395	0,2570	0,2158	0,2250	0,2250	0,2250	0,2250	0,2250	0,2250	0,2250
Astra Zeneca	-0,2438	0,0777	-0,2622	-0,3313	-0,3283	-0,2324	-0,2849	-0,2438	-0,2438	-0,2438	-0,2438	-0,2438
Astra B	0,1765	-0,1191	-0,1625	0,2403	0,1765	0,1765	0,1765	0,1765	0,1765	0,1765	0,1765	0,1765
Atlas A	0,8289	0,3532	0,0922	0,2195	0,4016	0,3748	0,4248	0,3316	0,8289	0,8289	0,8289	0,8289
Atlas B	0,7004	0,2887	-0,0868	0,0880	0,2560	0,2252	0,3346	0,7004	0,7004	0,7004	0,7004	0,7004
Celsius	0,4503	0,1248	0,5054	0,7502	0,5029	0,3146	0,3449	0,4503	0,4503	0,4503	0,4503	0,4503
Electrolux	0,1033	-0,5849	0,3590	0,7096	-0,0867	-0,1811	-0,4136	-0,0160	0,1033	0,1033	0,1033	0,1033
Ericsson	-0,6303	5,1053	5,3233	8,0268	2,9572	1,2810	1,2009	0,6679	0,2753	0,1457	-0,1048	-0,2727
HM	1,8664	-0,0091	0,4093	0,3366	0,4649	1,5469	1,6950	1,8664	1,8664	1,8664	1,8664	1,8664
Investor B	-0,1394	-0,2768	-0,0087	0,3597	-0,0481	0,3663	0,0375	-0,1062	-0,1432	-0,1394	-0,1394	-0,1394
Sandvik	-0,0432	0,7188	0,0608	-0,1082	0,0450	0,0169	-0,1688	-0,1604	-0,1838	-0,0432	-0,0432	-0,0432
Sandvik B	-0,0695	-0,0493	0,0031	0,1059	-0,0502	-0,0752	-0,1489	-0,0695	-0,0695	-0,0695	-0,0695	-0,0695
SCA B	-0,0401	-0,0322	0,0357	-0,1439	-0,2805	-0,2409	-0,0401	-0,0401	-0,0401	-0,0401	-0,0401	-0,0401
SEB A	-0,5624	-0,0229	0,5851	0,0227	-0,1268	-0,2795	-0,4752	-0,6061	-0,6127	-0,7212	-0,6327	-0,5624
SvHBank	0,1944	-0,3328	-0,2334	0,3082	-0,0910	-0,1161	-0,1234	0,1944	0,1944	0,1944	0,1944	0,1944
Skandia Fors	0,2083	-0,1282	0,0302	1,7912	0,2273	-0,1497	1,7313	1,6930	0,9764	0,8114	0,4141	0,3231
Skanska B	0,0483	0,0859	0,5456	-0,1346	0,0612	-0,1714	-0,2800	0,0483	0,0483	0,0483	0,0483	0,0483
Stora Enso A	0,6760	0,6760	0,6760	0,6760	0,6760	0,6760	0,6760	0,6760	0,6760	0,6760	0,6760	0,6760
Stora Enso R	-0,7094	-0,1927	0,0267	-0,2585	-0,2861	-0,4957	-0,5600	-0,5984	-0,6781	-0,7219	-0,7035	-0,7094
Stora A	-0,0920	0,1025	0,3711	0,2797	0,2127	0,1395	0,0664	-0,0250	-0,0920	-0,0920	-0,0920	-0,0920
Stora B	-0,0431	0,1265	0,4385	0,3551	0,2523	0,1945	0,0853	0,0275	-0,0431	-0,0431	-0,0431	-0,0431
Trelleborg	-0,3000	-0,2533	-0,4201	-0,0466	-0,1165	-0,1781	-0,2257	-0,2683	-0,3266	-0,3000	-0,3000	-0,3000
Volvo	0,0481	0,5429	0,2934	0,0128	-0,1844	-0,1952	-0,1157	-0,0887	-0,1400	-0,2402	0,0481	0,0481
SKF	0,6473	0,5543	0,1440	0,7474	0,3301	0,2857	0,3312	0,6473	0,6473	0,6473	0,6473	0,6473
Avesta	-0,2461	-0,1264	-0,1450	-0,1984	-0,2404	-0,2461	-0,2461	-0,2461	-0,2461	-0,2461	-0,2461	-0,2461
Autoliv	0,2578	0,1843	-0,2157	-0,3491	0,2129	0,2578	0,2578	0,2578	0,2578	0,2578	0,2578	0,2578
Kinnevik	1,5775	0,3905	1,0167	0,7293	1,1826	1,0121	1,5775	1,5775	1,5775	1,5775	1,5775	1,5775
Nokia	-0,5118	-0,1318	-0,3695	-0,4715	-0,5635	-0,5527	-0,5888	-0,5118	-0,5118	-0,5118	-0,5118	-0,5118
NOKIA SDB	3,7357	1,8843	3,3860	2,2772	3,4488	7,1350	4,5700	3,6563	3,0311	1,9758	3,7357	3,7357
Scania A	0,6575	0,9493	1,7296	0,8097	0,7633	0,4659	0,1328	0,1409	0,6575	0,6575	0,6575	0,6575
Scania B	0,5842	1,3396	2,0815	0,7821	0,7493	0,3692	0,0922	0,0799	0,5842	0,5842	0,5842	0,5842
ICON	-0,9872	0,2844	-0,2959	-0,5652	-0,6327	-0,7515	-0,8986	-0,9331	-0,8975	-0,9452	-0,9644	-0,9710
Securitas B	-0,5015	-0,2306	-0,2505	-0,5060	-0,5407	-0,4885	-0,5482	-0,4886	-0,5015	-0,5015	-0,5015	-0,5015
WMDATA	-0,9239	-0,4568	-0,7743	-0,7522	-0,8095	-0,8467	-0,8074	-0,8471	-0,8995	-0,9109	-0,9233	-0,9173
Framtidsfabrik	-0,9326	-0,3907	-0,1964	-0,2921	-0,5348	-0,5348	-0,6355	-0,7894	-0,8114	-0,8497	-0,8701	-0,8773
Holmen	0,3441	0,6159	0,4978	0,2746	0,3386	0,5532	0,4561	0,3441	0,3441	0,3441	0,3441	0,3441
Telia	-0,5684	0,2900	0,0002	-0,3716	-0,4657	-0,6386	-0,6510	-0,6123	-0,6359	-0,5684	-0,5684	-0,5684
Assa	-0,5302	-0,2171	-0,5953	-0,5415	-0,4698	-0,5065	-0,5595	-0,5302	-0,5302	-0,5302	-0,5302	-0,5302
Nordea	-0,3306	-0,2735	-0,2555	-0,3113	-0,4240	-0,4222	-0,2694	-0,3575	-0,3306	-0,3306	-0,3306	-0,3306
Tele 2	-0,4757	0,4526	0,8681	0,1435	-0,3487	-0,4678	-0,4809	-0,4916	-0,4432	-0,4695	-0,4757	-0,4757
Eniro	-0,9427	-0,6298	-0,2542	-0,4733	-0,7326	-0,8212	-0,8827	-0,8957	-0,9284	-0,9257	-0,9499	-0,9585
Europolitan	-0,3683	0,1155	-0,1487	-0,1976	-0,3513	-0,4641	-0,5773	-0,5973	-0,3683	-0,3683	-0,3683	-0,3683
Alfa Laval	2,0248	0,1126	0,4045	1,0328	1,3777	1,2630	1,1420	2,0248	2,0248	2,0248	2,0248	2,0248
Swedish Match	0,4631	0,0373	0,2829	0,3535	0,4631	0,4631	0,4631	0,4631	0,4631	0,4631	0,4631	0,4631
Fabege	0,0851	0,0682	0,0954	0,0851	0,0851	0,0851	0,0851	0,0851	0,0851	0,0851	0,0851	0,0851
Whilborg	0,0885	-0,0355	0,0885	0,0885	0,0885	0,0885	0,0885	0,0885	0,0885	0,0885	0,0885	0,0885
Boliden	-0,6477	-0,3337	0,0468	-0,0883	-0,2856	-0,5042	-0,5693	-0,6932	-0,7141	-0,7071	-0,6477	-0,6477
Vostok GAS	-0,9918	-0,2136	-0,5676	-0,5774	-0,5597	-0,8432	-0,8590	-0,8879	-0,8954	-0,9235	-0,9291	-0,9552
Swedbank	-0,8988	-0,4267	-0,6640	-0,7550	-0,7492	-0,8073	-0,8453	-0,8850	-0,8875	-0,9037	-0,9262	-0,9323
SSAB	-0,5272	-0,0656	-0,0246	-0,3056	-0,2810	-0,4492	-0,4388	-0,5384	-0,5642	-0,6503	-0,6437	-0,5272
Lundin Petroleum	-0,3371	-0,3262	-0,3574	-0,5229	-0,1891	-0,2230	-0,3483	-0,5414	-0,5943	-0,5134	-0,3371	-0,3371
BH<SL		33	34	33	29	24	20	15	10	8	7	6
%		61,11%	62,96%	61,11%	53,70%	44,44%	37,04%	27,78%	18,52%	14,81%	12,96%	11,11%
BH>SL		20	18	18	19	21	23	16	12	9	5	3
%		37,04%	33,33%	33,33%	35,19%	38,89%	42,59%	29,63%	22,22%	16,67%	9,26%	5,56%
BH=SL		1	2	3	6	9	11	23	32	37	42	45
%		1,85%	3,70%	5,56%	11,11%	16,67%	20,37%	42,59%	59,26%	68,52%	77,78%	83,33%

Appendix M: Average Excess Stock Returns, SL vs. BH.

Name\Stop-loss-level	1	0,05	0,1	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	0,014921	0,005053	0,018391	0,025449	0,010041	0,01123	0,00781	0,007248	0,014516	0,01314	0,007346	0,006487
ABB B	0,008257	0,004368	0,001019	0,005789	0,012436	0,011201	0,009966	0,009112	0,008067	0,008257	0,008257	0,008257
AGA B	0,007566	0,002165	0,009966	0,008988	0,007566	0,007566	0,007566	0,007566	0,007566	0,007566	0,007566	0,000237
Astra A	0,004953	-0,003407	-0,003423	0,00542	0,004819	0,004953	0,004953	0,004953	0,004953	0,004953	0,004953	0,004953
Astra Zeneca	-0,006512	-0,002398	-0,008898	-0,009903	-0,009232	-0,006267	-0,007393	-0,006512	-0,006512	-0,006512	-0,006512	-0,006512
Astra B	0,004357	-0,003508	-0,004052	0,005314	0,004357	0,004357	0,004357	0,004357	0,004357	0,004357	0,004357	0,004357
Atlas A	0,016124	0,005074	0,002524	0,007616	0,011062	0,011052	0,011754	0,010747	0,016124	0,016124	0,016124	0,016124
Atlas B	0,015035	0,004047	-0,000596	0,005707	0,009346	0,009218	0,010774	0,015035	0,015035	0,015035	0,015035	0,015035
Celsius	0,011631	0,00276	0,010974	0,01497	0,012221	0,009964	0,01043	0,011631	0,011631	0,011631	0,011631	0,011631
Electrolux	0,010645	0,021566	0,009706	0,017969	0,007191	0,005563	0,000345	0,008896	0,010645	0,010645	0,010645	0,010645
Ericsson	0,033458	0,059381	0,064392	0,074643	0,060295	0,051699	0,052668	0,048854	0,045317	0,044034	0,041196	0,039061
HM	0,02483	-0,002464	0,007814	0,008443	0,011008	0,022834	0,023863	0,02483	0,02483	0,02483	0,02483	0,02483
Investor B	0,000877	-0,011423	-0,002429	0,006635	0,000652	0,007756	0,003426	0,001272	0,000821	0,000877	0,000877	0,000877
Sandvik	0,001872	0,010292	0,002086	-0,000542	0,003188	0,002844	-0,000311	-1,91E-05	-0,000397	0,001872	0,001872	0,001872
Sandvik B	-0,000886	-0,002097	8,72E-05	0,00221	-0,000549	-0,000988	-0,002313	-0,000886	-0,000886	-0,000886	-0,000886	-0,000886
SCA B	-0,001731	-0,004557	-0,001133	-0,004366	-0,007334	-0,006005	-0,001731	-0,001731	-0,001731	-0,001731	-0,001731	-0,001731
SEB A	-0,008257	-0,004044	0,009395	0,003224	0,000946	-0,002074	-0,006754	-0,010896	-0,010913	-0,014955	-0,010236	-0,008257
SvHBank	0,003336	-0,012483	-0,007627	0,004861	-0,001703	-0,002087	-0,002132	0,003336	0,003336	0,003336	0,003336	0,003336
Skandia Fors	0,031888	-0,003251	0,005471	0,031139	0,01662	0,010625	0,040194	0,040456	0,036472	0,035407	0,032735	0,03205
Skanska B	0,003322	-0,001237	0,008738	-0,002144	0,002587	-0,001476	-0,003538	0,003322	0,003322	0,003322	0,003322	0,003322
Stora Enso A	0,012941	0,012941	0,012941	0,012941	0,012941	0,012941	0,012941	0,012941	0,012941	0,012941	0,012941	0,012941
Stora Enso R	-0,018187	-0,007649	0,000659	-0,004808	-0,004911	-0,010565	-0,012728	-0,014077	-0,017065	-0,018888	-0,017968	-0,018187
Stora A	0,000342	0,001666	0,007071	0,005743	0,004769	0,003707	0,002644	0,001316	0,000342	0,000342	0,000342	0,000342
Stora B	0,001823	0,002433	0,00849	0,007335	0,005912	0,005112	0,003601	0,002801	0,001823	0,001823	0,001823	0,001823
Trelleborg	-0,006578	-0,008208	-0,012653	-0,001612	-0,00297	-0,004179	-0,005117	-0,005955	-0,007102	-0,006578	-0,006578	-0,006578
Volvo	0,004442	0,007272	0,006122	0,002404	-0,000793	-0,000855	0,001886	0,002351	0,001566	3,51E-05	0,004442	0,004442
SKF	0,014959	0,008793	0,004124	0,015189	0,01057	0,010452	0,011128	0,014959	0,014959	0,014959	0,014959	0,014959
Avesta	-0,00617	-0,003383	-0,00381	-0,005057	-0,006037	-0,00617	-0,00617	-0,00617	-0,00617	-0,00617	-0,00617	-0,00617
Autoliv	0,005541	0,00202	-0,005676	-0,008986	0,004878	0,005541	0,005541	0,005541	0,005541	0,005541	0,005541	0,005541
Kinnevik	0,029587	0,01261	0,023206	0,020362	0,026619	0,025319	0,029587	0,029587	0,029587	0,029587	0,029587	0,029587
Nokia	-0,013973	-0,003458	-0,009599	-0,012931	-0,016352	-0,015479	-0,01679	0,013973	-0,013973	-0,013973	-0,013973	-0,013973
NOKIA SDB	0,05835	0,035993	0,047729	0,042615	0,054261	0,066468	0,06058	0,057958	0,056068	0,052271	0,05835	0,05835
Scania B	0,017093	0,019312	0,028052	0,017835	0,01813	0,014145	0,01062	0,010467	0,017093	0,017093	0,017093	0,017093
ICON	-0,040832	0,011337	0,000439	-0,007626	-0,006782	-0,01325	-0,026881	-0,032852	-0,023859	-0,030847	-0,035573	-0,037674
Securitas B	-0,013056	-0,007892	-0,006787	-0,014502	-0,015154	-0,012909	-0,014693	-0,012692	-0,013056	-0,013056	-0,013056	-0,013056
WMDATA	-0,041937	-0,012877	-0,030127	-0,027779	-0,032504	-0,034733	-0,030118	-0,033529	-0,039045	-0,040464	-0,042144	-0,041144
Framtidsfabrik	-0,035827	-0,011146	-0,004523	-0,006963	-0,01417	-0,01417	-0,017957	-0,024868	-0,02637	-0,029199	-0,030852	-0,031274
Holmen	0,008228	0,009634	0,009641	0,006579	0,007727	0,01045	0,009419	0,008228	0,008228	0,008228	0,008228	0,008228
Telia	-0,014151	0,004335	0,00051	-0,008084	-0,01061	-0,01727	-0,017663	-0,015723	-0,016567	-0,014151	-0,014151	-0,014151
Assa	-0,014466	-0,00687	-0,02009	-0,016036	-0,012558	-0,013684	-0,015481	-0,014466	-0,014466	-0,014466	-0,014466	-0,014466
Nordea	-0,008298	-0,01047	-0,008353	-0,009176	-0,011799	-0,011388	-0,006995	-0,008872	-0,008298	-0,008298	-0,008298	-0,008298
Tele 2	-0,002076	0,009031	0,01942	0,010105	0,000304	-0,002869	-0,002893	-0,002806	-0,001326	-0,001932	-0,002076	-0,002076
Eniro	-0,046198	-0,024362	-0,006662	-0,013007	-0,024366	-0,031151	-0,037747	-0,039355	-0,044456	-0,043483	-0,04786	-0,049794
Europolitan	-0,00889	0,001642	-0,003786	-0,004836	-0,008646	-0,011858	-0,015549	-0,01625	-0,00889	-0,00889	-0,00889	-0,00889
Alfa Laval	0,026344	0,002417	0,009862	0,01813	0,02171	0,020889	0,020023	0,026344	0,026344	0,026344	0,026344	0,026344
Swedish Match	0,006743	-0,001015	0,004003	0,005248	0,006743	0,006743	0,006743	0,006743	0,006743	0,006743	0,006743	0,006743
Fabege	0,001744	0,001395	0,00193	0,001744	0,001744	0,001744	0,001744	0,001744	0,001744	0,001744	0,001744	0,001744
Whilborg	0,001746	0,000883	0,001746	0,001746	0,001746	0,001746	0,001746	0,001746	0,001746	0,001746	0,001746	0,001746
Boliden	-0,004481	-0,00975	0,012704	0,010625	0,006215	0,000315	-0,001864	-0,006797	-0,00723	-0,006905	-0,004481	-0,004481
Vostok GAS	-0,045695	-0,004215	-0,015489	-0,015514	-0,014648	-0,025578	-0,027248	-0,030443	-0,031391	-0,03509	-0,035961	-0,040313
Swedbank	-0,042748	-0,013518	-0,023943	-0,029898	-0,029322	-0,033733	-0,037118	-0,041315	-0,041588	-0,043518	-0,046493	-0,047303
SSAB	-0,010279	-0,001664	0,000808	-0,005725	-0,0043	-0,00877	-0,007965	-0,010844	-0,011399	-0,014074	-0,013791	-0,010279
Lundin Petroleum	-0,006715	-0,009248	-0,009932	-0,015456	-0,003485	-0,004204	-0,006991	-0,011777	-0,013385	-0,010927	-0,006715	-0,006715
>0	30	24	32	31	31	28	27	29	29	30	30	30
%	55,56%	44,44%	59,26%	57,41%	57,41%	51,85%	50,00%	53,70%	53,70%	55,56%	55,56%	55,56%

Appendix N: Compound Excess Stock Retuns. SL vs. BH.

Name\Stop-loss level	1,00	0,05	0,10	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	-0,417	-0,080	0,302	0,558	-0,435	-0,416	-0,535	-0,564	-0,342	-0,412	-0,663	-0,691
ABB B	0,189	0,142	-0,034	0,173	0,566	0,455	0,343	0,266	0,172	0,189	0,189	0,189
AGA B	0,284	0,035	0,465	0,391	0,284	0,284	0,284	0,284	0,284	0,284	0,284	0,284
Astra A	0,159	-0,166	-0,188	0,190	0,150	0,159	0,159	0,159	0,159	0,159	0,159	0,159
Astra Zeneca	-0,442	-0,201	-0,455	-0,507	-0,505	-0,434	-0,473	-0,442	-0,442	-0,442	-0,442	-0,442
Astra B	0,113	-0,168	-0,210	0,174	0,113	0,113	0,113	0,113	0,113	0,113	0,113	0,113
Atlas A	0,277	-0,053	-0,239	-0,150	-0,023	-0,042	-0,007	-0,073	0,277	0,277	0,277	0,277
Atlas B	0,186	-0,097	-0,365	-0,243	-0,126	-0,148	-0,071	0,186	0,186	0,186	0,186	0,186
Celsius	0,338	0,037	0,391	0,618	0,387	0,211	0,240	0,338	0,338	0,338	0,338	0,338
Electrolux	-0,232	-0,711	-0,048	0,197	-0,365	-0,431	-0,595	-0,316	-0,232	-0,232	-0,232	-0,232
Ericsson	-0,755	3,305	3,455	5,366	1,763	0,580	0,518	0,145	-0,128	-0,219	-0,393	-0,509
HM	1,016	-0,307	-0,014	-0,066	0,023	0,789	0,894	1,016	1,016	1,016	1,016	1,016
Investor B	-0,404	-0,495	-0,308	-0,048	-0,336	-0,046	-0,279	-0,380	-0,406	-0,404	-0,404	-0,404
Sandvik	-0,334	0,206	-0,260	-0,379	-0,273	-0,292	-0,423	-0,417	-0,433	-0,334	-0,334	-0,334
Sandvik B	-0,154	-0,134	-0,087	0,008	-0,136	-0,159	-0,227	-0,154	-0,154	-0,154	-0,154	-0,154
SCA B	-0,329	-0,323	-0,275	-0,402	-0,499	-0,471	-0,329	-0,329	-0,329	-0,329	-0,329	-0,329
SEB A	-0,699	-0,316	0,112	-0,286	-0,391	-0,499	-0,636	-0,728	-0,732	-0,808	-0,747	-0,699
SvHBank	-0,163	-0,534	-0,465	-0,082	-0,364	-0,382	-0,386	-0,163	-0,163	-0,163	-0,163	-0,163
Skandia Fors	-0,099	-0,336	-0,217	1,136	-0,071	-0,360	1,077	1,046	0,493	0,366	0,061	-0,009
Skanska B	-0,271	-0,240	0,082	-0,397	-0,260	-0,425	-0,501	-0,271	-0,271	-0,271	-0,271	-0,271
Stora Enso A	0,656	0,656	0,656	0,656	0,656	0,656	0,656	0,656	0,656	0,656	0,656	0,656
Stora Enso R	-0,787	-0,402	-0,240	-0,452	-0,473	-0,629	-0,677	-0,705	-0,764	-0,797	-0,783	-0,787
Stora A	-0,138	0,050	0,309	0,220	0,156	0,085	0,015	-0,074	-0,138	-0,138	-0,138	-0,138
Stora B	-0,084	0,082	0,384	0,303	0,203	0,147	0,041	-0,016	-0,084	-0,084	-0,084	-0,084
Trelleborg	-0,378	-0,334	-0,484	-0,149	-0,212	-0,267	-0,310	-0,349	-0,402	-0,378	-0,378	-0,378
Volvo	-0,271	0,083	-0,095	-0,294	-0,433	-0,440	-0,386	-0,367	-0,403	-0,474	-0,271	-0,271
SKF	0,150	0,090	-0,201	0,225	-0,072	-0,104	-0,072	0,150	0,150	0,150	0,150	0,150
Avesta	-0,265	-0,146	-0,165	-0,218	-0,259	-0,265	-0,265	-0,265	-0,265	-0,265	-0,265	-0,265
Autoliv	-0,086	-0,138	-0,432	-0,530	-0,119	-0,086	-0,086	-0,086	-0,086	-0,086	-0,086	-0,086
Kinnevik	1,319	0,245	0,811	0,550	0,960	0,805	1,319	1,319	1,319	1,319	1,319	1,319
Nokia	-0,542	-0,181	-0,407	-0,504	-0,591	-0,581	-0,615	-0,542	-0,542	-0,542	-0,542	-0,542
NOKIA SDB	2,523	1,155	2,279	1,440	2,316	5,100	3,155	2,465	1,991	1,196	2,523	2,523
Scania B	0,104	0,647	1,170	0,248	0,223	-0,046	-0,241	-0,250	0,104	0,104	0,104	0,104
ICON	-0,991	0,046	-0,431	-0,650	-0,707	-0,803	-0,920	-0,948	-0,920	-0,958	-0,973	-0,978
Securitas B	-0,629	-0,422	-0,438	-0,631	-0,658	-0,619	-0,664	-0,619	-0,629	-0,629	-0,629	-0,629
WMDATA	-0,935	-0,521	-0,803	-0,784	-0,834	-0,867	-0,833	-0,868	-0,914	-0,924	-0,934	-0,929
Framtidsfabrik	-0,939	-0,417	-0,230	-0,322	-0,557	-0,557	-0,654	-0,802	-0,823	-0,860	-0,879	-0,886
Holmen	0,111	0,340	0,240	0,054	0,107	0,286	0,205	0,111	0,111	0,111	0,111	0,111
Telia	-0,677	-0,018	-0,242	-0,526	-0,598	-0,730	-0,739	-0,710	-0,728	-0,677	-0,677	-0,677
Assa	-0,621	-0,364	-0,673	-0,630	-0,572	-0,602	-0,645	-0,621	-0,621	-0,621	-0,621	-0,621
Nordea	-0,490	-0,445	-0,432	-0,474	-0,561	-0,560	-0,443	-0,511	-0,490	-0,490	-0,490	-0,490
Tele 2	-0,587	0,165	0,498	-0,088	-0,484	-0,580	-0,591	-0,599	-0,561	-0,582	-0,587	-0,587
Eniro	-0,956	-0,706	-0,406	-0,582	-0,790	-0,860	-0,909	-0,919	-0,945	-0,942	-0,961	-0,968
Europolitan	-0,414	0,042	-0,207	-0,253	-0,398	-0,504	-0,610	-0,629	-0,414	-0,414	-0,414	-0,414
Alfa Laval	1,577	-0,055	0,191	0,726	1,022	0,924	0,820	1,577	1,577	1,577	1,577	1,577
Swedish Match	0,243	-0,120	0,089	0,149	0,243	0,243	0,243	0,243	0,243	0,243	0,243	0,243
Fabege	0,058	0,041	0,068	0,058	0,058	0,058	0,058	0,058	0,058	0,058	0,058	0,058
Whilborg	0,076	-0,047	0,076	0,076	0,076	0,076	0,076	0,076	0,076	0,076	0,076	0,076
Boliden	-0,684	-0,391	-0,047	-0,172	-0,353	-0,553	-0,612	-0,725	-0,744	-0,738	-0,684	-0,684
Vostok GAS	-0,993	-0,278	-0,605	-0,615	-0,598	-0,858	-0,872	-0,899	-0,906	-0,931	-0,936	-0,960
Swedbank	-0,908	-0,470	-0,691	-0,775	-0,770	-0,824	-0,858	-0,895	-0,897	-0,912	-0,933	-0,938
SSAB	-0,566	-0,132	-0,094	-0,357	-0,335	-0,492	-0,483	-0,576	-0,600	-0,680	-0,674	-0,566
Lundin Petroleum	-0,366	-0,354	-0,384	-0,544	-0,222	-0,255	-0,377	-0,563	-0,614	-0,536	-0,366	-0,366
>0	18	18	18	22	18	17	18	18	19	19	19	18
%	33,33%	33,33%	33,33%	40,74%	33,33%	31,48%	33,33%	33,33%	35,19%	35,19%	35,19%	33,33%

Appendix O: Stock Returns Variance, SL vs. BH.

Name\Stop-loss level	1,00	0,05	0,10	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	0,0519	0,0175	0,0319	0,0383	0,0500	0,0504	0,0531	0,0542	0,0503	0,0518	0,0590	0,0601
ABB B	0,0676	0,0287	0,0360	0,0422	0,0382	0,0457	0,0542	0,0606	0,0692	0,0676	0,0676	0,0676
AGA B	0,0250	0,0201	0,0179	0,0205	0,0250	0,0250	0,0250	0,0250	0,0250	0,0250	0,0250	0,0001
Astra A	0,0295	0,0113	0,0211	0,0275	0,0301	0,0295	0,0295	0,0295	0,0295	0,0295	0,0295	0,0295
Astra Zeneca	0,0140	0,0062	0,0106	0,0129	0,0139	0,0138	0,0146	0,0140	0,0140	0,0140	0,0140	0,0140
Astra B	0,0358	0,0104	0,0202	0,0319	0,0358	0,0358	0,0358	0,0358	0,0358	0,0358	0,0358	0,0358
Atlas A	0,0214	0,0137	0,0180	0,0228	0,0231	0,0236	0,0234	0,0241	0,0214	0,0214	0,0214	0,0214
Atlas B	0,0225	0,0140	0,0199	0,0242	0,0246	0,0251	0,0245	0,0225	0,0225	0,0225	0,0225	0,0225
Celsius	0,0575	0,0261	0,0434	0,0472	0,0554	0,0632	0,0622	0,0575	0,0575	0,0575	0,0575	0,0575
Electrolux	0,0350	0,0131	0,0246	0,0308	0,0363	0,0376	0,0408	0,0362	0,0350	0,0350	0,0350	0,0350
Ericsson	0,1237	0,0737	0,0820	0,0852	0,0937	0,1004	0,1022	0,1057	0,1090	0,1104	0,1135	0,1160
HM	0,0188	0,0125	0,0175	0,0207	0,0213	0,0199	0,0194	0,0188	0,0188	0,0188	0,0188	0,0188
Investor B	0,0214	0,0077	0,0116	0,0153	0,0185	0,0166	0,0193	0,0209	0,0214	0,0214	0,0214	0,0214
Sandvik	0,0216	0,0133	0,0184	0,0205	0,0206	0,0210	0,0230	0,0230	0,0233	0,0216	0,0216	0,0216
Sandvik B	0,0268	0,0110	0,0213	0,0205	0,0259	0,0270	0,0308	0,0268	0,0268	0,0268	0,0268	0,0268
SCA B	0,0142	0,0087	0,0125	0,0142	0,0156	0,0158	0,0142	0,0142	0,0142	0,0142	0,0142	0,0142
SEB A	0,0311	0,0093	0,0146	0,0214	0,0234	0,0253	0,0285	0,0315	0,0318	0,0354	0,0331	0,0311
SvHBank	0,0149	0,0097	0,0130	0,0141	0,0167	0,0170	0,0172	0,0149	0,0149	0,0149	0,0149	0,0149
Skandia Fors	0,0801	0,0178	0,0326	0,0425	0,0521	0,0569	0,0664	0,0671	0,0723	0,0737	0,0779	0,0790
Skanska B	0,0194	0,0104	0,0143	0,0181	0,0181	0,0204	0,0219	0,0194	0,0194	0,0194	0,0194	0,0194
Stora Enso A	0,0228	0,0228	0,0228	0,0228	0,0228	0,0228	0,0228	0,0228	0,0228	0,0228	0,0228	0,0228
Stora Enso R	0,0319	0,0096	0,0169	0,0205	0,0218	0,0254	0,0268	0,0279	0,0306	0,0324	0,0316	0,0319
Stora A	0,0674	0,0141	0,0223	0,0283	0,0336	0,0403	0,0479	0,0586	0,0674	0,0674	0,0674	0,0674
Stora B	0,0949	0,0220	0,0304	0,0384	0,0500	0,0574	0,0733	0,0826	0,0949	0,0949	0,0949	0,0949
Trelleborg	0,0262	0,0059	0,0139	0,0155	0,0177	0,0201	0,0222	0,0244	0,0279	0,0262	0,0262	0,0262
Volvo	0,0222	0,0120	0,0175	0,0205	0,0231	0,0234	0,0240	0,0237	0,0243	0,0257	0,0222	0,0222
SKF	0,0237	0,0154	0,0196	0,0222	0,0247	0,0255	0,0253	0,0237	0,0237	0,0237	0,0237	0,0237
Avesta	0,0129	0,0001	0,0015	0,0061	0,0120	0,0129	0,0129	0,0129	0,0129	0,0129	0,0129	0,0129
Autoliv	0,0177	0,0130	0,0161	0,0177	0,0180	0,0177	0,0177	0,0177	0,0177	0,0177	0,0177	0,0177
Kinnevik	0,1092	0,0919	0,1069	0,1130	0,1167	0,1209	0,1092	0,1092	0,1092	0,1092	0,1092	0,1092
Nokia	0,0363	0,0156	0,0253	0,0296	0,0352	0,0394	0,0434	0,0363	0,0363	0,0363	0,0363	0,0363
NOKIA SDB	0,0859	0,0628	0,0669	0,0704	0,0829	0,0779	0,0834	0,0861	0,0883	0,0930	0,0859	0,0859
Scania A	0,0330	0,0202	0,0271	0,0303	0,0318	0,0336	0,0362	0,0362	0,0330	0,0330	0,0330	0,0330
Scania B	0,0310	0,0192	0,0243	0,0283	0,0294	0,0318	0,0341	0,0342	0,0310	0,0310	0,0310	0,0310
ICON	0,1296	0,0442	0,0524	0,0601	0,0734	0,0789	0,0925	0,0989	0,0972	0,1083	0,1158	0,1193
Securitas B	0,0202	0,0112	0,0151	0,0183	0,0200	0,0196	0,0212	0,0199	0,0202	0,0202	0,0202	0,0202
WMDATA	0,0820	0,0278	0,0339	0,0376	0,0410	0,0534	0,0539	0,0601	0,0728	0,0767	0,0815	0,0793
Framtidsfabrik	0,1876	0,0021	0,0341	0,0399	0,0651	0,0651	0,0798	0,1197	0,1246	0,1361	0,1441	0,1491
Holmen	0,0198	0,0117	0,0173	0,0191	0,0191	0,0172	0,0183	0,0198	0,0198	0,0198	0,0198	0,0198
Telia	0,0260	0,0132	0,0178	0,0216	0,0238	0,0276	0,0282	0,0273	0,0282	0,0260	0,0260	0,0260
Assa	0,0204	0,0106	0,0142	0,0179	0,0187	0,0197	0,0213	0,0204	0,0204	0,0204	0,0204	0,0204
Nordea	0,0152	0,0067	0,0105	0,0126	0,0153	0,0159	0,0141	0,0158	0,0152	0,0152	0,0152	0,0152
Tele 2	0,0531	0,0197	0,0370	0,0419	0,0487	0,0516	0,0526	0,0534	0,0521	0,0529	0,0531	0,0531
Eniro	0,0454	0,0075	0,0148	0,0182	0,0256	0,0298	0,0348	0,0365	0,0416	0,0415	0,0473	0,0500
Europolitan	0,0344	0,0110	0,0190	0,0221	0,0312	0,0402	0,0524	0,0551	0,0344	0,0344	0,0344	0,0344
Alfa Laval	0,0186	0,0148	0,0231	0,0222	0,0217	0,0226	0,0237	0,0186	0,0186	0,0186	0,0186	0,0186
Swedish Match	0,0071	0,0071	0,0079	0,0079	0,0071	0,0071	0,0071	0,0071	0,0071	0,0071	0,0071	0,0071
Fabege	0,0113	0,0115	0,0108	0,0113	0,0113	0,0113	0,0113	0,0113	0,0113	0,0113	0,0113	0,0113
Whilborg	0,0046	0,0082	0,0046	0,0046	0,0046	0,0046	0,0046	0,0046	0,0046	0,0046	0,0046	0,0046
Boliden	0,2556	0,0102	0,2064	0,2148	0,2238	0,2396	0,2456	0,2605	0,2652	0,2641	0,2556	0,2556
Vostok GAS	0,1606	0,0294	0,0408	0,0443	0,0442	0,0844	0,0873	0,0948	0,0971	0,1083	0,1110	0,1276
Swedbank	0,0310	0,0010	0,0052	0,0068	0,0080	0,0128	0,0262	0,0270	0,0321	0,0415	0,0447	
SSAB	0,0752	0,0185	0,0372	0,0468	0,0524	0,0634	0,0659	0,0756	0,0795	0,0914	0,0904	0,0752
Lundin Petrol	0,0582	0,0010	0,0075	0,0145	0,0408	0,0443	0,0595	0,0926	0,1036	0,0876	0,0582	0,0582
BH>SL	51	50	43	35	26	21	15	11	9	7	7	
%	94,44%	92,59%	79,63%	64,81%	48,15%	38,89%	27,78%	20,37%	16,67%	12,96%	12,96%	
BH<SL	2	2	8	13	19	22	16	11	8	5	3	
%	3,70%	3,70%	14,81%	24,07%	35,19%	40,74%	29,63%	20,37%	14,81%	9,26%	5,56%	
BH=SL	1	2	3	6	9	11	23	32	37	42	44	
%	1,85%	3,70%	5,56%	11,11%	16,67%	20,37%	42,59%	59,26%	68,52%	77,78%	81,48%	

Appendix P: F-test (Excel) results of the two-sided hypothesis, Var stock i,TS-L ≠ Var stock i,BH.

Name\Stop-loss level	1,00	0,05	0,10	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	1	0,0010	0,1321	0,3457	0,9056	0,9289	0,9433	0,8938	0,9251	0,9960	0,6904	0,6483
ABB B	1	0,3693	0,5065	0,6187	0,5468	0,6777	0,8138	0,9079	0,9800	1,0000	1,0000	1,0000
AGA B	1	0,7822	0,6732	0,7988	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Astra A	1	0,3142	0,7237	0,9417	0,9833	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Astra Zeneca	1	0,0141	0,4013	0,8155	0,9950	0,9732	0,8969	1,0000	1,0000	1,0000	1,0000	1,0000
Astra B	1	0,2015	0,5457	0,9007	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Atlas A	1	0,1434	0,5689	0,8274	0,7973	0,7383	0,7618	0,6872	1,0000	1,0000	1,0000	1,0000
Atlas B	1	0,1169	0,6785	0,8165	0,7749	0,7175	0,7828	1,0000	1,0000	1,0000	1,0000	1,0000
Celsius	1	0,2853	0,6991	0,7863	0,9584	0,8985	0,9143	1,0000	1,0000	1,0000	1,0000	1,0000
Electrolux	1	0,0015	0,2442	0,6778	0,9009	0,8151	0,6105	0,9131	1,0000	1,0000	1,0000	1,0000
Ericsson	1	0,0895	0,1764	0,2205	0,3601	0,4909	0,5300	0,6043	0,6776	0,7076	0,7764	0,8331
HM	1	0,1778	0,8136	0,7569	0,6866	0,8503	0,9114	1,0000	1,0000	1,0000	1,0000	1,0000
Investor B	1	0,0010	0,0445	0,2724	0,6378	0,4060	0,7375	0,9405	0,9938	1,0000	1,0000	1,0000
Sandvik	1	0,1113	0,5987	0,8656	0,8814	0,9283	0,8378	0,8383	0,8034	1,0000	1,0000	1,0000
Sandvik B	1	0,2028	0,7371	0,6947	0,9604	0,9888	0,8384	1,0000	1,0000	1,0000	1,0000	1,0000
SCA B	1	0,1098	0,6709	0,9954	0,7441	0,7271	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
SEB A	1	0,0001	0,0138	0,2219	0,3486	0,4950	0,7783	0,9656	0,9407	0,6657	0,8389	1,0000
SvHBank	1	0,1546	0,6563	0,8485	0,7048	0,6562	0,6342	1,0000	1,0000	1,0000	1,0000	1,0000
Skandia Fors	1	0,0000	0,0117	0,0730	0,2232	0,3320	0,5949	0,6141	0,7702	0,8143	0,9365	0,9683
Skanska B	1	0,0413	0,3214	0,8165	0,8219	0,8704	0,6929	1,0000	1,0000	1,0000	1,0000	1,0000
Stora Enso A	1	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Stora Enso R	1	0,0004	0,0548	0,1801	0,2469	0,4855	0,5963	0,6799	0,8965	0,9613	0,9802	1,0000
Stora A	1	0,1585	0,3091	0,4210	0,5166	0,6299	0,7479	0,8954	1,0000	1,0000	1,0000	1,0000
Stora B	1	0,2608	0,3750	0,4765	0,6120	0,6903	0,8370	0,9120	1,0000	1,0000	1,0000	1,0000
Trelleborg	1	0,0201	0,3075	0,3933	0,5217	0,6632	0,7886	0,9085	0,9231	1,0000	1,0000	1,0000
Volvo	1	0,0427	0,4292	0,7856	0,9032	0,8701	0,8036	0,8357	0,7675	0,6298	1,0000	1,0000
SKF	1	0,1575	0,5363	0,8298	0,8876	0,8020	0,8245	1,0000	1,0000	1,0000	1,0000	1,0000
Avesta	1	0,0819	0,4167	0,7677	0,9757	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Autoliv	1	0,3398	0,7732	0,9965	0,9589	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Kinnevik	1	0,7806	0,9726	0,9557	0,9136	0,8688	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Nokia	1	0,3283	0,6737	0,8104	0,9711	0,9224	0,8333	1,0000	1,0000	1,0000	1,0000	1,0000
NOKIA SDB	1	0,3456	0,4514	0,5488	0,9154	0,7685	0,9291	0,9950	0,9330	0,8099	1,0000	1,0000
Scania A	1	0,1070	0,5201	0,7804	0,9017	0,9526	0,7579	0,7615	1,0000	1,0000	1,0000	1,0000
Scania B	1	0,1146	0,4219	0,7663	0,8568	0,9371	0,7578	0,7483	1,0000	1,0000	1,0000	1,0000
ICON	1	0,0079	0,0244	0,0552	0,1532	0,2116	0,3946	0,4943	0,4673	0,6495	0,7749	0,8337
Securitas B	1	0,0810	0,3820	0,7614	0,9791	0,9317	0,8860	0,9618	1,0000	1,0000	1,0000	1,0000
WMDATA	1	0,0864	0,1584	0,2113	0,2651	0,4880	0,4972	0,6155	0,8463	0,9132	0,9916	0,9557
Framtidsfabrik	1	0,0040	0,1954	0,2360	0,4081	0,4081	0,5011	0,7210	0,7447	0,7984	0,8336	0,8548
Holmen	1	0,1938	0,7340	0,9297	0,9292	0,7231	0,8443	1,0000	1,0000	1,0000	1,0000	1,0000
Telia	1	0,0491	0,2669	0,5888	0,7920	0,8615	0,8137	0,8837	0,8151	1,0000	1,0000	1,0000
Assa	1	0,0890	0,3463	0,7358	0,8177	0,9295	0,9104	1,0000	1,0000	1,0000	1,0000	1,0000
Nordea	1	0,0186	0,2856	0,5761	0,9872	0,9090	0,8239	0,9169	1,0000	1,0000	1,0000	1,0000
Tele 2	1	0,0083	0,3290	0,5210	0,8162	0,9398	0,9772	0,9899	0,9589	0,9919	1,0000	1,0000
Eniro	1	0,0000	0,0030	0,0144	0,1225	0,2560	0,4729	0,5525	0,8135	0,8094	0,9115	0,7918
Europolitan	1	0,1912	0,4890	0,6029	0,9076	0,8557	0,6223	0,5815	1,0000	1,0000	1,0000	1,0000
Alfa Laval	1	0,5788	0,6015	0,6682	0,7076	0,6347	0,5564	1,0000	1,0000	1,0000	1,0000	1,0000
Swedish Match	1	0,9990	0,7924	0,7821	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Fabege	1	0,9869	0,9638	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Whilborg	1	0,7120	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Boliden	1	0,0000	0,7421	0,7888	0,8381	0,9208	0,9513	0,9764	0,9544	0,9595	1,0000	1,0000
Vostok GAS	1	0,0129	0,0415	0,0542	0,3256	0,3510	0,4194	0,4400	0,5447	0,5705	0,7232
Swedbank	1	0,0001	0,0200	0,0453	0,0722	0,2318	0,4574	0,8154	0,8483	0,9621	0,6916	0,6186
SSAB	1	0,0642	0,3393	0,5169	0,6210	0,8156	0,8565	0,9950	0,9402	0,7897	0,8006	1,0000
Lundin Petroleum	1	0,0016	0,0720	0,2075	0,7388	0,7974	0,9830	0,6640	0,5903	0,7017	1,0000	1,0000

Appendix Q: Risk-Adjusted Stock Returns (Goodness Index), SL vs. BH.

Name\Stop-loss level	1,00	0,05	0,10	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	0,532	0,760	0,887	0,946	0,378	0,401	0,308	0,291	0,475	0,432	0,269	0,248
ABB A	1,055	1,467	0,472	1,250	2,685	2,045	1,553	1,282	1,010	1,055	1,055	1,055
AGA B	2,062	1,052	3,624	2,909	2,062	2,062	2,062	2,062	2,062	2,062	2,062	2,609
Astra A	1,577	-1,437	-0,771	1,817	1,513	1,577	1,577	1,577	1,577	1,577	1,577	1,577
Astra Zeneca	0,006	0,779	-0,251	-0,296	-0,219	0,027	-0,064	0,006	0,006	0,006	0,006	0,006
Astra B	1,174	-1,625	-1,039	1,545	1,174	1,174	1,174	1,174	1,174	1,174	1,174	1,174
Atlas A	1,122	0,944	0,576	0,677	0,818	0,799	0,837	0,770	1,122	1,122	1,122	1,122
Atlas B	1,016	0,851	0,365	0,561	0,700	0,679	0,760	1,016	1,016	1,016	1,016	1,016
Celsius	1,168	0,874	1,473	1,777	1,266	0,932	0,983	1,168	1,168	1,168	1,168	1,168
Electrolux	0,528	-1,045	0,714	0,837	0,414	0,357	0,200	0,463	0,528	0,528	0,528	0,528
Ericsson	0,334	0,912	0,881	0,968	0,727	0,593	0,592	0,536	0,488	0,470	0,432	0,404
HM	1,737	0,431	0,894	0,788	0,887	1,540	1,630	1,737	1,737	1,737	1,737	1,737
Investor B	0,407	-0,466	0,467	0,944	0,458	0,938	0,583	0,435	0,404	0,407	0,407	0,407
Sandvik	0,450	1,364	0,539	0,356	0,534	0,509	0,328	0,340	0,320	0,450	0,450	0,450
Sandvik B	0,191	-0,030	0,446	0,931	0,256	0,172	-0,043	0,191	0,191	0,191	0,191	0,191
SCA B	0,431	0,377	0,538	0,244	0,032	0,116	0,431	0,431	0,431	0,431	0,431	0,431
SEB A	-0,014	0,408	1,179	0,516	0,376	0,228	0,038	-0,097	-0,097	-0,201	-0,073	-0,014
SvHBank	0,750	-0,481	0,016	0,903	0,367	0,337	0,331	0,750	0,750	0,750	0,750	0,750
Skandia Fors	0,625	0,200	0,463	1,155	0,573	0,385	0,919	0,915	0,777	0,742	0,657	0,637
Skanska B	0,576	0,635	1,155	0,315	0,576	0,312	0,197	0,576	0,576	0,576	0,576	0,576
Stora Enso A	13,137	13,137	13,137	13,137	13,137	13,137	13,137	13,137	13,137	13,137	13,137	13,137
Stora Enso R	-0,420	-0,128	0,493	0,100	0,089	-0,181	-0,264	-0,310	-0,396	-0,438	-0,415	-0,420
Stora A	0,191	1,761	3,295	2,173	1,569	1,072	0,702	0,369	0,191	0,191	0,191	0,191
Stora B	0,325	1,714	3,481	2,420	1,537	1,181	0,694	0,506	0,325	0,325	0,325	0,325
Trelleborg	-0,589	-3,661	-2,748	0,205	-0,109	-0,322	-0,448	-0,536	-0,625	-0,589	-0,589	-0,589
Volvo	0,552	1,262	0,798	0,500	0,305	0,299	0,406	0,430	0,387	0,306	0,552	0,552
SKF	0,963	1,080	0,610	1,038	0,745	0,716	0,749	0,963	0,963	0,963	0,963	0,963
Avesta	-9,902	-1217,731	-50,284	-16,806	-10,436	-9,902	-9,902	-9,902	-9,902	-9,902	-9,902	-9,902
Autoliv	0,795	0,778	0,091	-0,128	0,741	0,795	0,795	0,795	0,795	0,795	0,795	0,795
Kinnevik	1,101	0,615	0,901	0,758	0,934	0,862	1,101	1,101	1,101	1,101	1,101	1,101
Nokia	-2,252	-0,904	-2,116	-2,536	-2,757	-2,319	-2,300	-2,252	-2,252	-2,252	-2,252	-2,252
NOKIA SDB	0,895	0,802	0,961	0,827	0,869	1,110	0,953	0,888	0,840	0,749	0,895	0,895
Scania A	0,809	1,162	1,265	0,883	0,856	0,719	0,556	0,561	0,809	0,809	0,809	0,809
Scania B	0,804	1,415	1,476	0,906	0,884	0,692	0,542	0,535	0,804	0,804	0,804	0,804
ICON	-0,468	0,596	0,156	-0,088	-0,053	-0,186	-0,404	-0,479	-0,333	-0,406	-0,448	-0,464
Securitas B	-0,410	-0,179	-0,044	-0,551	-0,541	-0,413	-0,485	-0,395	-0,410	-0,410	-0,410	-0,410
WMDATA	-1,797	-1,383	-3,043	-2,510	-2,735	-2,255	-1,914	-1,927	-1,877	-1,850	-1,819	-1,822
Framtidsfabrik	-2,096	-54,588	-1,203	-1,717	-2,297	-2,297	-2,408	-2,255	-2,303	-2,341	-2,340	-2,294
Holmen	1,085	2,047	1,386	0,975	1,079	1,476	1,287	1,085	1,085	1,085	1,085	1,085
Telia	-0,390	0,979	0,459	-0,119	-0,241	-0,509	-0,516	-0,443	-0,468	-0,390	-0,390	-0,390
Assa	-0,758	-0,346	-1,700	-0,998	-0,669	-0,722	-0,800	-0,758	-0,758	-0,758	-0,758	-0,758
Nordea	-0,210	-0,896	-0,310	-0,344	-0,502	-0,452	-0,108	-0,249	-0,210	-0,210	-0,210	-0,210
Tele 2	0,078	1,028	0,955	0,521	0,156	0,058	0,056	0,058	0,101	0,082	0,078	0,078
Eniro	-1,319	-3,757	-0,169	-0,645	-1,101	-1,275	-1,367	-1,370	-1,378	-1,347	-1,317	-1,301
Europolitan	-1,378	1,842	-0,769	-0,969	-1,471	-1,656	-1,722	-1,719	-1,378	-1,378	-1,378	-1,378
Alfa Laval	2,900	0,735	1,052	1,764	2,100	1,950	1,795	2,900	2,900	2,900	2,900	2,900
Swedish Match	2,639	0,664	1,742	2,015	2,639	2,639	2,639	2,639	2,639	2,639	2,639	2,639
Fabege	1,847	1,542	2,094	1,847	1,847	1,847	1,847	1,847	1,847	1,847	1,847	1,847
Whilborg	6,613	-1,127	6,613	6,613	6,613	6,613	6,613	6,613	6,613	6,613	6,613	6,613
Boliden	-0,041	-3,141	0,289	0,239	0,148	0,038	0,001	-0,077	-0,082	-0,077	-0,041	-0,041
Vostok GAS	-1,116	-0,322	-1,361	-1,257	-1,179	-1,147	-1,187	-1,231	-1,243	-1,254	-1,255	-1,231
Swedbank	-6,625	-61,124	-21,670	-20,909	-17,341	-12,544	-9,865	-7,582	-7,403	-6,519	-5,410	-5,113
SSAB	-0,576	-0,012	0,326	-0,439	-0,256	-0,563	-0,481	-0,610	-0,615	-0,681	-0,673	-0,576
Lundin Petroleum	-0,905	-78,722	-10,909	-9,042	-0,579	-0,680	-0,927	-1,061	-1,088	-1,034	-0,905	-0,905
BH>SL		28	22	23	26	27	28	22	17	12	6	4
%		51,85%	40,74%	42,59%	48,15%	50,00%	51,85%	40,74%	31,48%	22,22%	11,11%	7,41%
BH<SL		25	30	28	22	18	15	9	5	5	6	6
%		46,30%	55,56%	51,85%	40,74%	33,33%	27,78%	16,67%	9,26%	9,26%	11,11%	11,11%
BH=SL		1	2	3	6	9	11	23	32	37	42	44
%		1,85%	3,70%	5,56%	11,11%	16,67%	20,37%	42,59%	59,26%	68,52%	77,78%	81,48%

Appendix R: Manipulated Risk-Adjusted Stock Returns, SL vs. BH. (return+0,5)/(var+0,5).

Name\Stop-loss level	1,00	0,05	0,10	0,15	0,20	0,25	0,30	0,35	0,40	0,45	0,50	0,55
ABB A	0,956	0,992	0,993	0,996	0,944	0,945	0,934	0,931	0,952	0,947	0,923	0,919
ABB A	1,007	1,025	0,965	1,019	1,120	1,087	1,054	1,030	1,001	1,007	1,007	1,007
AGA B	1,051	1,002	1,091	1,075	1,051	1,051	1,051	1,051	1,051	1,051	1,051	1,000
Astra A	1,032	0,946	0,928	1,043	1,029	1,032	1,032	1,032	1,032	1,032	1,032	1,032
Astra Zeneca	0,973	0,997	0,974	0,967	0,967	0,974	0,970	0,973	0,973	0,973	0,973	0,973
Astra B	1,012	0,946	0,921	1,033	1,012	1,012	1,012	1,012	1,012	1,012	1,012	1,012
Atlas A	1,005	0,998	0,985	0,986	0,992	0,991	0,993	0,989	1,005	1,005	1,005	1,005
Atlas B	1,001	0,996	0,976	0,980	0,986	0,985	0,989	1,001	1,001	1,001	1,001	1,001
Celsius	1,017	0,994	1,038	1,067	1,027	0,992	0,998	1,017	1,017	1,017	1,017	1,017
Electrolux	0,969	0,948	0,987	0,991	0,960	0,955	0,940	0,964	0,969	0,969	0,969	0,969
Ericsson	0,868	0,989	0,983	0,995	0,957	0,932	0,931	0,919	0,908	0,904	0,895	0,888
HM	1,027	0,986	0,996	0,992	0,995	1,021	1,024	1,027	1,027	1,027	1,027	1,027
Investor B	0,976	0,978	0,988	0,998	0,981	0,998	0,984	0,977	0,975	0,976	0,976	0,976
Sandvik	0,977	1,009	0,984	0,975	0,982	0,980	0,970	0,971	0,970	0,977	0,977	0,977
Sandvik B	0,959	0,978	0,977	0,997	0,963	0,958	0,940	0,959	0,959	0,959	0,959	0,959
SCA B	0,984	0,989	0,989	0,979	0,971	0,973	0,984	0,984	0,984	0,984	0,984	0,984
SEB A	0,941	0,989	1,005	0,980	0,972	0,963	0,948	0,935	0,934	0,921	0,933	0,941
SvHBank	0,993	0,972	0,975	0,997	0,980	0,978	0,978	0,993	0,993	0,993	0,993	0,993
Skandia Fors	0,948	0,973	0,967	1,012	0,960	0,937	0,991	0,990	0,972	0,967	0,954	0,950
Skanska B	0,984	0,993	1,004	0,976	0,985	0,973	0,966	0,984	0,984	0,984	0,984	0,984
Stora Enso A	1,528	1,528	1,528	1,528	1,528	1,528	1,528	1,528	1,528	1,528	1,528	1,528
Stora Enso R	0,915	0,979	0,983	0,964	0,962	0,943	0,936	0,931	0,920	0,912	0,916	0,915
Stora A	0,904	1,021	1,098	1,063	1,036	1,005	0,974	0,934	0,904	0,904	0,904	0,904
Stora B	0,892	1,030	1,142	1,101	1,049	1,019	0,961	0,930	0,892	0,892	0,892	0,892
Trelleborg	0,921	0,946	0,899	0,976	0,962	0,949	0,938	0,928	0,914	0,921	0,921	0,921
Volvo	0,981	1,006	0,993	0,980	0,969	0,969	0,973	0,974	0,972	0,966	0,981	0,981
SKF	0,998	1,002	0,985	1,002	0,988	0,986	0,988	0,998	0,998	0,998	0,998	0,998
Avesta	0,725	0,869	0,848	0,784	0,732	0,725	0,725	0,725	0,725	0,725	0,725	0,725
Autoliv	0,993	0,994	0,972	0,961	0,991	0,993	0,993	0,993	0,993	0,993	0,993	0,993
Kinnevik	1,018	0,940	0,982	0,955	0,988	0,973	1,018	1,018	1,018	1,018	1,018	1,018
Nokia	0,780	0,942	0,850	0,803	0,753	0,758	0,736	0,780	0,780	0,780	0,780	0,780
NOKIA SDB	0,985	0,978	0,995	0,979	0,981	1,015	0,993	0,984	0,976	0,961	0,985	0,985
Scania A	0,988	1,006	1,014	0,993	0,991	0,982	0,970	0,970	0,988	0,988	0,988	0,988
Scania B	0,989	1,015	1,022	0,995	0,994	0,982	0,971	0,970	0,989	0,989	0,989	0,989
ICON	0,698	0,967	0,920	0,883	0,865	0,838	0,781	0,756	0,783	0,750	0,728	0,718
Securitas B	0,945	0,974	0,969	0,945	0,941	0,947	0,940	0,947	0,945	0,945	0,945	0,945
WMDATA	0,606	0,874	0,743	0,755	0,717	0,686	0,717	0,686	0,634	0,621	0,605	0,614
Framtidsfabrik	0,155	0,766	0,859	0,799	0,620	0,620	0,531	0,371	0,341	0,285	0,253	0,243
Holmen	1,003	1,024	1,013	0,999	1,003	1,016	1,010	1,003	1,003	1,003	1,003	1,003
Telia	0,931	0,999	0,981	0,954	0,944	0,921	0,919	0,925	0,922	0,931	0,931	0,931
Assa	0,931	0,972	0,925	0,931	0,940	0,935	0,927	0,931	0,931	0,931	0,931	0,931
Nordea	0,964	0,975	0,973	0,967	0,955	0,955	0,970	0,962	0,964	0,964	0,964	0,964
Tele 2	0,911	1,001	0,997	0,963	0,925	0,912	0,910	0,909	0,915	0,912	0,911	0,911
Eniro	0,807	0,930	0,966	0,942	0,898	0,872	0,846	0,839	0,817	0,820	0,800	0,791
Europolitan	0,847	1,018	0,935	0,917	0,855	0,802	0,742	0,730	0,847	0,847	0,847	0,847
Alfa Laval	1,068	0,992	1,002	1,032	1,046	1,041	1,036	1,068	1,068	1,068	1,068	1,068
Swedish Match	1,023	0,995	1,012	1,016	1,023	1,023	1,023	1,023	1,023	1,023	1,023	1,023
Fabege	1,019	1,012	1,023	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019
Whilborg	1,051	0,965	1,051	1,051	1,051	1,051	1,051	1,051	1,051	1,051	1,051	1,051
Boliden	0,648	0,917	0,792	0,771	0,737	0,688	0,671	0,631	0,625	0,628	0,648	0,648
Vostok GAS	0,486	0,927	0,822	0,816	0,823	0,690	0,675	0,644	0,635	0,599	0,590	0,546
Swedbank	0,554	0,879	0,769	0,708	0,712	0,662	0,623	0,573	0,570	0,546	0,509	0,499
SSAB	0,794	0,964	0,953	0,877	0,881	0,824	0,827	0,789	0,778	0,740	0,744	0,794
Lundin Petroleum	0,801	0,847	0,824	0,716	0,881	0,863	0,795	0,678	0,642	0,697	0,801	0,801
BH>SL		15	14	16	19	21	23	16	12	9	6	4
%		27,78%	25,93%	29,63%	35,19%	38,89%	42,59%	29,63%	22,22%	16,67%	11,11%	7,41%
BH<SL		38	38	35	29	24	20	15	10	8	6	6
%		70,37%	70,37%	64,81%	53,70%	44,44%	37,04%	27,78%	18,52%	14,81%	11,11%	11,11%
BH=SL		1	2	3	6	9	11	23	32	37	42	44
%		1,85%	3,70%	5,56%	11,11%	16,67%	20,37%	42,59%	59,26%	68,52%	77,78%	81,48%

Appendix S: OMX Stockholm Constituents from 1998 to 2009

Year	Quarter	Constituents
1998	1 & 2	Ericsson B, Astra A, Astra B, Volvo B, Hennes & M. B, ABB A, SHB A, Investor B, Sandvik A
1998	3 & 4	Ericsson B, Astra A, Electrolux B, Skanska B, Pharl&Upjohn, Stora A, ABB B, Autoliv Inc, Scania B
1999	1 & 2	MoDo B, Atlas Copco B, Nokia A, Aga B, Trelleborg B, Avesta Sheft., Kinnevik B, Skandia, Sandvik B
1999	3 & 4	Ericsson B, Electrolux B, Hennes & M. B, FörenSparbank A, SKF B, Nordbanken Holding, Nokia A, Atlas Copco A, Scania B
1999	1 & 2	Astra A, MoDo B, Sandvik A, Stora A, S-E-Banken A, ABB B, Volvo B, Scania B
1999	3 & 4	Autoliv Inc, Astra A, Sandvik B, Atlas Copco B, Pharl&Upjohn, Trelleborg B, Autoliv Inc, Volvo B, Atlas Copco A
1999	1 & 2	Ericsson B, SEB A, Hennes & M. B, Investor B, FörenSparbank A, Nordbanken Holding, Investor B, Nokia A, Volvo B
1999	3 & 4	Electrolux B, Astra A, Pharl&Upjohn, Sandvik B, Skanska B, Skandia, SKF B, ABB B, Atlas Copco A
1999	1 & 2	Scania B, Aga B, Atlas Copco B, Sandvik A, Sandvik B, Autoliv Inc, ABB B, Stora Enso R, Atlas Copco A
2000	1 & 2	Ericsson B, SEB A, Hennes & M. B, ABB Ltd, Skandia, Volvo B, Nordbank Holding, SHB A, Securitas B
2000	3 & 4	MoDo B, Investor B, Sandvik A, Skanska B, Atlas Copco A, Pharl&Upjohn, Stora Enso R, Netcom B, Scania B
2000	1 & 2	Ericsson B, Electrolux B, Hennes & M. B, Aga B, Stora Enso A, SKF B, Kinnevik B, Trelleborg B, Autoliv
2000	3 & 4	SEB A, Securitas B, AstraZeneca, Skandia, Nokia, ABB, Electrolux B, Volvo B, WM-Data B
2000	1 & 2	Autoliv, Sandvik B, Investor B, Netcom B, Investor B, Stora Enso R, Stora Enso R, Trelleborg B, Phar&Upjohn
2001	3 & 4	Ericsson B, Telia, Skandia, Atlas Copco B, SKF B, Kinnevik B, SCA B, Atlas Copco A, Securitas B
2001	1 & 2	SEB A, Volvo B, Netcom B, Investor B, AstraZeneca, Sandvik, Icon Medialab, Skandia, Atlas Copco A
2001	3 & 4	Autoliv, Framtidsfabriken, Electrolux B, Sandvik, Kinnevik B, Pharmacia Corp., Skanska B, FörenSparbank A
2001	1 & 2	Ericsson B, Nordea, Assa Abloy B, Securitas B, Telia, Hennes & M. B, Nokia, SHB A, Securitas B
2001	3 & 4	Investor B, Sandvik, Assa Abloy B, Atlas Copco B, SCA B, Volvo B, Netcom B, Electrolux B, Pharmacia Corp.
2001	1 & 2	Stora Enso R, Holmen B, WM-Data B, Autoliv, Electrolux B, Autoliv, Framtidsfabriken, Electrolux B, Atlas Copco A
2002	3 & 4	Ericsson B, AstraZeneca, Nokia, Ericsson B, SHB A, Telia, Nokia, SHB A, Securitas B
2002	1 & 2	Sandvik, Nokia, Electrolux B, Volvo B, Atlas Copco A, Stora Enso R, WM-Data B, Skanska B, FörenSparbank A
2002	3 & 4	Europolitan, Assa Abloy B, Stora Enso R, Investor B, Autoliv, Eniro, Electrolux B, Investor B, Pharmacia Corp.
2003	1 & 2	TeliaSonera, Ericsson B, AstraZeneca, Nokia, Nordea, SHB A, FörenSparbank A, SEB A, Sandvik
2003	3 & 4	Electrolux B, Tele2 B, Assa Abloy B, Atlas Copco A, Investor B, Swedish Match, Swedish Match, Skanska B
2003	1 & 2	Atlas Copco B, Holmen B, Stora Enso R, Assa Abloy B, Drott, Alfa Laval, Sandvik, Stora Enso R, Skanska B
2004	3 & 4	Ericsson B, Nordea, AstraZeneca, ABB, TeliaSonera, Atlas Copco A, Investor B, Atlas Copco A, Volvo B
2004	1 & 2	Skandia, Electrolux B, Securitas B, Skanska B, Investor B, Assa Abloy B, Sandvik, Föreningssparbanken A, SCA B
2004	3 & 4	AstraZeneca, Nordea, Atlas Copco B, Skanska B, Alfa Laval, Holmen B, SCA B, Handelsbanken A, Swedish Match
2005	1 & 2	Ericsson B, Hennes & M. B, Skandia, Volvo B, Hennes & M. B, TeliaSonera, Investor B, Tele2 B
2005	3 & 4	SEB A, Electrolux B, Investor B, Tele2 B, Föreningssparbanken A, Eniro, Fabege B, Autoliv, Pharmacia Corp.
2005	1 & 2	Swedish Match, Stora Enso R, Securitas B, Eniro, Assa Abloy B, Alfa Laval, Holmen B, Sandvik, SEB A
2005	3 & 4	Europolitan, Nordea, Volvo B, Atlas Copco B, TeliaSonera, Sandvik, Autoliv, Atlas Copco A, SEB A
2005	1 & 2	Ericsson B, SKF B, Electrolux B, Nokia, Tele2 B, Securitas B, Skandia Försäkrings AB, Föreningssparbanken A, SKF B
2005	3 & 4	Swedish Match, Swedish Match, Eniro, Tele2 B, Assa Abloy B, Holmen B, Skandia, Securitas B, Investor B
2006	1 & 2	Ericsson B, Nordea Bank AB, AstraZeneca PLC, Hennes & M. B, Volvo AB ser. B, TeliaSonera AB, Assa Abloy B, Fabege AB, Atlas Copco A
2006	3 & 4	SKF B, SKF B, Securitas B, Electrolux B, SCA B, Nokia, Alfa Laval, Tele2 B, SEB A
2006	1 & 2	Föreningssparbanken A, Autoliv, ABB, Atlas Copco B, Alfa Laval, TeliaSonera AB, Stora Enso R, Investor B, Volvo B
2007	3 & 4	ABB, Nordea Bank AB, Hennes & M. B, Volvo AB ser. B, Atlas Copco A, Holmen AB, AstraZeneca PLC, Tele2 B, SCA B
2007	1 & 2	Ericsson B, Hennes & Mauritz AB, B, Investor B, Investor B, Electrolux B, ABB, TeliaSonera, Securitas B, Swedish Match
2007	3 & 4	Hennes & Mauritz AB, B, Swedish Match AB, Eniro, Atlas Copco B, Stora Enso R, Alfa Laval, Holmen B, SCA B, SEB A
2007	1 & 2	ABB Ltd, Investor B, ASSA ABLOY AB ser. B, Nokia Corporation, Tele2 B, Autoliv Inc. SDB, Autoliv Inc. SDB, Securitas B, Eniro AB
2007	3 & 4	Hennes & Mauritz AB, B, Swedish Match AB, Nokia Corporation, Sandvik AB, SCANIA AB ser. B, Vostok Gas Ltd. SDB, SEB ser. A, Skanska AB ser. B, SKF, AB ser. B
2008	1 & 2	ABB Ltd, Alfa Laval AB, Handelsbanken ser. A, Tele2 B ser. B, TeliaSonera AB, Volvo, AB ser. B, Boliden AB, Ericsson B, Eniro AB
2008	3 & 4	Alfa Laval AB, Investor AB ser. B, Nordea Bank AB, Atlas Copco AB ser. B, SCANIA AB ser. B, Boliden AB, Electrolux, AB ser. B, Skanska AB ser. B, SKF, AB ser. B
2008	1 & 2	Lundin Petroleum AB, Nordea Bank AB, Atlas Copco AB ser. B, SCANIA AB ser. B, Volvo, AB ser. B, SEB ser. A, Vostok Gas Ltd. SDB, Ericsson B, SSAB ser. A
2008	3 & 4	Swedish Match AB, Handelsbanken ser. A, AstraZeneca PLC, TeliaSonera AB, Volvo, AB ser. B, Electrolux, AB ser. B, Electrolux, AB ser. B, Hennes & Mauritz AB, ISSAB ser. A
2009	1	Investor AB ser. B, Swedbank AB ser. A, AstraZeneca PLC, Sandvik AB, TeliaSonera AB, Securitas AB ser. B, SEB ser. A, Skanska AB ser. B, SKF, AB ser. B
2009	1	ABB Ltd, Lundin Petroleum AB, Nordea Bank AB, Tele2 B ser. B, SCANIA AB ser. B, Vostok Gas Ltd. SDB, Hennes & Mauritz AB, ISSAB ser. A, Ericsson B
2009	1	Swedbank AB ser. A, SCA AB ser. B, Handelsbanken ser. A, Atlas Copco AB ser. B, Volvo, AB ser. B, Eniro AB, Hennes & Mauritz AB, ISSAB ser. A, SKF, AB ser. B
2009	1	Swedish Match AB, Nokia Corporation, Nordea Bank AB, Securitas AB ser. B, Volvo, AB ser. B, Ericsson B, Sandvik A, Scania B