The Northern European Investment Fund Industry – Comparative Cross-Country Analysis Based on Evidence from Denmark, Sweden, Norway and Finland

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Chapter I

Introduction and outline

A tremendous amount of research has been done in an attempt to examine the US mutual fund industry, however the US market is not an exception being worth farther investigation, since there are many fund markets known to thrive in other countries. Unfortunately, research about these latter is still lacking.[1] This paper though, makes an effort to examine the performance of the fast growing Scandinavian mutual funds industry, with a focus on the four Northern European markets, thereby provides a unique regional approach that has never been undertaken before.

Although many analyses has been done so far with regard to the performance of the mutual funds that operate within most developed European markets, the study offers a relatively new perspective on the issue through the detailed analysis of the four Northern European investment fund markets. The paper juxtaposes the performance of the Scandinavian investment fund sector and investigates whether there are any significant differences amongst the individual markets covered by the study. The total sample encompasses four out of five Northern European countries, which are Denmark, Sweden, Norway and Finland, to the exclusion of Iceland due to its relatively small and highly volatile market, which has become very seriously afflicted with the crisis that has recently hit the global credit market. Since the mutual fund industries in all four countries appear to be similar to one another to a certain degree, the focus of this paper is to address the question whether it is possible for one of these markets to outperform others in terms of reward-to-risk measure of the investment, security selection skill and market timing abilities of the mutual fund managers, and whether there is an evidence of performance persistence in some of those samples.

There is an evidence in form of two recent studies from Denmark and Sweden that serve as an unbiased and relatively independent view on these individual samples, however the paper goes beyond the two latter markets and broadens the study to include the evaluation of a performance for Norwegian and Finnish mutual funds, that lacked much investigation in

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[1] Korkeamaki, T. & Smythe Jr., T.I. 2003 *An Empirical Analysis of Finnish Mutual Fund Expenses and Returns*, European Financial Management, Forthcoming

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recent years. Following the methodology employed in many former performance-focused researches, the analysis has been based on four evaluation models introduced by Sharpe (1966), Jensen (1968), Treynor and Mazuy (1966) and Henriksson and Merton (1981). In addition to those four, the performance persistence test has been conducted adopting the methodology suggested by Hendricks, Patel and Zeckhauser (1993).

The overall results that steam from the particular choices of the mutual funds managers operating across the markets that are being the subject of investigation, refer to an equity category as an only investment objective. This choice has been mainly dictated by the general complexity of the cross-county analyses that usually tend to be balanced by simplified sample choice.

The general conclusion drawn from most of the empirical studies that employ the four measures is that net of expenses, mutual funds on average do not outperform the corresponding market indices. The outcome of the analysis, which involves a series of parametric and non-parametric tests, confirms in a way the assumption about the neutral performance and non-persistence across the employed sample of the four Scandinavian equity investment fund classes. We have also found though some evidence in favour of significantly positive performance relative to the market proxy in Norwegian and Finnish domestic equity funds and an evidence of persistence in returns in Danish and Swedish funds, yet the results are either not robust enough or do not differ much from zero to reject the hypothesis about the neutral performance.

The remainder of the paper is organized as follows. In Section 2 both the theoretical development, as well as the general and country-specific mutual fund literature is overviewed. The general characteristics of all four Northern European mutual fund industries are briefly described in Section 3. Section 4 gives the information about the analyzed data samples and the methodology applied, as well as discuses the performance and compares it to the prior research results. Finally, Section 5 concludes the paper.

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Chapter II

Theoretical development and literature review

2.1   Theoretical framework

The analysis conducted in this paper follows the conventional methodology broadly used in the diverse mutual fund literature, like for instance in Christensen (2005), Otten and Bams (2002), Brown and Goetzmann (1995), Malkiel (1995), Gjerde and Sættem (1991) and many others. It has been based on the four evaluation models introduced by Sharpe (1966), Jensen (1968), Treynor and Mazuy (1966), and Henriksson and Merton (1981). First out of these four methods focuses on reward-to-risk measure of the investment, which is particularly useful when choosing between a set of mutual funds, however makes it relatively difficult to compare the added value of active asset management by mutual funds managers. The Jensen measure on the other hand, corrects for the market risk and primarily aims at security selection skill of the mutual fund manager. Finally, the quadratic model of Treynor and Mazuy and the option model introduced by Henriksson and Merton account for both the fund selection and market timing abilities. Additionally, following Hendricks, Patel and Zeckhauser (1993), the test for performance persistence has been carried out.

The Sharpe ratio is a performance measure combining risk and return that constitute the two key attributes of financial investments. The risk-return approach represents a continuation of a conceptual framework developed by Markowitz (1952).[2] The paper uses Sharpe's ratio as a starting point in performance measurement, and since the modern financial literature rarely if ever fails to refer to the CAPM or apply a single factor model, the next measure that follows is the Jensen's alpha, as it appears to be a justified point of reference used in a number of recent portfolio performance analysis.[3]

The portfolio selection model in the portfolio theory context, along with a the concept of risk free assets included by Tobin (1958), and the contributions made by Sharpe (1966) laid the foundations for the Capital Asset Pricing Model (CAPM). CAPM has been developed by

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[2] Agudo, L.F. & Marzal, J.L.S. 2002 *An analysis of Spanish investment fund performance: some considerations concerning Sharpe's ratio*, Omega: International Journal of Management Science, p. 274
[3] Christensen, M. 2005 *Danish Mutual Fund Performance: Selectivity, Market Timing and Persistence*, Aarhus School of Business Working Paper, p. 3-5

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Sharpe and described by Fama (1991) as the Sharpe-Lintner-Black model.[4] It is worth a mention that many analyses that applied the CAPM model recognized the problem associated with the choice of an appropriate benchmark, which according to the recent research appears to be of a great importance for the overall performance evaluation. Kon and Jen (1978) on the other hand, as well as Lehmann and Modest (1987) juxtaposed CAPM with the Arbitrage Asset Pricing Theory (APT) model and Black's zero beta model, and Grinblatt and Titman (1989) in their analyses proposed the use of alternative benchmarks and found that Jensen's alpha differs considerably between these benchmarks. Furthermore, Ippolito (1989) proved that US mutual funds outperformed their passive indices when using different alternative benchmarks, and finally in the study by Kothari and Warner (2001) the importance of carefully selected benchmarks has been underlined, following an assumption that the standard performance measures depend on the benchmarks' ability to mimic the fund style.

The general conclusion reached in the literature is that the US mutual fund returns net of expenses, according to Jensen (1968), Malkiel (1995) or Detzler (1999), has not been able to generate any excess returns. Although, following the arguments by Blake, Elton and Gruber (1993), and Detzler (1999), the superior performance can be identified when gross returns are used, but this seems to be almost equal to the incurred expenses, which implies cost elasticity. There have been also a number of empirical studies that proved the lack of skills of US mutual funds to time the market.

Market timing is yet another issue analyzed in our research. It literary refers to the ability of predicting the future price movements by the means of technical and fundamental analyses, and had been investigated, among others, by Treynor and Mazuy (1966). The quadratic equation they used, only confirmed the assumption of no timing ability in mutual funds. Further, Veit and Cheney (1982) in their research refer to the fact that mutual funds generally do not change their characteristic lines in bull and bear markets, and for those which did, no successful timing was found. Both conclusions had been confirmed in the study by Henriksson (1984), where the parametric as well as non-parametric techniques developed by Merton (1981), and Henriksson and Merton (1981) were applied. Hendricks, Patel and Zeckhauser (1993), who used an extended version of Henriksson and Merton model, also did not found any timing ability of US mutual funds. Finally, the research conducted by Grinblatt

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[4] Agudo, L.F. & Marzal, J.L.S. 2002 *An analysis of Spanish investment fund performance: some considerations concerning Sharpe's ratio*, Omega: International Journal of Management Science, p. 274

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and Titman (1994), who used both Jensen as well as Treynor and Mazuy measures, proves that the simple Jensen measure performs as the Treynor and Mazuy one. The paper by Kon and Jen (1978) on the contrary, stands in a relative contrast to the general conclusion reached in the aforementioned literature, since as they used a switching regression model, it has been found that the nonstationarity of the systematic risk cannot be rejected. Their results do not support though the hypothesis of successful market timing, however the study provided by Lee and Rahman (1990) constitutes yet another exception, as it proved the significant timing and selection ability to be present in a part of their sample.

Although the vast majority of studies in mutual funds confirm the performance to remain neutral, there has also been evidence in favor of performance persistence, which assumes the previous top-performing funds being probable to display superior performance in the short-term future, which Hendricks et al. (1993) referred to as a 'hot hands phenomenon'. Further, we learn that Hendricks et al. as well as Elton, Gruber, Das and Hlavka (1993) confirmed the persistence in short-term performance for US mutual funds, and despite the various methodologies employed in their studies, the general conclusion was that the performance persistence exists, however it is considered only a short-term effect.

There was also an exception from the general findings referring to performance persistence. Gupta, Prajogi and Stubbs (1999) for instance, found no evidence of persistence in case of US large-cap and small-cap returns. Nevertheless their results indicated the persistence in returns obtained from top-quartile managers in fixed income funds and international emerging markets equity funds. In addition to that, some evidence for 'hot hands phenomena' has also been presented in the cross-country analysis by Otten and Bams (2002), which we will refer to in the next few paragraphs.[5]

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[5] Christensen, M. 2005 *Danish Mutual Fund Performance: Selectivity, Market Timing and Persistence*, Aarhus School of Business Working Paper, p. 3-5

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2.2   General existing literature

As stated in Christensen (2005), the research in mutual fund performance has increased significantly since Jensen (1968). The popularity of mutual fund investments amongst private investors has grown dramatically during the last 40 years, however the comprehensive European research is still scarce.[6] Otten (2002) for instance, claims that an academic research on European mutual funds is actually limited to barely few studies on individual countries as compared to United States, which has undoubtedly a much longer mutual fund history.[7] Whereas most of the research that has been undertaken considered US mutual fund performance, little has been done to analyze the non-US mutual funds that have been thriving in recent years. The few exceptions though, are the analyses made for Norwegian mutual fund industry by Gjerde and Sættem (1991), French by Dermine and Röller (1992), German by Wittrock and Steiner (1995), Dutch by ter Horst, Nijman and de Roon (1998), UK by Blake and Timmerman (1998), Swedish by Dahlquist, Engström and Söderlind (2000), Italian by Ceasari and Panetta (2002), Finnish by Korkeamaki and Smythe's (2003), or not a long time ago for Danish funds by Christensen (2005).[8] On the other hand, considering European unification many former studies that went beyond the individual market analysis, focused on Europe as a whole.[9] At this point, it is worth to refer to the first European cross-country analysis by Otten and Bams (2002) which has been based on a sample comprised of most considerable European mutual fund markets by the time the research was conducted, i.e. France, Italy, UK, Spain, Germany and the Netherlands.[10] Nevertheless, unlike the two kinds of preceding research approaches, this study applies the cross-country approach in a regional context that has never been analyzed before.

Many former studies in general overviewed the structure of European versus the US mutual fund industry following the results of 40-year-old academic research on performance of these latter. Generally, the analyses provide evidence on US mutual funds being able to follow the general market indices before the costs are deduced.[11] However, looking back at the research that has been recently done in the area of mutual funds and the evaluation of its

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[6] Otten, R. & Bams, D. 2002 *European Mutual Fund Performance*, European Financial Management, p. 76
[7] *Ibidem*
[8] Christensen, M. 2005 *Danish Mutual Fund Performance: Selectivity, Market Timing and Persistence*, Aarhus School of Business Working Paper, p. 3-5
[9] Otten, R. 2002 *European Mutual Funds*, University of Maastricht, p. 1
[10] Christensen, M. 2005 *Danish Mutual Fund Performance: Selectivity, Market Timing and Persistence*, Aarhus School of Business Working Paper, p. 3-5
[11] Otten, R. 2002 *European Mutual Funds*, University of Maastricht, p. 1

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performance, it is worth to refer to the study of Otten and Bams that has been already mentioned above. Their attempt to overview the yet largely unexploited mutual fund area was achieved through the analysis of a unique survivorship controlled data sample that consisted of mutual funds from five different European countries. They employed Carhart (1997) 4-factor model, which is known to combine CAPM, book-to-market ratio, size of the company measured by its capitalization and momentum that allows the persistence of returns. Otten and Bams investigated whether past performance predicts future performance, which has been referred to as a 'hot hands effect', and examined the influence of certain fund characteristics on risk-adjusted performance. The obtained results show that the European mutual funds, and especially the small-cap ones might add value, which has been indicated by their positive after cost alphas. Moreover, the relatively strong persistence has been detected in the mean returns of UK funds and it has been proved that the strategy of buying last year winners and selling last year losers can yield a considerable return, which cannot be explained by the common factors in stock returns.[12]

Another study to consider refers to the research conducted by Otten (2002). In his doctoral thesis Otten focused on the structure, performance and style analysis of European mutual funds, along with the analysis of the European financial markets. The study overviewed the channels through which one can acquire a fund, the related costs of such purchase, as well as the investor's need for assurance as to whether the manager follows the investment style agreed upon. It also showed how the performance of the selected mutual fund looked when compared to the general market or competing funds. Overall, the thesis by Otten complements in a sense the lack of studies in European mutual funds, as well as contributes to the development of the advanced performance measurement models. Furthermore, one of the main goals of that study was to address the question whether European fund managers were able to beat the market, or rather trailed the market indices after having their expenses deduced. It was discovered that funds are in general careful with the objective of possible outperformance relative to their peers, as the misclassified funds underperformed on average those well-classified. Additionally, Otten has provided new evidence with regard to the impact of survivorship bias on the fund misclassification phenomenon, since he related the issue to the persistent misclassification of dead funds that

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[12] Otten, R. & Bams, D. 2002 *European Mutual Fund Performance*, European Financial Management, p. 76-77

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usually underestimate the total number of misclassified funds when left, and those misclassified dead funds significantly underperform the well-classified.[13]

2.3   Country-specific prior analysis of Scandinavian mutual funds industry

2.3.1 The evidence from Denmark

Even though there has been a significant increase in the market value of Danish mutual funds, there are however only few studies analyzing their performance. The existing analyses have been mainly purchased either by the Federation of Danish Investment Associates, or by the mutual funds themselves, and the results of such studies are hardly ever presented to an international audience. The work by Christensen (2005) was a first attempt of publicly available study on Danish mutual fund market and the first independent performance analysis of Danish mutual funds.

After the significant increase during the past couple of years, the Danish funds have constituted the third largest European mutual fund industry measured per capita by the time the study was conducted. The analysis focused on equity and fixed income funds, operating over the period 1996 until 2003 and investing both domestically and outside the country. It juxtaposed the findings with those of other European countries and the evidence from US. The value added of Christensen's paper was the choice of Jansen measure over the Sharpe ratio comparisons, which in a way contradicted the previous analyses that relied ultimately on those latter. Another interesting aspects of the paper was that Danish mutual funds were assumed to have their fees among the lowest in the world, therefore might have greater chances to outperform their passive benchmarks than funds in comparable countries, and yet another advantage of the study was the fact that the former analyses compared the mutual funds to each other rather to the relevant benchmark, which Christensen did.

Considering the investment objective by the time the analysis was made, Christensen related an appropriate benchmark to each fund and estimated the Jensen measure using the standard CAPM security market line regression and a multi-factor model for each fund and equally-weighted portfolios. The general conclusion drawn from his research was that net of

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[13] Otten, R. 2002 *European Mutual Funds*, University of Maastricht, p. 1-2, 121-122

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expenses none of the examined mutual funds displayed the ability to obtain any superior performance. It has been shown that most of funds had insignificant Jensen alphas and some had them on significantly negative levels. The market timing on the other hand, was examined by means of quadratic regression of Treynor and Mazuy (1966) and the option approach of Henriksson and Merton (1981), and the findings only confirmed the overall assumption of Danish funds performing neutrally. The results provided no evidence in favour of significant timing ability of the Danish funds, since there were only two funds recognized to be able to time the market. The study has also been concluded with the claim that the fund performance during the investigated period was in general non-persistent when exposed to various parametric and non-parametric tests.[14]

2.3.2 The evidence from Sweden

Dahlquist, Engström and Söderlind (2000) examined the relation between the performance and the fund-specific attributes. Those attributes were assumed to play an important role in a forecasting and explaining the mutual fund performance. The sample that they used consisted of Swedish equity, bond and money market funds and virtually all that existed over the period 1993 to 1997, thus the survivorship bias had been excluded from the dataset they analyzed. The sample was however restricted to funds that invested only domestically, which is also the restriction consistent with our study.

Dahlquist et al. measured the performance of Swedish funds as a Jensen's alpha in a linear regression of fund returns and several benchmark returns, where the slope coefficients were allowed to vary along with information variables. The evaluation has shown that the performance of regular equity funds was neutral and the equity funds in the public savings program turned out to have a negative relative performance. The bond and the money market funds in turn, significantly underperformed their market proxies. Those estimates were further used in a cross-sectional study aiming at the relationship amongst the diverse fund attributes such as the past performance, cash inflows and outflows, size, turnover, and various proxies for expenses and trading activities. The results obtained from the latter part of the study indicate that the large equity funds underperformed the small equity, whereas the opposite

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[14] Christensen, M. 2005 *Danish Mutual Fund Performance: Selectivity, Market Timing and Persistence*, Aarhus School of Business Working Paper, p. 3-5, 19-20

holds for the bond funds. The explanation given suggested that it is possibly due to the considerable size of the large equity funds related to Swedish equity market, whereas the size of the bond funds remained rather small when the bond market was considered. The paper has also concluded the performance to be rather negatively related to mutual fund fees, and the equity funds that had been actively managed were found to perform better than those passively managed. Moreover, there has also been found an evidence of performance persistence in money market funds, however it was the only category where the persistence was present.[15]

Another study was conducted by Jennergren (1991) where the main focus was on the ex-post efficient frontier, which assumes the tradeoff between average portfolio return and the standard deviation that could be attained over the same subperiods using the relevant underlying universe of stocks. The analyzed dataset had been based on the monthly return observations from 1985 until 1987. The paper emphasized the overall benefit that can be derived from mutual fund investments instead of creating one's own portfolio, thus the benefit of professional portfolio management, which implied that the investor was likely to move from a random performance to a higher efficiency level represented by the ex-post efficient frontier. The case showed though, that the results were not entirely positive for the funds that had been investigated. It turned out that the mutual funds as a group obtained lower average results and standard deviations than the random portfolios. Nevertheless, after the ex-post efficient frontier and the random portfolios had been adjusted to include money market instruments, the mutual funds turned out to be somewhat more favorably located relative to the random portfolios and the frontier. It has never been stated though, whether the mutual funds were closer to the ex post efficient frontier than the random portfolios.[16]

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[15] Dahlquist, M., Engström, S. & Söderlind, P. 2000 *Performance and Characteristics of Swedish Mutual Funds*, Journal of Financial and Quantitative analysis, p. 409-410, 421-422

[16] Jennergren, L.P. 1991 *'Ex Post' Efficiency and Mutual Fund Evaluation*, Omega: International Journal of Management Science, p. 249

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2.3.3 The evidence from Norway

Gjerde and Sættem (1991) had been studying the performance of Norwegian mutual funds during the period 1982-1990. It is worth a mention that before the year 1982, there had merely been one mutual fund listed on the Oslo Stock Exchange, however the introduction of mutual fund investments with a tax rebate triggered the expansion in the number of funds. Following the former studies on US investment fund performance, the paper discusses the systematic risk in Norwegian funds. The analysis proved the risk to be low and fairly stable over time, and the funds that belonged to the same management company were found to have a similar risk profile, whereas the risk profile of those that belonged to different companies varied significantly. Gjerde and Sættem found no evidence that would suggest the superior stock selection over the total sample period. Their results indicated though, that managers did possess market timing skills, although their successful stock selection ability was found to be limited. The scores on risk-adjusted performance measures indicate that all funds succeeded in outperforming the market over the period 1982-1984, however there was no fund that would manage to outperform the market consistently during every 3-year period. After 1982 though, the typical observation was below the benchmark value.[17]

2.3.4 The evidence from Finland

The paper by Korkeamaki and Smythe (2003) addressed the research gap in the fast growing mutual fund industry in Finland, which along with the strong bank dominance and then recent EU membership had made it an interesting market to examine. It has to be mentioned, that the Finnish investment fund market had been the fastest growing among the EU countries during 1996 and 2000. The analysis covered the period from 1993 to 2000, and even though the focus of the study was the market segmentation and mutual fund expenses, the overall conclusion drawn was that in general Finnish mutual funds performed neutrally, except for the equity funds that were found to underperform the market. In addition to the results that have been presented, the study brought an evidence of higher expenses charged by the bank-managed and older funds, for which investors were not compensated with higher risk-adjusted returns. That fact suggested a potential agency problem therein. The expenses

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[17] Gjerde, Ø. & Sættem, F. 1991 *Performance Evaluation of Norwegian Mutual Funds*, Scandinavian Journal of Management, p. 297-298, 306-307

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had decreased over time though, which was consistent with Finland's EU membership that reduced market segmentation, and thereby triggered off competition.[18]

There has also been yet another study, conducted by Sandvall (2000), where the main focus was the performance persistence in Finnish mutual funds. The objective was to address the research question as to whether the short-term persistence was present in Finnish stock, bond, and balanced funds over the period from 1995 to 1998. Sandvall used a survivorship bias free sample, ranked the funds based on their performance in a six month period, and formed a winner and loser fund portfolios. The evidence of performance persistence was found in all three types of funds, which changed the overall perception of the Finnish fund returns. The prior winners were on average found to outperform the prior losers and the results turned out to be statistically significant. Moreover, the main contribution made by Sandvall's study was the analysis of a performance persistence on more disaggregate level than it was done before, and there were hardly any other studies at the time the research was conducted, that would measure the persistence of bond and balanced funds.[19]

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[18] Korkeamaki, T. & Smythe Jr., T.I. 2003 *An Empirical Analysis of Finnish Mutual Fund Expenses and Returns*, European Financial Management, Forthcoming

[19] Sandvall, T.C.H. 2000 *Performance Persistence: New Evidence for the Finnish Mutual Fund Market*, The Finnish Journal of Business Economics, p. 71

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Chapter III

The Scandinavian mutual fund industry

3.1   Trends in the Scandinavian investment fund market development

As it has already been stressed on several occasions, there has been a tremendous increase in the market value of mutual funds worldwide. When we compare those individual funds according to their investment objective though, we find that there are considerable differences across the countries.[20] In Denmark for instance, equity funds amount to approximately 60% out of the total number of funds, fixed income funds account for almost 30%, while merely 10% of balanced funds exist. Sweden appears to have approximately 70% of equity funds, fixed income funds falling below 20% and the balanced funds amounting to slightly above 10%. Similarly, in Norway there are around 70% of equity based funds, fixed income funds constitute slightly less than 20% and balanced funds make up 10%. Finland being at the other extreme has no domestic fixed income funds, however its overall investing patterns do not differ much from the two preceding samples, with less than 70% allocated to equity funds, 20% to fixed income funds, and balanced funds with slightly above 10%.

Following the classification adopted in the paper by ter Horst, Nijman and de Roon (1998), the four figures below represent the number of funds for each out of four investment fund markets according to their investment objectives that correspond to ten different investments regions.[21] It needs to be stressed though, that not all of the categories has been covered by the classification, thereby for instance, none of the money market funds has been mentioned.

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[20] Christensen, M. 2005 *Danish Mutual Fund Performance: Selectivity, Market Timing and Persistence*, Aarhus School of Business Working Paper, p. 6-7
[21] ter Horst, J.R., Nijman, T.E. & de Roon, F.A. 1998 *Style Analysis and Performance Evaluation of Dutch Mutual Funds*, Tilburg University Working Paper, p. 4-5

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Figure 1

The number of Danish investment funds per investment category. The symbol (*) indicates the joint number for domestic and international mix/balanced fund categories that have been unfortunately impossible to specify.

Danish investment fund industry 2000-2007
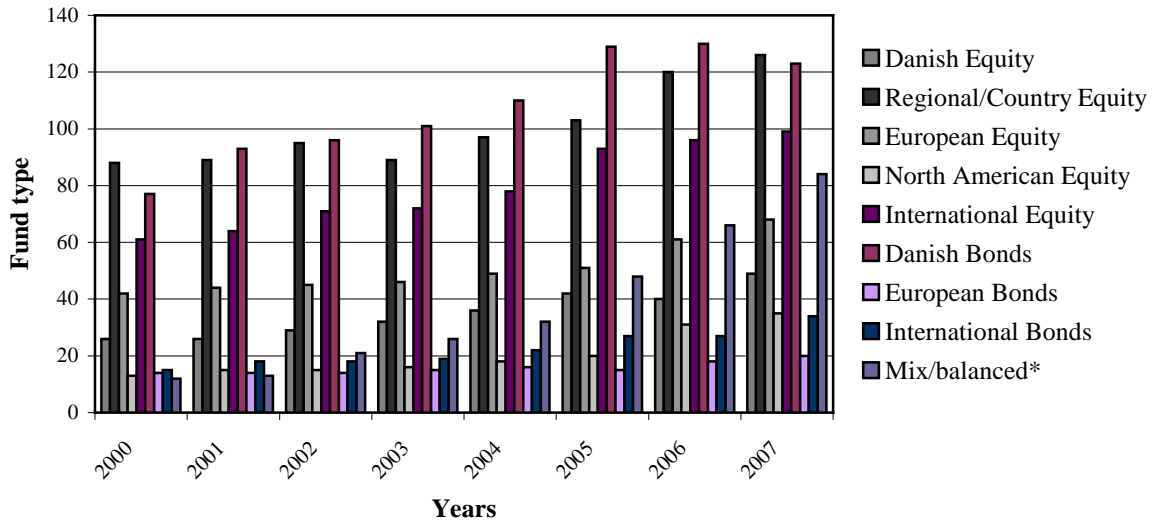
Figure 2

The number of Swedish investment funds per investment category. The symbols (*, **, ***) indicate the three major information shortages that prevent us from designing the comprehensive chart. The symbol (*) points to a lack of sufficient data on the number of the specific Equity groups that are present on the Swedish market, (**) indicates that there is also no specific data available for individual classes of bond funds, and (***) points at the joint numbers for domestic and international mix/balanced funds.

Swedish investment fund industry 2000-2007

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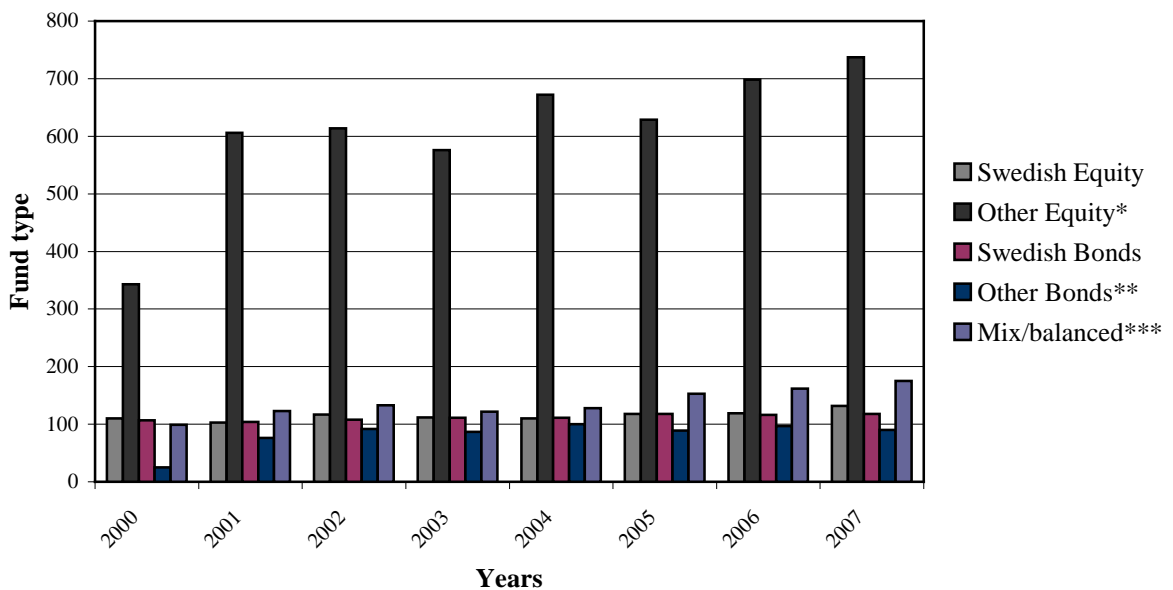
Figure 3

The number of Norwegian investment funds per investment category. The symbol (*) indicates that there is no European bond fund category present in the Norwegian market.

Norwegian investment fund industry 2000-2007
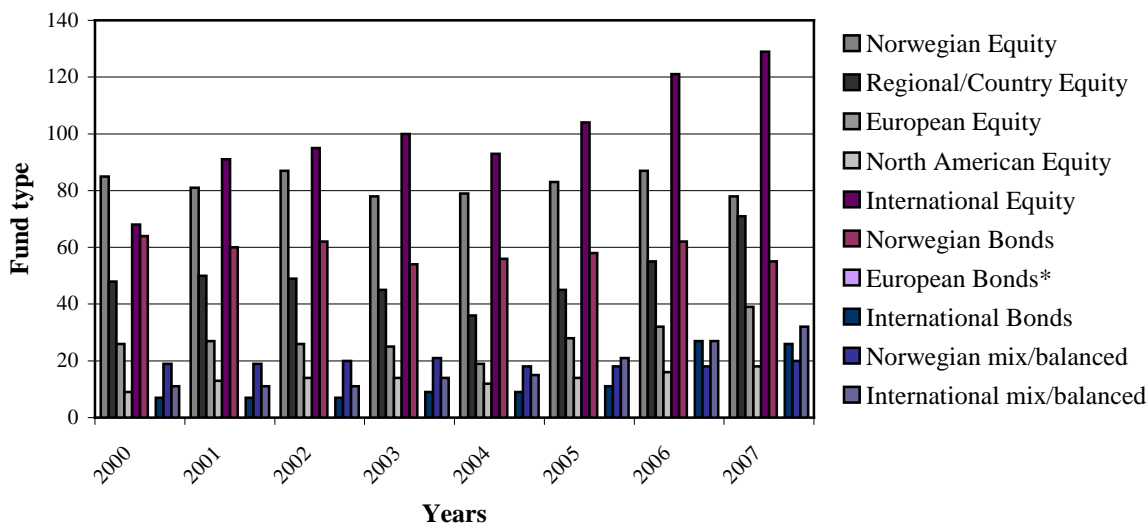
Figure 4

The number of Finnish investment funds per investment category. The symbol (*) indicates that there in no Finnish bond fund category, i.e. domestic fixed income funds operating in Finnish market.

Finnish investment fund industry 2000-2007

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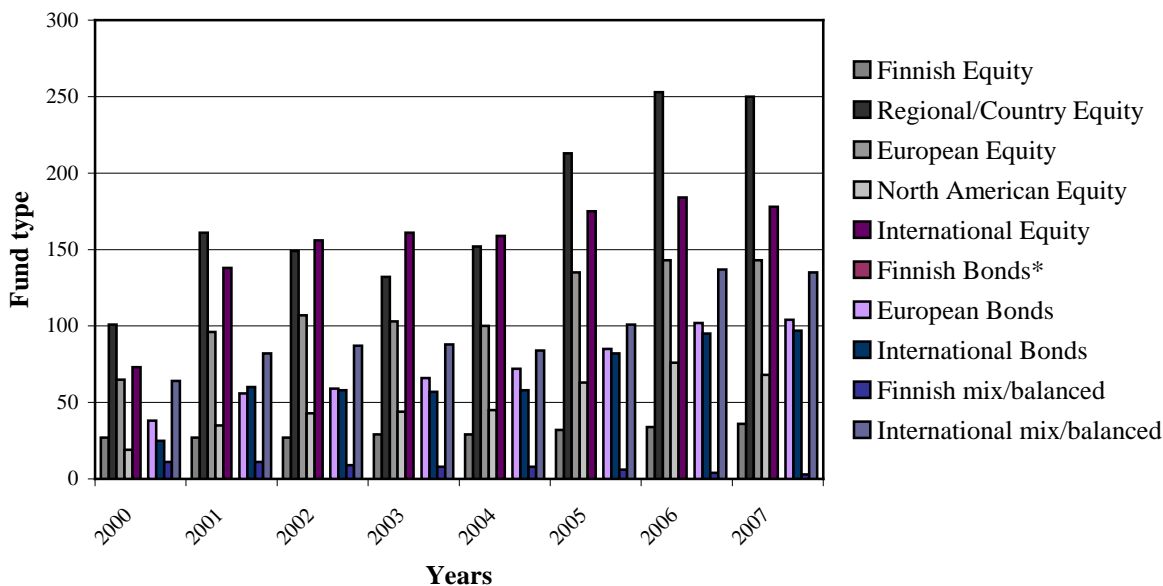
The data correspond to the period of past 7-years and refer to the number of mutual funds reported by the end of each year. The number of funds for Denmark has been obtained from the Federation of Danish Investment Associations (Investerings Forenings Rådet), for Sweden has been derived from *Net assets*[22] reports based on the data from MoneyMate service[23], for Norway have been provided by the Norwegian Mutual Fund Association (Verdipapirfondenes Forening), and for Finland have been taken from *Mutual Fund Reports* of Investment Research Finland (Suomen Sijoitustutkimus).[24]

As seen in Figure 1, since the end of 2001 and 2005 the growth in the number of funds in all four samples has visibly accelerated, and during the last couple of years it has almost doubled. The funds that primarily invest in regional equities and domestic bonds constitute the largest group in Danish mutual fund distribution, and are closely followed by international and European equity and balanced funds. The latter has gained on popularity in a course of a past few years, soaring to fairly considerable level in 2007. As it is seen in Figure 2, different equity groups make up almost 80% of its total breakdown, however divided into individual fund classes they would probably remain at the level of approximately 80-150 funds per category. There is also a visibly growing interest in balanced funds, as well as the general population of bond funds. The domestic equity and domestic bond funds on the other hand, remained steady over the years, yet on a considerably higher level if compared to other three charts. Looking at the Norwegian mutual fund industry, it is seen that the international equity category rose steadily over the past seven years to hit a peak of approximately 130 funds by the end of 2007. The domestic equity, regional equity and domestic bonds comprised the second largest group, and were closely followed by European equity and balanced funds, which increased considerably since 2006. Additionally, it is worth to point to the fact that there is no European bond investment category on the Norwegian market. Speaking of the Finnish investment fund industry, first and foremost it needs to be stressed that the domestic bonds are absent therein, and the data depicted in Figure 4 show that the regional, international and European equity categories have dominated over the years. Furthermore, the regional equity funds have risen considerably, exceeding the number of 250 funds over the

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[22] Source: http://www.fondbolagen.se/English/Statistics/AssetValues.aspx
[23] Former Svensk Fondstatistik
[24] Source: http://www.sijoitustutkimus.fi/eng/fund_report_archives.shtml

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past two years, and there has also been an increase in a number of international balance funds, while merely few domestic balanced funds exist.[25]

Since the summer of 2007 the investment banks worldwide have suffered significant losses as a result of one of the biggest crises ever to hit the financial sector. In the aftermath of the recent events, investment fund industry has experienced a considerable decline in its returns and subscriptions, and according to the research recently performed by KPMG International, many fund management companies fear that their returns and assets can suffer even more within the next two years since the market trust has become weakened and requires an effort to be built up.[26] The following figure depicts the change in the overall amounts of total assets under management and the net sales in the analyzed samples over the past two years, along with the decline in the first half of 2008 caused by the recent turbulences that struck the global credit market.

Figure 5

The total assets and net sales in Danish, Swedish, Norwegian and Finnish mutual fund industries over the period from 2006 up to June, 2008 expressed in billion euro.

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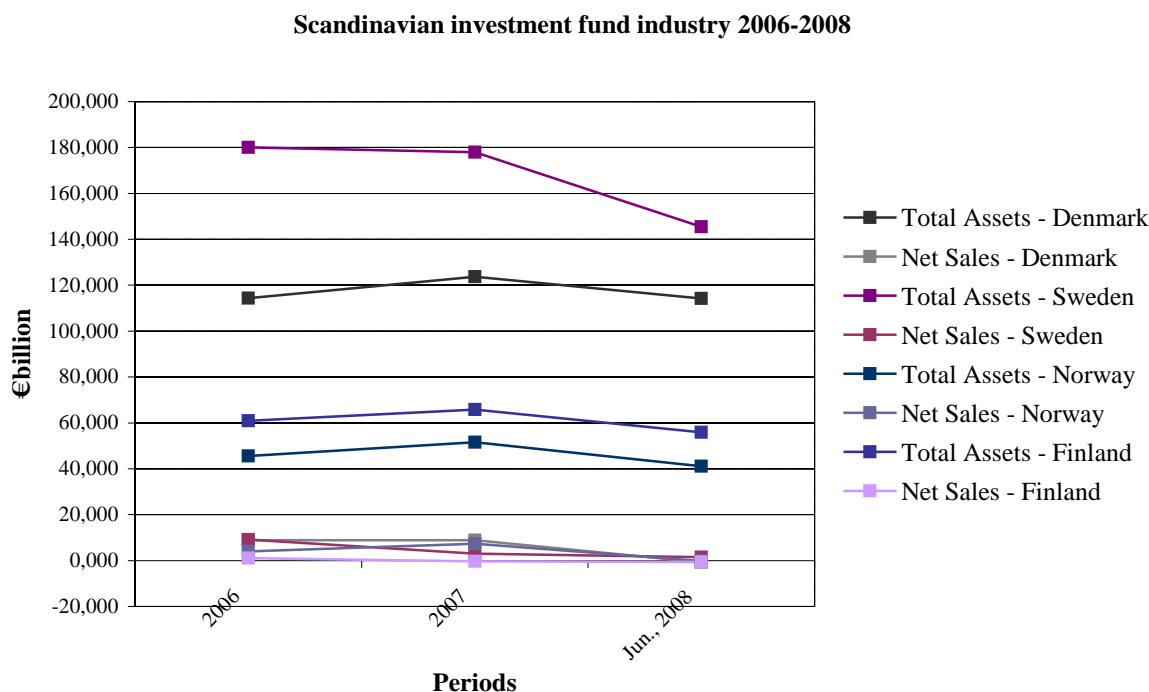
[25] The reason for the limited data availability in Figure 2 is that the Swedish statistics service, unfortunately do not process and store such detailed information about the individual fund categories.
[26] KPMG International 2008 *Beyond the credit crisis: the impact and lessons learnt for investment managers*, p. 3-33

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As seen above in Figure 5, the highest amount of total assets under management has been ascribed to Swedish investment funds that totalled EUR 180 billion in 2006. The second highest belongs to the Danish funds with approximately EUR 120 billion, whereas Finland and Norway remained with EUR 65 billion and EUR 50 billion respectively. The growth in total assets present across the sample during 2006-2007 holds for three out of four markets, since Sweden was the only country facing a decline in assets in 2007 and by June, 2008 it has suffered markedly the sharpest decrease of all.

The distribution of net sales on the other hand, seems to be also considerable, with those for Denmark and Sweden hovering at the level of around EUR 9 billion in 2006, as well as EUR 4 billion and EUR 1 billion for Norway and Finland. Since 2007 up to the first half of 2008 the net sales started to decrease and the Norwegian mutual funds were the only to show almost twofold increase with the amount of over EUR 7 billion. The Swedish mutual funds has suffered the strongest, almost threefold decline in their net sales by that time, which dropped to EUR 3 billion, and Finland was the only country which had them negative. Further, in June, 2008 all three markets experienced their net sales at a significantly negative level, except from Sweden, which as an only had a positive asset value of about EUR 1,5 billion. The Finish and Danish investment fund industries though, faced the highest decrease with EUR -0,6 billion and EUR -0,7 billion respectively.

It is also worth a mention that there are around 700 divisions of funds managed by 33 fund management companies present in the Danish market, fairly high number of 1350 divisions accompanied by 38 management companies in Sweden, over 540 divisions with 20 management companies in Norway, and around 1100 divisions of funds managed by more than 40 management companies in the Finish market. Moreover, due to ongoing consolidation process of banking sector in Northern Europe, many of the fund management companies are owned by the local branches of the Nordic or international banks. Therefore, as it can be seen in Tables 1-8, the vast majority of funds within the analyzed sample are owned by Alfred Berg[27], Banco, Carnegie, Danske Bank, Handelsbanken, Kaupthing Bank, Nordea, SEB, or ODIN.

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[27] Formerly ABN AMRO

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3.2   The mutual fund industry in Denmark

The Danish fund market accelerated in the course of 1998, and after the years of continued growth in assets and EUR 123 billion[28] under administration at the end of 2007, which has been considered an almost sevenfold increase, the Danish investment fund industry is steadily gaining greater importance in a European context. The considerable growth the industry faced after the year 2000 was backed up by the economic development and the large inflow from institutional investors, as well as the demographical development that triggered the increased demand from private investors. Nevertheless, the market share of Danish funds in the context of the total European industry remains still small. The situation is partly due to the limited total financial assets and underdeveloped investment industry in the country, as well as partly due to the tax reasons and the overall savings habits in Denmark. To be precise, the Danish tax system benefits institutional pension savings, there is a widespread direct bond ownership and relatively high yielding rates of savings deposits offered by the banking sector. The private equity investments have also had a late start, and thereby are less common.[29]

Although the complex Danish tax rules cause the major number of investment funds cease to operate, in 2001 there were introduced tax-exempt pension savings schemes, where the tax was paid by the investors themselves at a lower rate. In order to indicate that a fund was exempted from tax payments, its tax-exempt (PAL) status was stated in the fund name. Along with the introduction of a new tax law in 2004-2005, a number of PAL funds turned out to be no longer necessary, however most of them continued to exist as the so-called *Special Investment Funds* taxed every year and not restricted to pension savers any more, yet some of those were also closed, and are still being closed nowadays.[30]

The events following the credit crisis that has recently hit the financial markets all around the globe, have also had an impact on the Danish investment fund industry, causing the considerable decline in the total number of assets under management that brought about their fall to around EUR 114 billion by the first half of 2008 (which was below the level obtained in 2006). Also the net sales, as they are displayed in Figure 4, amounted to

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[28] All amounts expressed in foreign currencies (i.e. DKK, SEK and NOK) have been converted to euro according to the annual average exchange rates corresponding with the individual years.

[29] Source: http://www.ifr.dk/composite-247.htm

[30] Bechmann, K. L. and Rangvid, J. 2007 *Danish mutual funds: Description, costs, performance, and a European comparison*, Chapter 3: p. 31-62 in Gregoriou, G.N. *Mutual Funds: An International Perspective*, Palgrave MacMillan

approximately EUR 9 billion by the end of 2006, before they fell to around EUR -0,7 billion by the first half of 2008.

Speaking of legislative terms, in the early eighties there was yet no official investment fund regulation, though due to the fast growth recorded in the industry, the special formed committee recommend the first formal legislation on investment funds, often referred to as the Investment Fund Act. The new regulation has been inspired by the proposal for the *Undertakings for Collective Investment in Transferable Securities* (UCITS) directive[31] that was being prepared by that time.

Likewise in three other markets that are being described in this paper, the legal entity of Danish investment funds assumes an association in which all investors are members and where a bank is the custodian and often their promoter, which is particularly reflected in the investment fund name. The professional organization of Danish mutual funds is the Federation of Danish Investment Associations, whilst each association is represented by an individual fund management company. The surveillance of Danish funds together with their management companies is on the other hand held by The Danish Financial Supervisory Authority.[32] Moreover, in Denmark likewise in Finland, mutual fund industry is characterized by the strong bank dominance, which is reflected in more than 90% of the market value coming from mutual funds related to a bank.[33]

With regard to pricing, the investment fund shares are on principle 'value transparent', which means that the full value of the investment fund portfolio is always reflected in the value of its share.[34] The Danish fund portfolios are almost exclusively quoted on the OMX Nordic Stock Exchange[35], which also holds for Sweden and Finland. The fact that those funds are traded mainly on a stock exchange makes them distinctive when compared to and funds elsewhere, however they also happen to be directly traded through the mutual fund

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[31] UCITS are a set of European Union directives allowing for collective investment schemes to operate freely throughout the EU on a basis of a single authorisation from one member state. Many EU member nations have imposed additional regulatory requirements that have impeded free operation in order to protect local asset managers.

[32] Source: http://www.ifr.dk/composite-247.htm

[33] Christensen, M. 2005 *Danish Mutual Fund Performance: Selectivity, Market Timing and Persistence*, Aarhus School of Business Working Paper, p. 6-7

[34] Source: http://www.ifr.dk/composite-247.htm

[35] OMX did acquire, among others, the former stock exchanges of Copenhagen, Stockholm and Helsinki, and now constitutes a part of NASDAQ OMX Group.

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representatives. The value of the portfolio is calculated several times daily using the most recent market quotations, and each share with a face value of approximately 13 EUR has its intrinsic value, i.e. net asset value (NAV).[36] Most of the time the exchange price for fund shares follows its NAV.

Discussing the cost structure of Danish investment funds, all the current expenses associated with operating activities of the fund are deduced from its income before the dividend payments are made. Due to the economies of scale, the large funds have their relative costs lower than those with limited capital under management, and the expenses are known to be typically higher in retail funds than institutional, as well as they remain higher in equity based than bond funds. Nevertheless, Danish funds have their Total Expense Ratios (TERs) relatively low in an international context. Moreover, there is a common rule, which implies that whenever a return on investment fund shares is calculated, the fact that the return figure is estimated net of expenses must be taken into account. The latter is true for all four markets in question and finds an application in case of the return series that are being used in this study.

In addition to what was already said, it is worth to note that the authorities in Denmark tightly regulate the use of derivatives in investment funds. Danish funds are forbidden from taking on larger derivative commitments unless equal to its capital, and although they can hedge their securities against the market risk, they are still not allowed to open any speculative positions.

Finally, with regard to the overall savings allocation, Danes have always preferred a portfolio with the vast majority of bonds over the equities, however the situation has recently reversed, with the latter gaining in popularity.[37]

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[36] NAV equals the total market value of the portfolio divided by the number of outstanding shares.
[37] Source: http://www.ifr.dk/composite-247.htm

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3.3   The mutual fund industry in Sweden

In the course of past ten years the fund assets in Sweden have increased from around EUR 51 billion to EUR 178 billion by the end of 2007.[38] The growth in total assets since 2003 has been estimated to be almost twofold, with 100% increase in equity funds and 40% in bond and money market funds. According to the Swedish *Country Report*, as a result of stock market slow down and the relatively limited net inflows during 2007, the positive trend of increasing net asset values ceased and the total number of assets under management in 2007 and the first half of 2008 decreased as compared to the assets in 2006. Due to the stock market downturn during 2007 the decrease in net sales has mainly afflicted the equity and money market funds, yet all types of funds encountered its redution. None of the Swedish investment funds have been forced to close down as a direct consequence of the credit crisis, though it is considered to increase anxiety among the investors, and thereby reduce their interest in funds. The net sales in 2007 amounted to around EUR 3 billion and in the first half of 2008 it fell to EUR 1,5 billion, which compared to EUR 9,1 billion in 2006 points to a considerable decrease.[39]

According to the report of the Swedish Investment Fund Association, the interest in different types of funds has varied over the years, with equity funds share (except for the premium pensions (PPM) discussed below) dropping from 68% to 54% of the total assets. Moreover, the fixed income funds have been popular in Sweden for a number of years as a result of sharp stock market fall during 2000-2002. Additionally, in 2000 the fund of funds (FoF) has been introduced and hedge funds have become more common. Following the events of 2007 the net sales of all fund categories dropped and the industry faced the large withdrawals from equity funds, coupled with the highest ever levels of deposits in savings accounts and index-linked bonds. The interest in FoF funds increased though.[40]

The investment fund industry in Sweden comprises home-domiciled UCITS funds, non-UCITS funds, and funds domiciled abroad and promoted by the national providers. By the end of 2007, the net assets of home-domiciled UCITS amounted to EUR 136 billion,

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[38] The Swedish Investment Fund Association 2008 *Ten years of funds: 1998-2007*, p. 4
[39] The Swedish Investment Fund Association 2007 *The Swedish Fund Market 2007 – A presentation*, p. 3
[40] The Swedish Investment Fund Association 2008 *Ten years of funds: 1998-2007*, p. 4

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which is nearly as much as the year before.[41] The overall number of funds available in the Swedish market has almost tripled in the course of past ten years and almost 80% of all funds are now foreign registered as a result of the foreign fund management companies promoting their investment funds in Sweden as a form of competition. It can also be found though that the domestic fund providers decide to register their investment funds abroad (i.e. in Luxemburg, Ireland, or Finland) mainly due to the tax reasons.[42] For instance, most of the money market funds marketed in Sweden are the so-called 'round trip funds' that, for the sake of favourable tax conditions, are domiciled abroad while being owned by the Swedish fund management companies and offered to the Swedish investors.[43]

With regard to the tax rules, the Swedish government has decided to abolish the wealth tax in 2007, since it has been considered harmful to the overall Swedish financial sector and the entrepreneurs, and the Swedish Tax Agency has established an asset limit (equal to approximately EUR 53 billion) that may be invested abroad. In order to finance the abolition of wealth tax though, the yearly deduction allowance for private pension savings has been limited.[44]

The new rules introduced early this year allow for pension savings throughout Europe, since the premiums are deductible irrespective of the place the insurance has been issued.[45] Moreover, the Premium Pension (PPM) Authority has introduced a new discounts for funds participating in the premium pension system. The discounts have been established to be calculated on the basis of total assets of the fund company, and not individual fund as it was so far, which is believed to limit and uniform the range of funds offered within the system.

Speaking of the regulatory issues, the latest UCITS directive has come into force in 2007 and has been implemented by the Swedish Financial Supervisory Authority. The major impact the directive had on the Swedish fund industry is that it allows for other instruments than derivatives for the purpose of efficient portfolio management of UCITS funds, as well as it allows the risks of the underlying financial instrument of derivative to be represented by another financial instrument as long as it has high liquidity. The other regulations that have

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[41] The Swedish Investment Fund Association 2007 *The Swedish Fund Market 2007 – A presentation*, p. 3
[42] The Swedish Investment Fund Association 2008 *Ten years of funds: 1998-2007*, p. 4
[43] The Swedish Investment Fund Association 2007 *The Swedish Fund Market 2007 – A presentation*, p. 3
[44] The Swedish Investment Fund Association 2007 *The Swedish Fund Market 2007 – A presentation*, p. 7
[45] The prerequisite here is that the insurance provider sends the tax statements to the Swedish tax authorities.

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recently been implemented are the Markets in Financial Instruments Directive (MiFID), and the Capital Requirements Directive (CRD) applicable to fund managers with a license to manage individual portfolios only. Moreover, the Socially Rsponsible Investing (SRI) funds and the so-called 'sophisticated' UCITS III funds have also been introduced into the Swedish market.

As regards the governance issues in Swedish investment fund industry, in 2005 the Swedish code of conduct for fund management companies has been introduced together with the special guidelines for investment fund managers as the shareholders. Moreover, the overall activity in the area of corporate governance has markedly increased during the last couple of years. The professional organization of Swedish mutual funds is the Swedish Investment Fund Association, and amongst its main activities are the efforts to abolish the tax on funds, which is believed to drive many fund managers to register their funds abroad. The association is also striving to get a referral of tax payment when a fund holding is switched into another.

The stock market downturn in the second half of 2007 brought about a remarkable increase of assets in deposits (which was the highest ever), currency, life and pension funds and debt securities, whereas the asset value of the quoted shares faced a considerable decline. By the end of 2007 the investment fund savings accounted for 26% of households' financial portfolio and 98% of the Swedish population owned funds.[46] Furthermore, even though the investments in equities generally account for a smaller percentage of savings, they have greatly contributed to the increase in value of Swedish investment funds over the last ten years.[47] However, it is worth to point at the recent decrease in funds with direct ownership, while those accessible via life insurance policies have thrived. In general, the pension-based savings have been preferred in Sweden over last couple of years due to the tax related issues, along with a great share of premium pensions and unit-linked insurance.[48]

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[46] The Swedish Investment Fund Association *Sweden Country Report 2008*, p. 4-7
[47] The Swedish Investment Fund Association 2008 *Ten years of funds: 1998-2007*, p. 4
[48] The Swedish Investment Fund Association *Sweden Country Report 2008*, p. 4-7

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3.4   The mutual fund industry in Norway

The general activity in the Norwegian economy picked up markedly since the summer of 2003, and the continuous growth period of the past couple of years has been the longest ever recorded. However, as the credit crisis has lately exerted an influence on the Norwegian financial industry, coupled with the increase in interest rates, the high-growth period may draw to an end.[49] The economic growth that continued until 2006 was induced by the global expansion in prior years that resulted in strong increase in export and the high prices of many Norwegian export goods. It is believed to have had an overall positive effect on the Norwegian investment fund market, since there was more than a threefold increase in the overall number of assets under management during 2002-2006.[50]

The overall investor activity in Norway remained at a relatively high level during 2005-2007, which was the result of a strong demand from the institutional side of the market as well as the foreign investors.[51] The net assets of home-domiciled UCITS funds and funds domiciled abroad and promoted by national providers have been steadily growing during the past couple of years, although in 2006 home-domiciled UCITS experienced a decrease in their net sales after reaching the pick by the end of 2005.[52] In 2008 the situation reversed causing negative net sales in the first half of the year. The total UCITS assets under management that totalled EUR 51 billion in 2007, fell to EUR 47 billon in the first half of 2008. Their total net sales on the other hand, amounted to around EUR 7 billion by the end of 2007, which was a considerable increase as compared to barely EUR 4 billion in 2006, though the first half of 2008 brought a serious decline in those values that totalled EUR -122 million. It is also interesting that whereas the net sales of equity, bond and balanced funds, after the stable growth period, started to drop in 2007, the money market funds suddenly fell down from EUR 3,5 billion in 2005 to EUR -590 million in 2006, and then jumped up again to EUR 4,2 billion by the end of 2007.

The total number of funds managed by the members of the Norwegian Mutual Fund Association, which is the professional organization of Norwegian investment funds, has remained rather stable over the past couple of years. The number of foreign registered funds

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[49] The Norwegian Mutual Fund Association *Norway Country Report 2008*, p.1-2
[50] The Norwegian Mutual Fund Association *Norway Country Report 2007*, p. 4-7
[51] The Norwegian Mutual Fund Association *Norway Country Report 2008*, p.1-2
[52] The Norwegian Mutual Fund Association *Norway Country Report 2007*, p. 4-7

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owned by national promoters (i.e. 'round trip funds', that has been already described in a section devoted to Swedish investment fund industry) remains rather small and it has had so far only a minor impact on the Norwegian market.[53] Furthermore, the significant number of UCITS compliant foreign funds is available in the Norwegian market through various distribution channels.[54] Discussing the issues related to product development, hedge funds were still not permitted for registration or public marketing in Norway, however this is going to be changed along with the introduction of a new law on special funds, presumably coming into force in early 2009. Interestingly, there are also no real estate funds in Norway, since the structured products[55] that have been present on a retail market for a long time, have had a major impact on savings, however the requirements to fulfill given by the Financial Supervisory Authority of Norway, have almost eliminated the new sales of this product.[56]

Speaking of the regulatory and self-regulatory developments, the CRD directive has been introduced in Norway by the end of 2006 and likewise in Sweden, all elements of the UCITS III directives, except for the simplified prospectus, have been implemented for investment funds with a passport for cross-border marketing.[57] Furthermore, a new act on third pillar pension products has come into force in the beginning of 2008 as well as the MiFID legislation has been introduced. The Taxation of Savings Directive has not been implemented though, as a result of an agreement with the EU.[58]

By the end of 2005 several Norwegian organizations and institutions, including the Norwegian Mutual Fund Association participated in a joint effort to support and update the national code of practice for corporate governance that has become particularly important for the companies listed on the Oslo Stock Exchange. The same year, the association has updated a recommendation promoting active corporate governance practices and transparency on proxy voting.

Among the main lobbying activities that has recently been performed by the Norwegian Mutual Fund Association are those concerning fund mergers and the new regulation on

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[53] The Norwegian Mutual Fund Association *Norway Country Report 2008*, p. 1-2
[54] Source: http://www.vff.no/Internett/English/
[55] The investment strategies based on derivatives, such as a single security, a basket of securities, options, indices, commodities, debt issuances and/or foreign currencies, and to a lesser extent swaps.
[56] The Norwegian Mutual Fund Association *Norway Country Report 2007*, p. 4-7
[57] Source: http://www.vff.no/Internett/English/
[58] The Norwegian Mutual Fund Association *Norway Country Report 2008*, p. 1-2

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distributing mutual funds among professional investors and retail investors, including the regulation for marketing of hedge funds to retail investors.[59]

With regard to the savings patterns in Norway, the composition of households' financial assets consists to a large degree of bank deposits and pension based savings (accessible both via life insurance companies and pension funds), whereas the investment funds play a minor role. By the end of 2006 for instance, the investments in mutual funds accounted for merely 6% of the households financial assets and less than EUR 18 billion of total assets.[60]

3.5   The mutual fund industry in Finland

Speaking of the key trends in the Finnish mutual fund market, the last decade brought about a substantial growth in its assets, which has also sustained the periods of unfavorable market conditions. By the end of 2007 the total assets of home-domiciled funds totalled approximately EUR 66 billion, which compared with EUR 2,8 billion in 1997, points to its tremendous increase. The continuous and rapid growth, coupled with the total assets of home-domiciled mutual funds exceeding EUR 60 billion for the first time in 2006 (which indicated an increase of 36% by that time), presented the great outlook for the upcoming 2007. The growth in the Finnish fund market in 2006 was the second fastest in Europe and 74% of the assets growth came from the new subscriptions. The money market funds accounted for the most successful investment category by that time, and the overall share of institutional investors in the total assets far exceeded that of households. Even though the investors ratio remained fairly steady over the years, the increased inflow from private investors caused the growth in its demand in 2007. By the first half of 2008 it is seen though, that the total assets decreased by 15% and amounted to approximately EUR 56 billion.[61]

With regard to the Finnish equity fund market, it has substantially evolved since the year 1997, reaching the market share of EUR 21,8 billion by the end of 2007, which corresponds to 33% of the total market. Their net subscriptions were EUR 1,1 billion at that time. In the mid nineties the equity funds investing exclusively in domestic stock markets made up the

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[59] The Norwegian Mutual Fund Association *Norway Country Report 2007*, p. 4-7
[60] The Norwegian Mutual Fund Association *Norway Country Report 2008*, p. 1-2
[61] The Finnish Association of Mutual Funds 2007 *Mutual Funds in Finland* – press release

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dominant group, however they have become squeezed out due to the increasing interest in European and global fund investments that were gaining in popularity that led to a steady decline in the market share of domestic funds. It is also worth a mention that the relatively strong performance of emerging markets has made them most notable gainer in recent years, whereas those with a focus on the global markets have become less popular. However, as a result of the recent market instability, the share of equity fund market in Finland dropped in the first half of 2008 to EUR 16,9 billion.

Discussing the developments in the Finnish fixed income market, the total assets invested in bond funds amounted to approximately EUR 17 billion by the end of 2007, contributing to 26% of the total assets under management, and the euro area government bonds constituted the dominant group in the total investments made by this fund class. The money market funds, likewise their bond counterparts, accounted for EUR 17 billion of the total assets, although their net subscriptions were negative and totalled EUR -1,1 billion. With regard to the asset allocation funds (i.e. the balanced funds), they have had a relatively steady market share of approximately 12% for the last couple of years and in 2007 their total assets amounted to EUR 8,5 billion, while their net subscriptions contributed to 11% of the total subscriptions available.

Speaking of regulatory and self-regulatory developments, the government bill concerning the implementation of the MiFID legislation has come into force in 2007. A year earlier, the legislation governing real estate funds has been revised, admitting the new types of property funds and enabling the non-UCITS funds to invest in real estate. Furthermore, according to the newest Finnish investment fund legislation, fund management companies have been allowed to invest up to 10% of their fund assets into the same company. The legislation also requires one third of the fund management companies' board members to be elected by the unit holder of the investment fund.

The Finnish Association of Mutual Funds, which is the professional organization of investment funds in Finland, has issued a recommendation that provides a set of guidelines for corporate governance principles that need to be disclosed to the unit holders.

In the early nineties 70% of total fund assets in Finland were invested in equity funds, however the situation reversed along with the fixed income funds becoming more popular.

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The equity boom of the late nineties brought a revival of equity funds and lifted back its market share up to 50%. As a result of a long slide in stock prices making investors to transfer their wealth to the lower risk fixed income funds, the equity investments decreased again after 2000. And although in the last couple of years the inflows have mostly been on the fixed income side, the equity market share has been fairly steady. By the first half of 2008, the fixed income funds along with the equity funds still made up for the lead, although the money market funds and the specialized equity funds have also increased in value, and the supply of new products has been from both domestic and international providers.[62]

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[62] The Finnish Association of Mutual Funds *2007 Country Report – Finland*, p. 2-6

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Chapter IV

Empirical research

4.1 Methodology and data

4.1.1 Dataset

The analysis covers the data on monthly returns for Scandinavian mutual funds that have been continuously operating over the period January, 2000 until May, 2008. The monthly accumulated return series employed in the sample have been based on the Net Asset Values (NAVs) per share corrected to include dividends[63] (following the assumption that the dividends are reinvested the day after they are declared). The dataset consists of 18 Danish, 72 Swedish, 40 Norwegian and 20 Finnish equity based investment funds collected from the Federation of Danish Investment Associations (Investerings Forenings Rådet), Morningstar Sweden, Oslo Stock Exchange (Oslo Børs) and Investment Research Finland (Suomen Sijoitustutkimus).

Iceland being the fifth Nordic market has been purposely excluded from the study, due to its relatively small size if compared with four others and the volatility, which has been particularly reflected in the recent events following the global credit crisis. Likewise in Dahlquist et al. (2000), the sample has been restricted to funds investing domestically, even though domiciled both locally and overseas (with the great majority being home-domiciled).

It also needs to be mentioned that the returns used in this study have been calculated net of expenses. As it has already been concluded in an introductory section, the evidence from the US and the European investment fund studies shows that net of expenses the funds performed neutrally, even though the fees they were charged differed considerably across the individual countries. However, since no common definition of mutual fund expenses has been agreed upon in an international context, it makes it extremely hard to gauge. In spite of a few

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[63] Non-dividend NAV series are required in order to make the fund returns comparable to the returns of underlying benchmark assets.

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serious attempts to calculate TERs so as to reach the consistent estimate of the fund's expenses, many countries still lack those ratios.[64]

The risk-free rates employed in the study are the 1-month Interbank Offered Rates, where Copenhagen Interbank Offered Rate (CIBOR), Stockholm Interbank Offered Rate (STIBOR), the effective Norwegian Interbank Offered Rate (NIBOR) and Euro Interbank Offered Rate (EURIBOR)[65] have been obtained through the on-line statistics services of the National Bank of Denmark (Danmarks Nationalbank),[66] the Bank of Sweden (Sveriges Riksbank),[67] the Bank of Norway (Norges Bank) services[68] and the Bank of Finland (Suomen Pankki).[69] The paper also mentions four proxies for investment fund returns, which are the capped[70] equivalents of the local all-share indices. The monthly returns for the three of them, i.e. Danish OMX Copenhagen Cap GI[71] (OMXCCAPGI), Swedish OMX Stockholm Benchmark Cap GI (OMXSBCAPGI), and Finnish OMX Helsinki Cap GI (OMXHCAPGI) have been obtained from NASDAQ OMX Indexoperations service, whilst Norwegian Oslo Stock Exchange Mutual Fund Index (OSEFX), has been delivered by the Oslo Stock Exchange.

The sample that is being analyzed is subject to survivorship bias to a certain degree. As it has been indicated by a number of prior studies, whenever the poor performers are liquidated or merged into other funds, the estimates of performance are often biased upward.[72] In Malkiel (1995) and Gruber (1996) we find that in most of the older studies that were subject to survivorship bias, the mutual funds on average underperformed their market proxies by the amount of expenses they charged the investor (thus it triggered off the increased interest in investments in low cost index funds as they were preferred over the actively

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[64] Christensen, M. 2005 *Danish Mutual Fund Performance: Selectivity, Market Timing and Persistence*, Aarhus School of Business Working Paper, p. 7

[65] EURIBOR replaced the former Helsinki Interbank Offered Rate (HELIBOR) after Finland has become the EU member in 2002.

[66] Source: http://nationalbanken.statistikbank.dk/statbank5a/default.asp?w=1280

[67] Source: http://www.riksbank.com/templates/stat.aspx?id=17186

[68] Source: http://www.norges-bank.no/templates/article_____57364.aspx

[69] Source: http://www.bof.fi/Stats/default.aspx?r=/tilastot/markkina-_ja_hallinnolliset_korot/euribor_korot_long_en

[70] The weights of the components of those indices have an upper limit, and when it is exceeded, the weights in an index are automatically adjusted to the set limit.

[71] The abbreviation GI stands for the gross index, which implies that its dividends are reinvested

[72] Dahlquist, M., Engström, S. & Söderlind, P. 2000 *Performance and Characteristics of Swedish Mutual Funds*, Journal of Financial and Quantitative analysis, p. 415

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managed)[73] and the situation continued despite the adjustments made for this effect. In Chevalier and Ellison (1997) it is also seen that excluding the dead or merged funds from the analysis leads to an over-estimated return.[74]

Although the overall survivorship bias due to the closed funds in the countries in our sample may not seem big compared to other markets, if we consider the relatively small size of some of those equity classes, it is not that little. The survivorship bias estimates for Danish and Norwegian domestic equity funds equal 21%, and 17% for Finnish. Unfortunately the data on Swedish funds that ceased to operate during 2000-2008 remain unavailable.[75]

More specifically, there are 13 funds that have been excluded from the Danish sample due to the fact that they were launched after January, 2000 and as many as 21 funds that stopped operating during the analyzed period, however all but 5 of those 21 funds were the so-called ex-coupon funds, which are temporary and exist mostly two to three months due to the tax reasons. As it has already been stated above, it is difficult to determine the scale of the survivorship in case of Swedish funds due to the lack of data on the dead funds, however 65 funds launched after January, 2000 has been excluded. Besides, there are 18 newly launched funds excluded from the Norwegian dataset, along with 11 that stopped operating, as well as 15 new and 3 dead funds excluded from the Finnish sample.

It is also worth a mention, that among the main reasons for which the Scandinavian funds are known to quit the market are mostly the overlaps in fund selection as a result of fund company mergers, or like in case of Denmark and Sweden, the tax issues. The number of funds that cease to operate due to poor performance is very little, although present in the Finnish investment fund market.

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[73] Otten, R. & Bams, D. 2002 *European Mutual Fund Performance*, European Financial Management, p. 76
[74] Chevalier, J. & Ellison, G. 1997 *Risk Taking by Mutual Funds as a Response to Incentives*, Journal of Political Economy
[75] The Morningstar Sweden was unable to extract such information.

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4.1.2 Performance evaluation models

The first performance measure that is being analyzed is the Sharpe ratio. It is defined by an equation:

$$(1) \quad S_i = \frac{\frac{1}{T}\sum_{t=1}^{T} R_{i,t} - R_f}{\sqrt{\frac{1}{T}\sum_{t=1}^{T}\left(R_{i,t} - \frac{1}{T}\sum_{t=1}^{T} R_{i,t}\right)^2}} = \frac{\overline{R}_i - R_f}{\sigma_i},$$

where $R_{i,t}$ is the return of fund i in a period t, and R_f is the risk-free rate. This performance evaluation approach implies the compensation in average return the mutual fund supplied, for each unit of risk measured by the standard deviation.

Next, we employ the relative performance measure introduced by Jensen (1968) and derived from the Capital Asset Pricing Model, which assumes that the expected mutual fund returns has to be linearly depending on their covariance with the market. The CAPM security market line regression equation is determined as follows:

$$(2) \quad R_{i,t} - R_f = \alpha_i + \beta_i\left(R_{m,t} - R_f\right) + \varepsilon_{i,t},$$

where $R_{i,t}$, R_f and $R_{m,t}$ are the returns in period t of the i'th fund, the risk-free return and the benchmark return respectively, α_i is the Jensen measure, and β_i is a measure of the systematic risk of fund. Finally, $\varepsilon_{i,t}$ is a white noise error term. The constant α from the regression equation stands for the stock selection ability of the mutual fund manager, whereas β determines the fund's exposure towards the market. The CAPM model assumes the α's equal zero for each of the funds and the displayed coefficients are estimated by means of the Ordinary Least Squares (OLS) method.

There has been only one benchmark we apply to each out of four security market line models, however as the role and the choice of a benchmark has been widely discussed in the existing literature, it not always contribute to the well-defined investment objective of the given fund.

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Whenever the domestic equity funds are allowed to invest a certain amount of its assets in other equity classes or securities, there might be a multi-factor model applicable as well.[76] Even though there might be more than one underlying benchmark relevant in some cases we analyze, for the sake simplicity and making the sample uniform, only one return proxy for each market has been used.[77]

4.1.3 Market timing models

The performance evaluation based on the selectivity in terms of the Jensen measure is often referred to as micro forecasting, or security analysis as opposed to macro forecasting with the focus on the forecasts of the general market price movements. Following Fama (1972) it is often being referred to as market timing.[78] The selectivity measure α from the regression equation (2) does not take into account though the potential market timing skills that might be displayed by the mutual fund manager moving in and out of the market, or buying stocks with the high or low β depending on the market environment. If the manager changes the fund β according to his expectations towards bull and bear markets, β_i becomes a decision variable which will not be constant. The market timing ability was recognized also earlier by Jensen, though it was argued to overestimate the true α's. Grant (1977) on the other hand, claimed that the market timing actually implies the estimate of Jensen's α to be biased downward, which makes us inclined to underestimate the actual performance of mutual funds. There have also been a number of other alternative methods testing for market timing ability of mutual fund managers suggested by numerous studies. The two evaluation models chosen for our analysis though, are Treynor and Mazuy (1966) and Henriksson and Merton (1981).

Treynor and Mazuy argued that if the mutual fund manager possesses the market timing skills, he will hold a grater proportion of the market portfolio whenever the return on the market is expected to be high and vice versa. The manager is therefore expected to predict the sign and the size of the market movement and will adjust the portfolio β according to the

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[76] Danish domestic equity funds for instance, are allowed to invest up to 25% of its total assets in foreign equities.
[77] Christensen, M. 2005 *Danish Mutual Fund Performance: Selectivity, Market Timing and Persistence*, Aarhus School of Business Working Paper, p. 7, 10
[78] Fama, E.F. 1972 *Components of Investment Performance*, The Journal of Finance, p. 551

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return on the market portfolio as $\beta_{i,t} = \beta_i + \tau_{TM}\left(R_{m,t} - R_f\right)$. When substituting this relationship into the equation (2), it is seen that:

$$(3)\quad R_{i,t} - R_f = \alpha_i + \beta_i\left(R_{m,t} - R_f\right) + \tau_{TM}\left(R_{m,t} - R_f\right)^2 + \varepsilon_{i,t}\,,$$

which gives the quadratic Treynor and Mazuy equation, with τ_{TM} being the parameter that measures the market timing skills. Compared to the standard security market line model, equation (3) includes a new term, which is the squared excess market return. The new performance evaluation model assumes the manager has private information about the size and the magnitude of the return, and takes the linear deviations from his long-term average market exposure. Likewise in the security market line model, the selection skills can be identified whenever α_i is positive and significantly different from zero, and if τ_{TM} is positive and significant then the mutual fund manager possesses timing ability.

The fourth evaluation technique applied in the analysis follows the Merton (1981) and Henriksson and Merton (1981) option approach. The model assumes the mutual fund manager has information about the direction of the market returns only, and not about the size of the return. Accordingly, the manager is assumed to receive a binary signal, which can take two distinct values depending on the true outcome of the market return, and based on those two signals, one of the two values of the portfolio β is chosen. The standard CAPM security market line specification is therefore being extended to:

$$(4)\quad R_{i,t} - R_f = \alpha_i + \beta_i\left(R_{m,t} - R_f\right) + \tau_{HM} Max\left[-\left(R_{m,t} - R_f\right);0\right] + \varepsilon_{i,t}\,,$$

where the τ_{HM} measures the managerial timing skill, and $Max\left[-\left(R_{m,t} - R_f\right);0\right]$ states for an indicator function, which takes the value of one when the market return is above the risk-free rate and zero otherwise. The new term that has been used here represents an informational advantage represented by a no-cost put option on the market portfolio. Henriksson and Merton argued that if α_i is significantly positive, the selection skills can be identified, and a positive and significant τ_{HM} indicates timing ability possessed by the mutual fund manager.[79]

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[79] Christensen, M. 2005 *Danish Mutual Fund Performance: Selectivity, Market Timing and Persistence*, Aarhus School of Business Working Paper, p. 11-12

4.1.4 Performance persistence models

In order to check whether the assumption of a performance persistence over the successive periods holds in case of the funds in our sample, we apply the three test methods. Following the methodology adopted by Christensen (2005), first we run the twelfth-order autoregression to estimate the autocorrelations of the investment fund returns. The method was previously applied by Hendricks et al. (1993) and the main conclusion drawn therein was that the persistence of relatively superior fund performance proved to be significant, however the phenomenon was predominantly present in a short run (which was on average four quarters). It was argued that if the autocorrelations turn out to be significantly positive, the returns are persistent. When applied, the method is also useful in identifying the funds that are likely to underperform in the near future, which is accordingly manifested in their substantial negative excess returns. Moreover, it has been proved that the strongest results occur for evaluation period of approximately one year, corresponding to the lag-length beyond which the partial autocorrelations in excess returns become insignificantly different from zero.[80]

In the second attempt to check whether the fund returns repeat over the periods, the more direct analysis has been involved. Following Brown et al. (1992), Goetzmann and Ibbotson (1994) and Malkiel (1995), the total sample has been divided into three sub-samples and the performance predictability is analyzed by means of two-way tables constructed to show the successful performance over the successive periods.[81] The first two sub-samples include 34 monthly observations each, and the third one consists of 33 observations. On average, each of the analyzed intervals corresponds to almost three-year period. The table identifies the fund as a winner in a current year according to the basic rule, which implies its total return being above or equal to the median total return of all funds with returns reported in a given year. Similar principle applies to the identification of winner or loser in the two following periods. The Winner-Winner (*WW*) situation has been expressed in a number of funds that continued to display a superior performance in the two successive periods. An equivalent criterion holds for three other categories respectively (i.e. Winner-Loser, Loser-Winner and Loser-Loser). Further, on the basis of the winner-loser test's outcome, we calculate the Cross-Product Ratio that reports the odds ratio for the number of consecutive

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[80] Hendricks, D., Patel, J. & Zeckhauser, R. 1993 *Hot Hands in Mutual Funds: Short-Run Persistence of Relative Performance, 1974-1988*, The Journal of Finance, p. 94

[81] Malkiel, B.G. 1995 *Returns from Investing in Equity Mutual Funds 1971 to 1991*, The Journal of Finance, p. 559

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repetitive performers to the number of those that do not repeat.[82] The Log Odds Ratio is estimated as:

$$(5) \quad LOR = \ln\left[\frac{WW \cdot LL}{WL \cdot LW}\right],$$

where $(WW \cdot LL)/(WL \cdot LW)$ stands for an aforesaid odds ratio. The null hypothesis that assumes non-persistence, thus the performance in the first period being unrelated to the one in the following period, corresponds to an odds ratio of 1, and hence the *LOR* statistic of 0. A positive or negative *LOR* statistic is accordingly an indicator of either positive or negative performance persistence. In addition, to test the *LOR* statistic for significance, we use the so-called *Z*-test, which is given as *LOR* divided by its standard error:

$$(6) \quad Z - statistic = \frac{LOR}{\sigma_{LOR}},$$

and is asymptotically normally distributed under the assumption of independence of observations in a sample. The Log Odds Ratio standard error σ_{LOR} is given by an equation:

$$(7) \quad \sigma_{LOR} = \sqrt{\frac{1}{WW} + \frac{1}{WL} + \frac{1}{LW} + \frac{1}{LL}},$$

and is usually well approximated in a large samples with independent observations.

The third and last analysis involves the checks for the overall robustness of results obtained in the previous step, since the winner-loser test is a non-parametric one. Following the tests applied by Christensen (2005), and earlier by Grinblatt and Titman (1992), Brown et al. (1992) and Elton et al. (1993), we run the regression of returns obtained in a latter period on returns obtained in a previous period. The general assumption here is that whenever the return in a latter period can be anticipated by the previous return, the performance persistence is present. The regression equation used is:

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[82] Brown , S.J. & Goetzmann, W.N. 1995 *Performance Persistence*, The Journal of Finance, p. 686-688

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(8) $r_2 = a_0 + a_1 r_1 + e$,

with r_1 and r_2 being the total returns from the former and the latter periods respectively. Again, the exercise is done for three consecutive sub-samples as in step two, and a positive a_1 is consistent with an assumption of a positive persistence in mutual fund returns.[83]

4.2   Empirical results

4.2.1 Performance evaluation analysis

The Sharpe ratio indicates how much excess return compared to the riskless investment the fund has earned per percentage point of volatility. The larger the Sharpe ratio, the better the fund has performed relative to its risk. Tables 1 through 4 depict Danish, Swedish, Norwegian and Finnish equity investment funds that performed since January, 2000 till May, 2008. It is seen that in the Danish sample there are only 2 out of 18 funds with Sharpe ratios that managed to outperform the corresponding benchmark, and there were also only 3 funds with their excess return exceeding that of the market. In the Swedish sample though, we see 14 out of the total 72 analyzed funds that performed better than the market, and 18 funds with a grater excess return than that of a benchmark. There are also as much as 24 out of 40 funds in the Norwegian sample with a reward-to-risk ratio higher than the passive market index, as well as 24 funds with the higher excess return. In the Finnish sample on the other hand, 8 out of 20 funds have their Sharpe ratio exceeding the market portfolio, and 11 with an excess return grater then that of corresponding passive index. Overall, the Norwegian equity funds closely followed by the Finnish funds have on average outperformed the four markets in terms of Sharpe measure.

In the first five columns in Tables 5 through 8 the output of the OLS analysis for Jensen model has been presented. Alpha (α) indicates how much monthly return on an individual fund has exceeded the return on a corresponding benchmark portfolio, which consists of a capped all-share index less the riskless deposit. In general, the larger the alpha, the better the fund has performed relative to the market. Beta (β) being another coefficient in an equation,

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[83] Christensen, M. 2005 *Danish Mutual Fund Performance: Selectivity, Market Timing and Persistence*, Aarhus School of Business Working Paper, p. 14

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indicates the sensitivity of fund's share price to changes in a benchmark portfolio yield index. In other words, beta indicates that an average 1% change in benchmark portfolio brings about the percentage change in the fund price equal to the beta estimate. The values in parentheses are the average *t*-statistics for the reported regression coefficients and in order to account for potential serial correlation and heteroskedasticity, the Newey-West corrected standard errors have been applied. The *t*-statistics test the null hypothesis that the true value of the parameter is zero, hence if *t*-test turns out to be greater than 1,96 or 1,65, then the true coefficient value is said to be significantly different from zero at 5% or 10% probability level.[84] The two additional estimates that follow are the coefficient of determination (R^2) and the Durbin-Watson statistic. R^2 indicates the goodness of fit of the estimated equation, which is the proportion of the variance in the dependent variable that is explained by the regression equation and it generally falls between 0 and 1.[85] Durbin-Watson on the other hand, tests for the first-order autocorrelation of regression residuals and usually ranges from 0 to 4.[86]

Looking at the results it is seen that none of 18 Danish funds have been able to outperform their passive benchmark index, as the Jensen alpha mostly falls below 0 and is positive only in five cases, though none of those positive estimates is statistically significant. Only one out of 72 Swedish funds has been identified with a significantly positive performance, whereas the remaining coefficients are in most cases negative with merely 19 funds having positive alphas and 5 funds with significantly negative performance (mostly at 10% level). The results for Norwegian funds though, show that their Jensen measures are mostly positive, however only two out of 40 funds are significantly positive (one at 5% and other at 10% level). Finally, there are as many as 10 out of 20 Finnish funds with a positive Jensen alpha, even though the estimates are mostly statistically insignificant with only three funds which outperformed their passive benchmark (on 10% and 5% level) and two with significantly negative performance. The general conclusion to be drawn here is that net of expenses the funds have on average not been able to outperform their passive indices. As a matter of fact, there is an evidence of one or two significantly positive as well as few significantly negative alphas, nevertheless compared to the sample size the numbers seem little. It is worth a mention though, that the most favourable outcome can be found in

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[84] The *t*-statistics that exceed 2,58 correspond to the 1% probability level.

[85] The closer R^2 is to the 1 the better, since the value of 1 indicates that the regression line perfectly fits the data, thus the model perfectly explains the observed variation (accordingly 0 means that the model does not explain any variation).

[86] The value of *D-W* statistics, which is grater than 2, indicates no autocorrelation, the value below 2 suggests some serial correlation and lower than 1 should raise a concern.

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Norwegian funds and also partly in Finnish funds. Additionally, in all four cases there are very high *t*-statistics for beta coefficients and the highest can be found in Norwegian and Finnish sample.

4.2.2 Market timing analysis

The sixth through eleventh columns in Tables 5 through 8 provide the estimates for selectivity and market timing skills in analyzed investment funds. The two new terms that has been introduced are the tau (τ) estimates indicating the macro-forecasting of the future market return. Both alphas stand for the selectivity skill of the manager, which assumes identification of stocks that are under or over-valued relative to the general indices. Again, the displayed *t*-statistics have been based on Newey-West corrected standard errors.

The results show that most of alphas for Danish funds are negative, whilst their taus are predominantly positive, and the observation is true for both Treynor and Mazuy (*T-M*) and Henriksson and Merton (*H-M*) models. Only 3 out of 18 alphas in the first model are positive, however the only significant (at 10% level) turns out to be negative, and in the second model there is merely one positive alpha and 3 significantly negative (all at 10% and 5% levels). In both models taus are positive except for one fund, though only one or two are statistically significant at 10% and 5% level. Next, it is seen that only 5 out of 72 Swedish funds have been found to have positive alphas in *T-M* model, whilst most of them are significantly negative (at 5% and 10% level) with only one significantly positive at 10% level. The situation is confirmed by *H-M* model, where there is only one positive alpha and almost 60% significantly negative (at 5% or 10% level). In both models taus are positive (almost 85% statistically significant in the *T-M* model at 5% level, and almost 63% in the *H-M* model being significant mostly at 10% level). Unlike in three other samples, in case of Norwegian funds all alphas in both models are positive with almost 78% significant in *T-M* model and 93% in *H-M* model (mostly at 5% level). Taus on the other hand, turned out to be all negative with 38 out of 40 funds significantly negative (most at 5% level). Finally, over 20% of positive alphas can be found in the Finnish sample in *T-M* and *H-M* model, yet there is only one significantly positive selectivity parameter at 5% level and 6 to 9 significantly negative, both at 5% and 10% level in the two models. Also all but one taus are positive in both models

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with 8 significantly positive at almost 5% level in *T-M* model and 10 at 5% and 10% level in *H-M* model.

The overall conclusion to be drawn from the two analyses does not provide much evidence on selectivity and market timing skills in Scandinavian funds, except for the Norwegian where many positive alphas were found, yet its market timing ability turned out to be significantly unsuccessful. Finnish fund performance on the other hand, appears to be semi-neutral with both positive and negative values for stock selectivity, however there was only one fund with positive and significant alpha. It is also worth a mention that, even though many Norwegian funds have been identified with positive timing skills, their selectivity turned out to be often negative. Such situation is in principle consistent with what the literature typically finds about funds that posses positive timing skills, since their intercepts tend to be usually negative, as a result of understated selectivity performance. Considering the market timing strategy that involves varying its beta according to the market movements, the alpha coefficient often becomes negative, thereby cannot reflect the true performance of the manager. The principle also applies to the situation observed in the Swedish sample, where the timing is seen to be significantly successful, whilst selectivity coefficients are almost all negative. Thus, even though there can be observed some favourable results for Norwegian or Finnish funds and not many positive estimates in Swedish and Danish funds, we infer that overall the four Scandinavian equity investment funds performed rather neutrally with no general tendency to successfully time the market, which has been confirmed by both the quadratic and option-based approach. But again, the most favourable results have been found in Norwegian and Finnish funds, while Swedish and Danish have not displayed many positive coefficients.

Moreover, many *t*-statistics for the α coefficients in Norwegian sample turned out to be rather high in both models. Some high *t*-statistics are also present in Finnish and Swedish samples, while in Danish the estimates appear to be rather neutral. Also in all four cases there are still very high *t*-statistics for beta coefficients with the highest in Norwegian and Finnish funds.

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4.2.3 Performance persistence analysis

Table 9 reports the average autocorrelation coefficients for each of the four samples that are being analyzed. Our autoregressive model considers the effect of a correlation between consecutive values in a series as well as the values twelfth periods apart and the analysis has been done for equally-weighted portfolios of funds within each sample. The last two columns of the table report R^2 and *F*-statistics for individual regression models. The large *F*-statistics imply that much of the variation in excess return ($R_{i,t} - R_f$) is explained by the model. As seen in Table 9, only few autocorrelations are statistically significant (mostly at 5% level) and more importantly, significantly positive. Interestingly, the statistical significance is present only in two out of four samples, which are Finnish and Danish, however only in Finnish funds we find the significant *F*-test. These preliminary results do not lend though much support to performance persistence in any of our four samples.

In an attempt to test more directly for possible persistence in the analyzed returns, the two-way tables for the total returns have been developed. The outcome of this test has been presented in Table 10. It is seen that the numbers of repeat winners in both analyzed intervals are on average the highest for Danish funds, which is in a way consistent with the evidence from Table 9. The score is closely followed by that of Swedish and Norwegian funds with Finnish funds falling into last place. The findings appear to be consistent with the results presented in the seventh column of a table, where the displayed *LOR* statistics are on average the highest for Denmark and Sweden, along with the *Z*-statistics indicating their significance at 10% and 5% level respectively. The Log Odds Ratio for Norwegian and Finnish funds, although positive, falls closer to zero, thus supports the hypothesis of no persistence in performance of those funds. The *Z*-test for the statistical significance of *LOR* also doses not provide much evidence in favour of positive performance persistence.

The overall conclusion to be drawn from this part of analysis is that in spite of some little evidence pointing to persistence in Danish and Swedish fund returns, the estimates are not high enough to imply any serious persistence therein.

Furthermore, the results in Table 10 are confirmed with the outcome of the parametric test displayed in Table 11. The positive regression parameter has been found in most cases,

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however only 3 out of 6 positive a_1 coefficients are statistically significant at 5% level and only for Danish and Swedish domestic equity investment funds.

4.3   Benchmark to the existing literature

The findings agree with those reported in general and country-specific literature presented in Section 2. Danish equity investment funds turned out to display negative, yet insignificant performance, thus we can assume that they performed neutrally relative to the market portfolio. There is also very little evidence in favour of market timing and the little return persistence that has been discovered, is true only for one period and does not differ much from zero.

The analysis for Swedish equity funds has also, in a way, confirmed the former results, since their performance turned out to be mainly negative or neutral, and although no prior evidence of persistence in returns was found, this analysis provides us with one, yet still little as in case of Danish funds.

Unlike the three others and despite the previous study did not indicate any superior stock selection in Norwegian equity funds, they have been found to outperform their passive benchmark, which is mainly confirmed by Treynor-Mazuy and Henriksson-Merton models. There were though some timing skills identified before, which cannot be confirmed by this particular analysis, yet selectivity remains positive.

We also find that according to the previous research Finnish equity funds were determined to underperform the market, which is partially consistent with our results, since their alphas have been mostly negative. Moreover, there was an evidence in favour of persistence in returns over the successive time intervals present across all the Finnish fund classes, yet the exercise involved measuring the persistence based on a six month intervals, while it is proved that the phenomenon is predominantly present in a short run, thus it is automatically more likely to occur within a year than three-year ranking period used in our study. This actually explains the lack of proof for any persistence in Finnish funds analyzed in our sample, although there was some little evidence in favour of one, based on the autocorrelations displayed in Table 9.

Chapter V

Summary and concluding remarks

Though a substantial body of documentation exists showing numerous researches on mutual funds to have been available for diverse markets, many still remain uninvestigated, or continue in a sphere unavailable for a public view. Moreover, the existing sources of reference often turn out to be outdated as we could observe while searching for some relevant prior literature extracts and discovered that the two markets still lacked recent comprehensive review. There is also very little done in the field of comparative cross-country studies, since those with a focus solely on a single market has been for some reason preferred over the years. This paper overcomes the latter limitation and goes far beyond the conventional cross-country analysis, providing a unique regional perspective, which has not yet been analyzed before.

The goal of the paper was to provide a sound answer as to which out of the four Northern European investment fund markets being the subject of investigation, managed to outperform the other in terms of reward to risk ratio, excess return, selectivity, market timing and return persistence. The juxtaposition of the four individual markets not only reveals the performance related differences, but also those referring to their trends and developments in a structural, regulatory, legislative or tax related context. Apart from the issues related to growth, number of funds ascribed to different categories, trends in asset allocation, expenses borne, reasons for which individual funds quit the market, along with the roles of association, supervisory bodies and banks, there has also been discussed the decline in returns after the first half of 2007 afflicted by the recent credit crisis. And even though there appear to be many similarities and interdependencies in the way those four markets are organized and structured, which might imply uniformity, there are still visible differences concerning many aspects of those individual markets.

The findings confirmed the general assumption about the Scandinavian funds to perform neutrally, which was in major part consistent with what the literature usually says about the overall fund performance, except for few evidences of some over- or underperformance that has been found significant in Treynor-Mazuy and Henriksson-Merton models. The CAPM model though did not bring much evidence in favour of either significantly positive or

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negative performance. Generally, the findings remain consistent to a large degree with those for most of the European and US-based studies, however the most favourable outcome has been found in Norwegian and Finnish domestic equity investment funds, which has been also confirmed with Sharpe ratio estimates. Additionally, we find that mutual fund performance across the investigated period was generally non-persistent when exposed to various parametric and non-parametric tests, except for some little evidence of persistence in Danish and Swedish equity funds.

The study is however prone to several limitations, due to for instance the survivorship bias present in the sample, which might affect the results in a way. Since commonly employed data sets of mutual fund returns typically show the past records of all funds existing over the analyzed period, it creates the possibility of significant biases in our return figures. The reasoning behind it is the fact that investment fund accepting high probability of risk will accordingly have a high probability of failure, whereas high returns will tend to persist as those funds whose bets were unsuccessful tend to drop out of the sample. The survivorship present in the return series not only influences the results on persistence, but also tends to make the fund overperform its market proxy.

Another limitation to the analysis might be the fact that mutual funds net of expenses, which also applies to the funds used in a sample employed in our study, usually perform neutrally, hence it may explain most of our results. The statement was found to be true for whole universe of funds described in the literature, even though their investment fund fees differed considerably across the countries. Nevertheless, despite the strong evidence in favour of neutral performance in many of our funds, there are still few supporting the supposition of either superior or significantly negative one though.

Furthermore, using the same benchmarks regardless of fund type, might bias the results to certain extent, as some of the funds are allowed to invest certain part of its assets in different securities. The use of so-called multi-factor models involving a number of benchmarks as an extension of basic security market line model, is proved not to bring much new evidence of performance, which remain rather similar to the latter, however it is known to enhance the information about the investment objective of particular fund classes. Since some of the fund types tend to invest certain part of their assets in other equity categories or

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securities, applying the multi-factor model provides us with superior information about the share of such individual investment categories in a total return.

Additionally, in some of the prior studies the exercise for persistence in returns is done both for total as well as risk-adjusted returns based on the security market line model. This analysis has been based entirely on the total returns, though the results obtained in the past for both types of returns did not prove to vary much from one another, hence do not bring new evidence in favour of persistence in returns in analyzed samples.

Generally, since Norwegian and Finnish equity investment funds made up the lead in terms of superior performance and Danish and Swedish funds displayed some return persistence tendencies, which might presumably suggest certain new information for an investor with a particular interest in investments in European equity funds, to validate the further robustness of results we obtained, there might be after costs alphas estimated and multiple benchmarks applied into the linear regression. There should also be the survivorship bias free sample employed, which we did not, due to the possible complexity of analyzing the overly extensive data set. Additionally, the test for performance persistence might also involve the risk-adjusted returns, as well as it could be broaden to include the analysis of return on portfolios comprised of the top-performing and worst-performing funds. Finally, it might be also possible to search for cross-sectional dependencies on diverse fund attributes amongst those funds, such as for instance their size, turnover, cash flows and proxies for expenses, or past performance.

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References

Working papers

Agudo, L.F. & Marzal, J.L.S. 2002 *An analysis of Spanish investment fund performance: some considerations concerning Sharpe's ratio*, Omega: International Journal of Management Science, p. 274

Bechmann, K. L. and Rangvid, J. 2007 *Danish mutual funds: Description, costs, performance, and a European comparison*, Chapter 3: p. 31-62 in Gregoriou, G.N. *Mutual Funds: An International Perspective*, Palgrave MacMillan

Blake, C.R., Elton, E.J. & Gruber, M.J. 1993 *The Performance of Bond Mutual Funds*, Journal of Business, p. 371-403

Brown , S.J. & Goetzmann, W.N. 1995 *Performance Persistence*, The Journal of Finance, p. 686-688

Brown, S.J., Goetzmann, W.N., Ibbotson, R.G. & Ross, S.A. 1992 *Survivorship Bias in Performance Studies*, The Review of Financial Studies, p. 553-580

Chevalier, J. & Ellison, G. 1997 *Risk Taking by Mutual Funds as a Response to Incentives*, Journal of Political Economy

Christensen, M. 2005 *Danish Mutual Fund Performance: Selectivity, Market Timing and Persistence*, Aarhus School of Business Working Paper, p. 3-5, 6-7, 10-12, 14, 19-20

Dahlquist, M., Engström, S. & Söderlind, P. 2000 *Performance and Characteristics of Swedish Mutual Funds*, Journal of Financial and Quantitative analysis, p. 409-410, 415, 421-422

Detzler, M.L. 1999 *The Performance of Global Bond Mutual Fund*, Journal of Banking and Finance, p. 1995-1217

Elton, E.J., Gruber, M.J., Das, S. & Hlavka, M. 1993 *Efficiency with Costly Information: A Reinterpretation of Evidence from Manager Portfolios*, Review of Financial Studies, p. 1-23

Fama, E.F. 1972 *Components of Investment Performance*, The Journal of Finance, p. 551

Fama, E.F. 1991 *Efficient Capital Markets: II*, Journal of Finance, p. 1575-1617

Gjerde, Ø. & Sættem, F. 1991 *Performance Evaluation of Norwegian Mutual Funds*, Scandinavian Journal of Management, p. 297-298, 306-307

Goetzmann, W.N. & Ibbotson, R.G. 1994 *Do Winners Repeat?*, The Journal of Portfolio Management, p. 9-18

_____

Grinblatt, M. & Titman, S. 1992 *The Persistence of Mutual Fund Performance*, The Journal of Finance, p. 1977-1984

Grinblatt, M. & Titman, S. 1994 *A Study of Monthly Mutual Fund Returns and Performance Evaluation Techniques*, Journal of Financial and Quantitative Analysis, p. 419-444

Gupta, F., Prajogi, R. & Stubbs, E. 1999 *The Information Ratio and Performance*, The Journal of Portfolio Management, p. 33-39

Hendricks, D., Patel, J. & Zeckhauser, R. 1993 *Hot Hands in Mutual Funds: Short-Run Persistence of Relative Performance*, The Journal of Finance, p. 93-130

Henriksson, R.D. 1984 *Market Timing and Mutual Fund Performance: An Empirical Investigation*, Journal of Business, p. 73-96

Henriksson, R.D. & Merton, R.C. 1981 *On Market Timing and Investment Performance II: Statistical Procedures for Evaluating Forecasting Skills*, Journal of Business, p. 513-533

Jennergren, L.P. 1991 *'Ex Post' Efficiency and Mutual Fund Evaluation*, Omega: International Journal of Management Science, p. 249

Jensen, M.C.1968 *The Performance of Mutual Funds in the Period 1945-1964*, The Journal of Finance, p. 389-416

Kon, S.J. & Jen, F.C. 1978 *Estimation of Time-Varying Systematic Risk and Performance for mutual Fund Portfolios: An Application of Switching Regression*, The Journal of Finance, p. 457-475

Korkeamaki, T. & Smythe Jr., T.I. 2003 *An Empirical Analysis of Finnish Mutual Fund Expenses and Returns*, European Financial Management, Forthcoming

Kothari, S.P. & Warner, J.B. 2001 *Evaluating Mutual Fund Performance*, The Journal of Finance, p. 1985-2010

Lee, C. & Rahman, S. 1990 *Market Timing, Selectivity, and Mutual Fund Performance: An Empirical Investigation*, Journal of Business, p. 261-280

Lehmann, B. & Modest, D. 1987 *Mutual Fund Performance Evaluation: A Comparison of Benchmarks and Benchmark Comparisons*, The Journal of Finance, p. 233-265

Malkiel, B.G. 1995 *Returns from Investing in Equity Mutual Funds 1971 to 1991*, The Journal of Finance, p. 549-572

Markowitz, H. 1952 *Portfolio Selection*, Journal of Finance, p. 77-91

Merton, R.C. 1981 *On Market Timing and Investment Performance I: An Equilibrium Theory of Value for Market Forecasts*, Journal of Business, p. 363-406

Otten, R. 2002 *European Mutual Funds*, University of Maastricht, p. 1-2, 121-122

_____

Otten, R. & Bams, D. 2002 *European Mutual Fund Performance*, European Financial Management, p. 76-77

Sandvall, T.C.H. 2000 *Performance Persistence: New Evidence for the Finnish Mutual Fund Market*, The Finnish Journal of Business Economics, p. 71

Sharpe, W. 1966 *Mutual Fund Performance*, Journal of Business, p. 119-138

ter Horst, J.R., Nijman, T.E. & de Roon, F.A. 1998 *Style Analysis and Performance Evaluation of Dutch Mutual Funds*, Tilburg University Working Paper, p. 4-5

Tobin, J. 1958 *Liquidity preferences as behavior towards risk*, Review of Economic Studies, p. 65-86

Treynor, J.L. & Mazuy, K.K. 1966 *Can Mutual Funds Outguess the Market?*, Harvard Business Review, 131-136

Veit, E.T. & Cheney, J.M. 1982 *Are Mutual Funds Market Timers?*, The Journal of Portfolio Management, 35-42

Reports and releases

The Finnish Association of Mutual Funds *2007 Country Report – Finland*, p. 2-6

The Finnish Association of Mutual Funds 2007 *Mutual Funds in Finland* – press release

KPMG International 2008 *Beyond the credit crisis: the impact and lessons learnt for investment managers*, p. 3, 33

The Norwegian Mutual Fund Association *Norway Country Report 2007*, p. 4-7

The Norwegian Mutual Fund Association *Norway Country Report 2008*, p.1-2

The Swedish Investment Fund Association *Sweden Country Report 2008*, p. 4-7

The Swedish Investment Fund Association 2007 *The Swedish Fund Market 2007 – A presentation*, p. 3, 7

The Swedish Investment Fund Association 2008 *Ten years of funds: 1998-2007*, p. 4

On-line resources

http://www.fondbolagen.se/upload/net_assets_2008_001.xls

http://www.sijoitustutkimus.fi/eng/fund_report_archives.shtml

http://www.ifr.dk/composite-247.htm

http://nationalbanken.statistikbank.dk/statbank5a/default.asp?w=1280

http://www.riksbank.com/templates/stat.aspx?id=17186

http://www.norges-bank.no/templates/article____57364.aspx

_____

http://www.bof.fi/Stats/default.aspx?r=/tilastot/markkina-

    _ja_hallinnolliset_korot/euribor_korot_long_en

http://www.vff.no/Internett/English/

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Table 1

The table depicts the estimated minima, medians, maxima, as well as monthly standard deviations and the average excess returns for 18 Danish equity investment funds and their corresponding benchmark. The Sharpe ratio has been annualized and the last column indicates the position it takes for an individual fund relative to the corresponding market portfolio.

Fund	Min.	Median	Max.	Standard deviation	Average excess return	Annualized Sharpe ratio	
Alfred Berg Danmark[87]	-15,36	2,02	12,88	5,15	0,805	0,541	
Alm. Brand Invest - Danske Aktier	-16,82	1,82	12,36	4,92	0,582	0,410	
BankInvest Danske Aktier	-15,32	1,46	12,24	5,02	0,572	0,395	
BankInvest OMXC20 Aktier	-14,17	1,26	12,85	5,16	0,536	0,360	
Carnegie WorldWide/Danske Aktier	-15,63	2,32	16,34	5,56	0,790	0,492	
Danske Invest Danmark	-14,26	2,03	12,82	5,03	0,773	0,532	
Danske Invest Indeks Danmark	-14,87	2,03	11,83	5,07	0,819	0,560	
Danske Invest Select Danske Aktier	-13,96	1,80	12,58	4,99	0,729	0,505	
Danske Invest Select Danske Small Cap	-13,69	1,96	14,80	5,68	1,014	0,619	
Danske Invest Select Fokus Danske Aktier	-12,32	2,04	13,92	5,09	1,139	0,776	(2)
Dexia Invest Danske Small Cap Aktier	-12,66	1,90	11,46	4,47	1,024	0,794	(1)
EGNS-INVEST Danmark	-14,37	2,15	13,61	5,17	0,661	0,443	
Handelsinvest Danmark	-14,14	2,09	12,50	4,80	0,736	0,531	
Jyske Invest Danske Aktier	-16,02	2,51	13,12	5,30	0,801	0,524	
Lån & Spar Rationel Invest Danmark	-16,83	2,02	11,46	5,10	0,698	0,474	
Nordea Invest Danmark	-16,45	2,18	12,25	5,20	0,694	0,462	
Sparindex OMX C20 Aktier	-14,62	0,88	13,85	5,07	0,491	0,335	
Sydinvest Danmark	-14,92	2,14	12,39	5,10	0,658	0,447	

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[87] Formerly ABN AMRO

Table 1

(Continued)

Benchmark						
OMX Copenhagen Cap_GI	-13,06	1,92	11,28	4,06	0,841	0,718

Table 2

The table depicts the estimated minima, medians, maxima, as well as monthly standard deviations and the average excess returns for 72 Swedish equity investment funds and their corresponding benchmark. The Sharpe ratio has been annualized and the last column indicates the position it takes for an individual fund relative to the corresponding market portfolio.

Fund	Min.	Median	Max.	Standard deviation	Average excess return	Annualized Sharpe ratio	
Aktie-Ansvar Sverige Inc	-12,64	0,47	14,04	5,20	0,268	0,179	(12)
Aktiespararna Topp Sverige Inc	-15,26	0,14	17,11	6,32	-0,120	-0,066	
Alfred Berg Sverige Inc	-15,57	-0,04	17,69	6,30	-0,264	-0,145	
AMF Pension Aktiefond – Sverige Inc	-13,83	1,12	14,17	5,41	0,518	0,332	(2)
Banco Etisk Sverige Inc	-15,20	-0,29	15,32	6,37	-0,279	-0,152	
Banco Etisk Sverige Special Inc	-16,34	-0,21	17,82	6,63	-0,191	-0,100	
Banco Hjälp Inc	-14,84	-0,05	16,21	6,41	-0,413	-0,223	
Banco Humanfonden Inc	-14,22	0,05	16,18	6,17	-0,336	-0,188	
Banco Ideell Miljö Inc	-14,54	0,42	15,83	6,19	-0,223	-0,125	
Banco Kultur Inc	-14,29	0,07	15,85	6,13	-0,319	-0,180	
Banco Samaritfonden Inc	-14,14	0,04	15,89	6,15	-0,331	-0,186	
Banco Småbolag Inc	-23,04	1,21	24,60	8,22	0,018	0,008	

Table 2

(Continued)

Banco Svensk Miljö Inc	-15,53	0,44	16,08	6,13	0,080	0,045	
Carlson Småbolagsfond Inc	-18,12	1,46	16,80	6,27	0,464	0,257	(9)
Carlson Sverigefond Inc	-14,47	0,11	15,29	5,66	0,019	0,011	
Carlson Sweden A Acc	-13,79	0,39	12,74	5,38	-0,012	-0,008	
Carlson Sweden Micro Cap Inc	-16,29	1,18	13,72	5,86	0,376	0,223	(11)
Carnegie Småbolag Inc	-19,07	1,64	23,14	7,52	0,140	0,064	
Carnegie Sverige Inc	-14,88	0,34	17,29	6,52	-0,054	-0,029	
Catella Reavinst fond	-17,07	0,45	23,63	6,96	0,249	0,124	
Catella Sverige Passiv	-14,52	0,15	15,46	5,60	0,108	0,067	
Catella Trygghetsfond	-13,04	0,63	16,81	5,27	0,210	0,138	
Danske Fonder Sverige Inc	-12,24	0,12	15,42	5,46	0,147	0,093	
Danske Fund Sweden Acc	-14,05	-0,19	13,15	5,70	-0,187	-0,113	
Didner & Gerge Aktiefond Sverige Inc	-14,33	-0,03	17,88	6,44	0,477	0,257	(8)
Eldsjäl Gåvofond	-15,39	0,40	15,16	6,16	-0,034	-0,019	
Eldsjäl Sverigefond	-15,35	0,39	15,18	6,15	-0,026	-0,015	
Enter Sverige Fokus Inc	-14,56	0,21	15,30	5,83	0,228	0,135	
Enter Sverige Inc	-14,70	0,28	15,10	5,81	0,090	0,053	
Erik Penser Aktieindexfond Sverige (OMX) Inc	-15,26	0,02	17,30	6,34	-0,130	-0,071	
Folksam LO Sverige Inc	-14,58	0,32	14,98	5,69	0,077	0,047	
Folksam LO Västfonden Inc	-14,81	0,41	14,15	5,59	0,119	0,074	
Folksams Aktiefond Sverige	-14,64	0,30	14,93	5,70	0,062	0,038	
Folksams Tjänstemannafond Sverige	-14,52	0,42	14,80	5,71	0,076	0,046	
Handelsbanken Aktiefond Index Inc	-13,18	0,33	14,68	5,61	0,058	0,036	
Handelsbanken Radiohjälpsfonden Inc	-13,70	-0,02	15,41	5,88	-0,064	-0,038	

Table 2

(Continued)

Handelsbanken Reavinstfond Inc	-14,88	-0,30	15,86	6,14	-0,098	-0,055	
Handelsbanken SBC Bofonden Inc	-13,92	-0,07	15,55	5,90	-0,066	-0,038	
Handelsbanken Småbolagsfond Inc	-15,83	1,46	17,11	5,98	0,448	0,259	(7)
HQ Strategy Fund Acc	-11,85	0,63	13,03	4,70	0,216	0,159	(14)
HQ Sverigefond Inc	-12,58	0,59	13,12	5,23	0,253	0,167	(13)
HQ Swedish Equity Fund B Inc	-13,40	0,62	8,99	4,57	-0,213	-0,162	
Kaupthing Småbolag Inc	-16,49	0,70	30,01	7,58	-0,206	-0,094	
Kaupthing Sverige Index 30 Inc	-14,80	0,15	17,15	6,39	-0,136	-0,074	
Kaupthing Swedish Growth Acc	-20,80	1,25	22,27	7,78	-0,038	-0,017	
Länsförsäkringar Småbolagsfond Inc	-18,87	1,75	18,82	7,16	0,278	0,135	
Länsförsäkringar Sverigefond Inc	-14,64	0,16	16,96	6,05	-0,047	-0,027	
Nordea Etiskt Urval	-14,42	0,58	15,52	5,85	0,017	0,010	
Nordea Sverigefond Inc	-17,56	0,12	19,34	6,29	-0,083	-0,046	
Nordea Sweden Fund Acc	-17,33	0,11	18,94	6,21	-0,142	-0,079	
ODIN Sverige	-11,02	1,72	10,72	4,62	1,106	0,829	(1)
Öhman Sverigefond Inc	-14,12	0,02	16,75	6,06	-0,043	-0,025	
SEB Etisk Sverigefond Inc	-15,31	0,13	15,88	5,82	-0,054	-0,032	
SEB Stiftelsefond Sverige Inc	-15,61	0,12	14,42	5,85	-0,070	-0,042	
SEB Sverige Chans/Riskfond Inc	-15,69	0,19	16,52	6,16	-0,081	-0,046	
SEB Sverigefond	-15,45	0,19	15,00	5,83	-0,045	-0,027	
SEB Sverigefond Småbolag Chans/Risk Inc	-16,14	1,67	17,53	6,23	0,560	0,311	(5)
SEB Sverigefond Småbolag Inc	-14,20	1,67	16,15	5,70	0,368	0,224	(10)
SEB Sverigefond Stora bolag	-15,99	0,19	15,20	5,85	-0,056	-0,033	
Skandia Aktiefond Sverige Inc	-13,65	0,14	14,50	5,56	0,098	0,061	

Table 2

(Continued)

Skandia Cancerfonden Inc	-15,12	-0,01	15,18	5,66	-0,038	-0,023	
Skandia Småbolag Sverige Inc	-18,21	1,54	19,17	6,50	0,607	0,323	(3)
Skandia Världsnaturfonden Inc	-14,66	-0,14	15,09	5,64	-0,030	-0,019	
SPP Aktiefond Sverige Inc	-14,29	0,27	15,91	5,88	0,150	0,088	
SPP Aktieindexfond Sverige Inc	-14,41	-0,02	17,32	6,30	-0,113	-0,062	
SSgA Sweden Index Equity Fund P Acc	-18,71	0,06	16,31	6,87	-0,237	-0,119	
Swedbank Robur Ethica Miljö Sverige Inc	-17,91	0,76	14,44	5,63	0,042	0,026	
Swedbank Robur Exportfond Inc	-16,47	0,84	14,93	5,86	0,536	0,317	(4)
Swedbank Robur Småbolagsfond Sverige Inc	-18,75	1,74	17,92	6,60	0,591	0,310	(6)
Swedbank Robur Sverigefond Inc	-14,51	0,33	14,78	5,75	0,111	0,067	
Swedbank Robur Sverigefond MEGA Inc	-13,80	0,56	14,96	5,71	0,190	0,115	
The Modern Funds Sweden Top 30 Acc	-14,99	0,04	15,95	6,01	-0,262	-0,151	
Benchmark							
OMX Stockholm Benchmark Cap_GI	-13,03	1,29	14,41	4,77	0,195	0,141	

Table 3

The table depicts the estimated minima, medians, maxima, as well as monthly standard deviations and the average excess returns for 40 Norwegian equity investment funds and their corresponding benchmark. The Sharpe ratio has been annualized and the last column indicates the position it takes for an individual fund relative to the corresponding market portfolio.

Fund	Min.	Median	Max.	Standard deviation	Average excess return	Annualized Sharpe ratio	
Alfred Berg Aktiv	-18,72	2,03	14,90	6,75	1,063	0,545	(20)
Alfred Berg Aktiv II	-18,46	2,68	17,89	6,86	1,284	0,649	(6)
Alfred Berg Gambak	-21,96	2,32	21,21	8,00	1,369	0,593	(12)
Alfred Berg Norge	-18,51	2,03	13,56	6,36	1,152	0,628	(8)
Alfred Berg Norge +	-18,26	2,13	13,58	6,35	1,200	0,654	(5)
Avanse Norge (I)	-19,99	1,70	13,56	6,32	0,862	0,473	
Avanse Norge (II)	-20,02	1,58	13,70	6,26	0,774	0,428	
Banco Humanfond	-20,33	1,90	13,70	6,39	0,847	0,459	
Carnegie Aksje Norge	-19,15	2,48	14,95	6,42	1,235	0,667	(3)
Carnegie Norge Indeks	-20,50	2,12	13,63	6,28	1,100	0,607	(11)
Danske Fund Norge I	-18,56	1,77	14,06	6,02	0,997	0,573	(16)
Danske Fund Norge II	-18,38	1,82	14,62	6,01	1,075	0,619	(10)
Danske Fund Norge Vekst	-19,36	1,67	24,76	6,51	1,007	0,536	(22)
Delphi Norge	-24,93	2,23	18,95	7,92	1,324	0,579	(14)
Delphi Vekst	-20,04	1,87	19,01	7,55	1,056	0,484	
DnB NOR Norge (I)	-19,29	1,90	13,48	6,47	1,013	0,542	(21)
DnB NOR Norge (III)	-19,23	1,87	13,73	6,47	1,088	0,583	(13)
DnB NOR Norge Selektiv (I)	-19,95	2,38	14,84	6,99	1,158	0,574	(15)
DnB NOR Norge Selektiv (III)	-19,70	2,46	13,75	6,42	1,053	0,568	(17)
Handelsbanken Norge	-19,72	2,55	14,60	6,50	1,047	0,559	(18)

Table 3

(Continued)

KLP AksjeNorge	-17,74	2,66	14,08	6,28	1,151	0,635	(7)
Kaupthing Norge	-20,13	2,95	15,34	7,21	0,880	0,422	
NB-Aksjefond	-18,00	2,29	13,76	6,03	0,881	0,506	
NB-Plussfond	-17,26	1,57	14,53	6,35	0,849	0,463	
Nordea Avkastning	-19,10	2,03	13,24	6,40	0,894	0,483	
Nordea Kapital	-19,14	2,42	13,28	6,39	0,946	0,513	
Nordea Norge Verdi	-17,61	2,10	13,16	5,90	0,902	0,530	(23)
Nordea SMB	-18,93	2,00	14,53	6,79	1,078	0,550	(19)
Nordea Vekst	-18,53	2,03	13,07	6,52	0,738	0,392	
ODIN Norge	-19,88	1,94	14,52	6,60	1,321	0,693	(2)
Orkla Finans Investment Fund	-20,58	1,35	13,33	6,73	0,924	0,476	
PLUSS Aksje (Fondsforval)	-17,14	1,57	12,69	6,26	0,904	0,501	
PLUSS Index (Fondsforvaltn)	-19,50	2,10	13,66	6,19	1,185	0,663	(4)
PLUSS Markedsverdi (Fondsforv)	-17,45	2,34	13,01	5,96	1,074	0,624	(9)
Postbanken Norge	-19,31	1,86	13,46	6,47	0,961	0,514	
Storebrand Aksje Innland	-18,22	2,07	13,07	6,33	0,906	0,496	
Storebrand Norge	-18,25	2,41	14,33	6,53	0,993	0,527	(24)
Storebrand Vekst	-18,81	0,72	22,32	7,52	0,628	0,289	
Storebrand Verdi	-17,66	1,87	12,48	6,17	1,489	0,836	(1)
Terra Norge	-19,95	2,07	13,21	6,67	0,847	0,440	
Benchmark							
OSEFX	-20,22	2,63	14,24	6,39	0,961	0,521	

Table 4

The table depicts the estimated minima, medians, maxima, as well as monthly standard deviations and the average excess returns for 20 Finnish equity investment funds and their corresponding benchmark. The Sharpe ratio has been annualized and the last column indicates the position it takes for an individual fund relative to the corresponding market portfolio.

Fund	Min.	Median	Max.	Standard deviation	Average excess return	Annualized Sharpe ratio	
Aktia Capital	-9,65	1,63	11,40	3,92	0,925	0,818	(2)
Alfred Berg Finland	-15,70	1,86	15,75	5,69	0,284	0,173	
Alfred Berg Small Cap Finland	-17,27	1,67	27,10	6,89	0,427	0,215	
Carnegie Suomi Osake	-14,43	1,59	14,09	5,20	0,388	0,259	(7)
Danske Suomi Kasvuosake Kasvu	-23,76	1,26	31,25	9,04	-0,166	-0,064	
Danske Suomi Osake Kasvu	-15,67	1,66	14,63	5,53	0,089	0,056	
Danske Suomi Yhteisöosake Kasvu	-14,77	1,64	16,73	5,58	0,274	0,170	
Evli Select	-14,27	1,66	18,94	5,59	0,338	0,210	
FIM Fenno	-13,69	1,52	28,10	6,69	1,046	0,542	(3)
Fondita Equity Spice	-12,41	1,64	14,57	5,35	0,731	0,473	(4)
Handelsbanken Suomi	-11,35	1,48	12,46	4,82	0,389	0,280	(6)
Nordea Fennia Kasvu	-13,12	1,80	12,74	4,69	0,170	0,126	
Nordea Fennia Plus Kasvu[88]	-15,56	1,48	20,02	5,71	0,307	0,186	
Nordea Pro Suomi Kasvu	-13,07	1,95	12,77	4,65	0,296	0,220	
OP-Delta	-13,60	1,61	14,77	5,12	0,483	0,327	(5)
OP-Suomi Arvo	-9,39	1,92	9,70	3,52	0,910	0,895	(1)
OP-Suomi Indeksi	-14,91	1,58	14,68	5,50	0,149	0,094	
SEB Gyllenberg Finlandia	-16,16	1,39	14,33	5,27	0,384	0,252	(8)

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[88] Formerly Trevise Suomi

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Table 4

(Continued)

SEB Gyllenberg Small Firm	-17,63	0,80	28,11	6,78	0,328	0,168
Seligson & Co Suomi-indeksirahasto	-14,93	1,59	14,67	5,50	0,083	0,053
Benchmark						
OMX Helsinki Cap_GI	-11,56	1,56	11,32	4,74	0,317	0,232

Table 5

The table presents the Jensen, Treynor-Mazuy and Henriksson-Merton estimates for Danish equity investment funds. The second through fifth columns report the abnormal return (α), systematic risk (β), the coefficient of determination (R^2) and Durbin-Watson statistics. In the sixth through eleventh columns the selectivity (α) and market timing parameters (τ_{TM}, τ_{HM}) are displayed. The values in brackets below the estimates are their average Newey-West corrected *t*-statistics, and the double (**) and single (*) asterisks indicate the statistical significance of each individual estimate at the 5% and 10% level respectively.

Fund	Jensen		R^2	Durbin-Watson statistic	Treynor-Mazuy			Henriksson-Merton		
	α	β			α	β	τ_{TM}	α	β	τ_{HM}
Alfred Berg Danmark	-0,005	0,963**	0,661	2,68	-0,131	0,953**	0,446	-0,486	0,832**	0,236
Alm. Brand Invest - Danske Aktier	-0,163	0,885**	0,657	2,82	-0,361	0,869**	0,708	-0,831*	0,702**	0,328
BankInvest Danske Aktier	-0,189	0,906**	0,670	2,68	-0,281	0,898**	0,326	-0,561	0,804**	0,182
BankInvest OMXC20 Aktier	-0,203	0,879**	0,614	2,76	-0,354	0,866**	0,538	-0,771	0,723**	0,279
Carnegie WorldWide/Danske Aktier	-0,005	0,946**	0,627	2,47	-0,291	0,922**	1,019*	-0,900	0,701**	0,439*
Danske Invest Danmark	-0,002	0,922**	0,693	2,84	-0,204	0,905**	0,718	-0,629	0,750**	0,307
Danske Invest Indeks Danmark	0,053	0,911**	0,682	2,92	-0,156	0,894**	0,745	-0,579	0,738**	0,310
Danske Invest Select Danske Aktier	-0,069	0,948**	0,705	2,84	-0,206	0,937**	0,488	-0,526	0,823**	0,224
Danske Invest Select Danske Small Cap	0,171	1,003**	0,677	2,10	0,086	0,996**	0,302	-0,066	0,938**	0,116

Table 5

(Continued)

Danske Invest Select Fokus Danske Aktier	0,322	0,972**	0,704	2,49	0,156	0,958**	0,590	-0,217	0,824**	0,264
Dexia Invest Danske Small Cap Aktier	0,296	0,866**	0,696	2,00	0,346	0,870**	-0,177	0,504	0,923**	-0,102
EGNS-INVEST Danmark	-0,124	0,934**	0,688	2,83	-0,320	0,918**	0,696	-0,721	0,771**	0,293
Handelsinvest Danmark	-0,041	0,924**	0,712	2,93	-0,239	0,908**	0,706	-0,621	0,766**	0,284
Jyske Invest Danske Aktier	0,024	0,924**	0,671	2,80	-0,163	0,909**	0,664	-0,545	0,769**	0,279
Lån & Spar Rationel Invest Danmark	-0,076	0,921**	0,663	2,76	-0,310	0,902**	0,831	-0,758*	0,735**	0,334
Nordea Invest Danmark	-0,070	0,909**	0,657	2,75	-0,242	0,895**	0,612	-0,655	0,750**	0,287
Sparindex OMX C20 Aktier	-0,265	0,899**	0,625	2,79	-0,512*	0,879**	0,880	-1,114**	0,667**	0,416**
Sydinvest Danmark	-0,106	0,909**	0,658	2,94	-0,210	0,900**	0,368	-0,544	0,789**	0,215
t-Statistics										
	(-0,20)	(15,30)			(-0,77)	(13,22)	(1,05)	(-1,17)	(4,87)	(1,21)

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Table 6

The table presents the Jensen, Treynor-Mazuy and Henriksson-Merton estimates for Swedish equity investment funds. The second through fifth columns report the abnormal return (α), systematic risk (β), the coefficient of determination (R^2) and Durbin-Watson statistics. In the sixth through eleventh columns the selectivity (α) and market timing parameters (τ_{TM}, τ_{HM}) are displayed. The values in brackets below the estimates are their average Newey-West corrected *t*-statistics, and the double (**) and single (*) asterisks indicate the statistical significance of each individual estimate at the 5% and 10% level respectively.

Fund	Jensen		R^2	Durbin-Watson statistic	Treynor-Mazuy			Henriksson-Merton		
	α	β			α	β	τ_{TM}	α	β	τ_{HM}
Aktie-Ansvar Sverige Inc	0,117	0,779**	0,629	2,80	-0,261	0,750**	0,853**	-0,493	0,645**	0,235*
Aktiespararna Topp Sverige Inc	-0,285	0,845**	0,566	2,79	-0,741**	0,811**	1,031**	-1,067**	0,674**	0,302*
Alfred Berg Sverige Inc	-0,441*	0,914**	0,641	2,73	-0,969**	0,875**	1,190**	-1,282**	0,730**	0,324*
AMF Pension Aktiefond - Sverige Inc	0,357	0,829**	0,671	2,87	-0,110	0,794**	1,055**	-0,417	0,660**	0,299**
Banco Etisk Sverige Inc	-0,453	0,894**	0,600	2,64	-0,940**	0,857**	1,099**	-1,256**	0,718**	0,310
Banco Etisk Sverige Special Inc	-0,360	0,870**	0,549	2,61	-0,877**	0,831**	1,167**	-1,193**	0,687**	0,322
Banco Hjälp Inc	-0,593**	0,922**	0,628	2,59	-1,146**	0,880**	1,249**	-1,516**	0,720**	0,356*
Banco Humanfonden Inc	-0,512*	0,904**	0,635	2,67	-1,048**	0,864**	1,210**	-1,370**	0,716**	0,331*
Banco Ideell Miljö Inc	-0,400	0,911**	0,641	2,65	-0,901**	0,873**	1,130**	-1,207**	0,734**	0,311*
Banco Kultur Inc	-0,495*	0,900**	0,634	2,67	-1,017**	0,861**	1,180**	-1,334**	0,717**	0,324*
Banco Samaritfonden Inc	-0,506*	0,901**	0,633	2,67	-1,038**	0,861**	1,200**	-1,359**	0,714**	0,329*
Banco Småbolag Inc	-0,189	1,065**	0,569	2,01	-0,400	1,049**	0,475	-0,702	0,953**	0,198
Banco Svensk Miljö Inc	-0,096	0,907**	0,644	2,52	-0,690**	0,862**	1,341**	-1,197**	0,666**	0,425**
Carlson Småbolagsfond Inc	0,287	0,913**	0,660	2,38	-0,065	0,887**	0,793	-0,341	0,776**	0,242
Carlson Sverigefond Inc	-0,145	0,838**	0,640	2,73	-0,592*	0,805**	1,008**	-0,855*	0,683**	0,274*
Carlson Sweden A Acc	-0,177	0,847**	0,676	2,69	-0,598**	0,815**	0,949**	-0,907**	0,687**	0,282**
Carlson Sweden Micro Cap Inc	0,201	0,903**	0,694	2,26	-0,002	0,888**	0,457	-0,154	0,826**	0,137
Carnegie Småbolag Inc	-0,056	1,004**	0,591	2,21	-0,244	0,990**	0,426	-0,460	0,915**	0,156
Carnegie Sverige Inc	-0,226	0,878**	0,583	2,68	-0,637*	0,847**	0,929*	-0,952*	0,719**	0,280

Table 6

(Continued)

Catella Reavinst fond	0,077	0,886**	0,550	2,58	-0,408	0,849**	1,093**	-0,852	0,682**	0,358*
Catella Sverige Passiv	-0,055	0,839**	0,640	2,83	-0,452	0,809**	0,896**	-0,681	0,702**	0,241*
Catella Trygghetsfond	0,057	0,784**	0,622	2,41	-0,505	0,742**	1,269**	-0,987*	0,556**	0,403**
Danske Fonder Sverige Inc	-0,008	0,798**	0,621	2,80	-0,524*	0,759**	1,165**	-0,909**	0,600**	0,347**
Danske Fund Sweden Acc	-0,342	0,799**	0,596	2,74	-0,886**	0,758**	1,229**	-1,283**	0,592**	0,363**
Didner & Gerge Aktiefond Sverige Inc	0,309	0,860**	0,562	2,54	-0,137	0,827**	1,007**	-0,610	0,659**	0,355*
Eldsjäl Gåvofond	-0,208	0,894**	0,635	2,69	-0,633*	0,862**	0,959*	-0,887*	0,746**	0,262
Eldsjäl Sverigefond	-0,200	0,895**	0,636	2,69	-0,628*	0,862**	0,965*	-0,883*	0,745**	0,263
Enter Sverige Fokus Inc	0,074	0,793**	0,558	2,79	-0,294	0,766**	0,830**	-0,571	0,652**	0,249
Enter Sverige Inc	-0,069	0,813**	0,593	2,82	-0,430	0,785**	0,815**	-0,627	0,690**	0,216*
Erik Penser Aktieindexfond Sverige (OMX) Inc	-0,295	0,848**	0,568	2,79	-0,756**	0,813**	1,039**	-1,087**	0,674**	0,306*
Folksam LO Sverige Inc	-0,086	0,835**	0,626	2,82	-0,523	0,802**	0,986**	-0,786*	0,682**	0,270*
Folksam LO Västfonden Inc	-0,043	0,835**	0,635	2,81	-0,462	0,803**	0,946**	-0,719	0,687**	0,261*
Folksams Aktiefond Sverige	-0,101	0,836**	0,626	2,83	-0,536	0,803**	0,983**	-0,804*	0,682**	0,272*
Folksams Tjänstemannafond Sverige	-0,087	0,834**	0,623	2,80	-0,517	0,802**	0,971**	-0,768	0,685**	0,263*
Handelsbanken Aktiefond Index Inc	-0,109	0,856**	0,656	2,80	-0,581*	0,820**	1,065**	-0,844*	0,695**	0,284*
Handelsbanken Radiohjälpsfonden Inc	-0,229	0,847**	0,610	2,72	-0,704**	0,811**	1,071**	-1,006**	0,677**	0,300*
Handelsbanken Reavinstfond Inc	-0,268	0,875**	0,613	2,74	-0,705**	0,842**	0,985**	-0,962*	0,723**	0,268
Handelsbanken SBC Bofonden Inc	-0,231	0,852**	0,612	2,72	-0,699**	0,817**	1,057**	-0,988**	0,686**	0,292*
Handelsbanken Småbolagsfond Inc	0,274	0,892**	0,663	2,35	-0,110	0,863**	0,866**	-0,470	0,729**	0,287*
HQ Strategy Fund Acc	0,067	0,763**	0,651	2,79	-0,511*	0,719**	1,305**	-0,910**	0,549**	0,377**
HQ Sverigefond Inc	0,100	0,779**	0,625	2,73	-0,392	0,742**	1,112**	-0,654	0,614**	0,291**
HQ Swedish Equity Fund B Inc	-0,355	0,729**	0,626	2,53	-0,662*	0,706**	0,693	-0,720	0,649**	0,141
Kaupthing Småbolag Inc	-0,390	0,944**	0,540	2,00	-0,791	0,913**	0,905	-1,272*	0,750**	0,340

Table 6

(Continued)

Kaupthing Sverige Index 30 Inc	-0,300	0,845**	0,561	2,76	-0,780**	0,809**	1,083**	-1,122**	0,665**	0,317*
Kaupthing Swedish Growth Acc	-0,241	1,042**	0,599	2,31	-0,937*	0,990**	1,570**	-1,493**	0,768**	0,483**
Länsförsäkringar Småbolagsfond Inc	0,084	0,998**	0,625	1,94	-0,234	0,974**	0,719	-0,654	0,837**	0,285
Länsförsäkringar Sverigefond Inc	-0,213	0,849**	0,596	2,77	-0,643*	0,817**	0,972**	-0,916*	0,695**	0,271
Nordea Etiskt Urval	-0,148	0,850**	0,609	2,72	-0,584*	0,817**	0,986**	-0,888*	0,688**	0,286*
Nordea Sverigefond Inc	-0,256	0,885**	0,611	2,67	-0,720**	0,850**	1,047**	-1,018**	0,718**	0,294*
Nordea Sweden Fund Acc	-0,313	0,878**	0,615	2,66	-0,761**	0,845**	1,011**	-1,047**	0,718**	0,283
ODIN Sverige	0,951**	0,792**	0,700	2,09	0,773*	0,779**	0,400	0,647	0,725**	0,117*
Öhman Sverigefond Inc	-0,211	0,863**	0,614	2,72	-0,635*	0,831**	0,958**	-1,001**	0,690**	0,305**
SEB Etisk Sverigefond Inc	-0,219	0,846**	0,621	2,72	-0,610*	0,816**	0,883**	-0,838*	0,710**	0,239
SEB Stiftelsefond Sverige Inc	-0,235	0,843**	0,610	2,68	-0,612*	0,815**	0,853**	-0,760	0,728**	0,203
SEB Sverige Chans/Riskfond Inc	-0,252	0,878**	0,612	2,66	-0,694*	0,844**	0,997**	-1,023*	0,709**	0,298*
SEB Sverigefond	-0,210	0,849**	0,625	2,77	-0,610*	0,819**	0,902**	-0,854*	0,708**	0,249
SEB Sverigefond Småbolag Chans/Risk Inc	0,381	0,922**	0,670	2,21	0,111	0,901**	0,608	-0,186	0,798**	0,219
SEB Sverigefond Småbolag Inc	0,199	0,868**	0,669	2,37	-0,152	0,841**	0,793*	-0,444	0,727**	0,248*
SEB Sverigefond Stora bolag	-0,221	0,852**	0,624	2,75	-0,632*	0,822**	0,925**	-0,880*	0,708**	0,254
Skandia Aktiefond Sverige Inc	-0,062	0,825**	0,637	2,77	-0,461	0,795**	0,899**	-0,685	0,689**	0,240
Skandia Cancerfonden Inc	-0,203	0,850**	0,647	2,70	-0,665**	0,815**	1,042**	-0,988**	0,678**	0,303*
Skandia Småbolag Sverige Inc	0,428	0,918**	0,634	2,28	0,046	0,889**	0,864*	-0,323	0,753**	0,290
Skandia Världsnaturfonden Inc	-0,194	0,841**	0,638	2,70	-0,639*	0,808**	1,003**	-0,945*	0,677**	0,290*
SPP Aktiefond Sverige Inc	-0,019	0,867**	0,643	2,77	-0,447	0,834**	0,967**	-0,739	0,709**	0,278*
SPP Aktieindexfond Sverige Inc	-0,281	0,862**	0,587	2,74	-0,811**	0,822**	1,196**	-1,185**	0,664**	0,349**
SSgA Sweden Index Equity Fund P Acc	-0,408	0,878**	0,542	2,78	-0,872**	0,843**	1,048**	-1,210**	0,702**	0,310
Swedbank Robur Ethica Miljö Sverige Inc	-0,121	0,836**	0,643	2,67	-0,399	0,815**	0,628	-0,620	0,726**	0,193

Table 6

(Continued)

Swedbank Robur Exportfond Inc	0,363	0,887**	0,622	2,62	0,022	0,861**	0,771	-0,146	0,775**	0,196
Swedbank Robur Småbolagsfond Sverige Inc	0,411	0,922**	0,622	2,38	0,016	0,892**	0,893*	-0,410	0,742**	0,317*
Swedbank Robur Sverigefond Inc	-0,054	0,848**	0,627	2,80	-0,462	0,817**	0,922**	-0,735	0,699**	0,263*
Swedbank Robur Sverigefond MEGA Inc	0,027	0,841**	0,627	2,80	-0,383	0,810**	0,923**	-0,670	0,688**	0,269*
The Modern Funds Sweden Top 30 Acc	-0,432	0,878**	0,632	2,80	-1,059**	0,831**	1,416**	-1,529**	0,638**	0,423**
t-statistics										
	(-0,40)	(15,56)			(-1,51)	(14,18)	(2,22)	(-1,63)	(6,00)	(1,66)

Table 7

The table presents the Jensen, Treynor-Mazuy and Henriksson-Merton estimates for Norwegian equity investment funds. The second through fifth columns report the abnormal return (α), systematic risk (β), the coefficient of determination (R^2) and Durbin-Watson statistics. In the sixth through eleventh columns the selectivity (α) and market timing parameters (τ_{TM}, τ_{HM}) are displayed. The values in brackets below the estimates are their average Newey-West corrected *t*-statistics, and the double (**) and single (*) asterisks indicate the statistical significance of each individual estimate at the 5% and 10% level respectively.

Fund	Jensen		R^2	Durbin-Watson statistic	Treynor-Mazuy			Henriksson-Merton		
	α	β			α	β	τ_{TM}	α	β	τ_{HM}
Alfred Berg Aktiv	0,293	0,801**	0,809	1,50	1,005**	0,863**	-1,170**	1,779**	1,086**	-0,482**
Alfred Berg Aktiv II	0,519	0,796**	0,769	1,56	1,246**	0,859**	-1,195**	2,005**	1,081**	-0,482**
Alfred Berg Gambak	0,517	0,887**	0,716	1,28	1,321*	0,957**	-1,320**	2,311**	1,231**	-0,582**
Alfred Berg Norge	0,384	0,799**	0,899	1,49	0,931**	0,847**	-0,899**	1,534**	1,020**	-0,373**
Alfred Berg Norge +	0,431	0,800**	0,901	1,48	0,980**	0,848**	-0,902**	1,587**	1,022**	-0,375**
Avanse Norge (I)	0,089	0,805**	0,914	1,51	0,581**	0,847**	-0,807**	1,081**	0,995**	-0,321**

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Table 7

(Continued)

Avanse Norge (II)	0,007	0,798**	0,910	1,45	0,400	0,832**	-0,646**	0,783*	0,947**	-0,252**
Banco Humanfond	0,086	0,791**	0,873	1,79	0,612**	0,837**	-0,864**	1,159**	0,997**	-0,348**
Carnegie Aksje Norge	0,472*	0,795**	0,875	1,68	0,984**	0,840**	-0,841**	1,567**	1,006**	-0,355**
Carnegie Norge Indeks	0,352	0,778**	0,888	1,58	0,954**	0,830**	-0,988**	1,580**	1,014**	-0,398**
Danske Fund Norge I	0,252	0,775**	0,918	1,63	0,677**	0,812**	-0,698**	1,193**	0,956**	-0,305**
Danske Fund Norge II	0,331	0,774**	0,917	1,63	0,744**	0,810**	-0,678**	1,245**	0,950**	-0,296**
Danske Fund Norge Vekst	0,281	0,755**	0,734	1,27	1,043*	0,821**	-1,252**	1,977**	1,081**	-0,550**
Delphi Norge	0,463	0,896**	0,757	1,89	1,211**	0,961**	-1,229**	2,176**	1,225**	-0,555**
Delphi Vekst	0,235	0,854**	0,745	1,79	0,683	0,893**	-0,736**	1,423**	1,082**	-0,385**
DnB NOR Norge (I)	0,229	0,816**	0,908	1,45	0,817**	0,867**	-0,966**	1,470**	1,055**	-0,402**
DnB NOR Norge (III)	0,304	0,815**	0,907	1,46	0,882**	0,865**	-0,950**	1,523**	1,049**	-0,395**
DnB NOR Norge Selektiv (I)	0,325	0,867**	0,878	1,69	0,761**	0,905**	-0,715**	1,273**	1,049**	-0,307**
DnB NOR Norge Selektiv (III)	0,276	0,808**	0,901	1,39	0,792**	0,853**	-0,847**	1,371**	1,018**	-0,355**
Handelsbanken Norge	0,264	0,815**	0,898	1,30	0,818**	0,863**	-0,910**	1,439**	1,040**	-0,381**
KLP AksjeNorge	0,384	0,798**	0,906	1,72	0,867**	0,840**	-0,793**	1,384**	0,990**	-0,324**
Kaupthing Norge	0,056	0,856**	0,801	1,57	0,672	0,909**	-1,010**	1,376**	1,109**	-0,428**
NB-Aksjefond	0,143	0,768**	0,905	1,59	0,550**	0,804**	-0,669**	1,030**	0,939**	-0,288**
NB-Plussfond	0,086	0,793**	0,866	1,89	0,308	0,812**	-0,365	0,641	0,900**	-0,180
Nordea Avkastning	0,115	0,809**	0,905	1,43	0,622**	0,853**	-0,832**	1,181**	1,014**	-0,345**
Nordea Kapital	0,165	0,813**	0,911	1,42	0,697**	0,859**	-0,874**	1,305**	1,032**	-0,370**
Nordea Norge Verdi	0,175	0,757**	0,894	1,56	0,445	0,781**	-0,445**	0,755**	0,869**	-0,188**
Nordea SMB	0,284	0,827**	0,801	1,73	0,454	0,842**	-0,280	0,714	0,910**	-0,139
Nordea Vekst	-0,054	0,824**	0,895	1,60	0,347	0,859**	-0,659**	0,828**	0,994**	-0,286**
ODIN Norge	0,539	0,814**	0,822	1,89	1,009**	0,855**	-0,773**	1,486**	0,996**	-0,307**

Table 7

(Continued)

Orkla Finans Investment Fund	0,139	0,816**	0,857	1,53	0,654*	0,861**	-0,844**	1,252**	1,030**	-0,361**
PLUSS Aksje (Fondsforval)	0,148	0,786**	0,893	1,62	0,604**	0,825**	-0,748**	1,100**	0,969**	-0,309**
PLUSS Index (Fondsforvaltn)	0,445	0,769**	0,889	1,65	1,042**	0,821**	-0,980**	1,676**	1,006**	-0,399**
PLUSS Markedsverdi (Fondsforv)	0,347	0,756**	0,907	1,64	0,822**	0,797**	-0,780**	1,340**	0,946**	-0,322**
Postbanken Norge	0,177	0,815**	0,906	1,42	0,756**	0,865**	-0,951**	1,384**	1,047**	-0,391**
Storebrand Aksje Innland	0,140	0,797**	0,894	1,60	0,728**	0,848**	-0,965**	1,385**	1,036**	-0,404**
Storebrand Norge	0,209	0,816**	0,898	1,54	0,838**	0,870**	-1,033**	1,520**	1,068**	-0,425**
Storebrand Vekst	-0,196	0,857**	0,744	1,58	0,179	0,890**	-0,616*	0,796	1,048**	-0,322**
Storebrand Verdi	0,777**	0,741**	0,822	2,03	1,547**	0,808**	-1,265**	2,241**	1,022**	-0,475**
Terra Norge	0,067	0,812**	0,852	1,71	0,591	0,858**	-0,861**	1,157**	1,022**	-0,353**
t-statistics										
	(0,81)	(18,79)			(18,79)	(32,12)	(-4,48)	(3,22)	(19,24)	(-4,75)

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Table 8

The table presents the Jensen, Treynor-Mazuy and Henriksson-Merton estimates for Finnish equity investment funds. The second through fifth columns report the abnormal return (α), systematic risk (β), the coefficient of determination (R^2) and Durbin-Watson statistics. In the sixth through eleventh columns the selectivity (α) and market timing parameters (τ_{TM}, τ_{HM}) are displayed. The values in brackets below the estimates are their average Newey-West corrected t-statistics, and the double (**) and single (*) asterisks indicate the statistical significance of each individual estimate at the 5% and 10% level respectively.

Fund	Jensen		R^2	Durbin-Watson statistic	Treynor-Mazuy			Henriksson-Merton		
	α	β			α	β	τ_{TM}	α	β	τ_{HM}
Aktia Capital	0,711**	0,676**	0,907	1,14	0,736**	0,677**	-0,064	0,718**	0,677**	-0,003
Alfred Berg Finland	-0,062	1,089**	0,951	1,58	-0,292	1,079**	0,574**	-0,500*	0,992**	0,183**
Alfred Berg Small Cap Finland	0,065	1,143**	0,802	1,09	-0,178	1,132**	0,604	-0,446	1,030**	0,214
Carnegie Suomi Osake	0,061	1,032**	0,969	1,66	-0,078	1,026**	0,346*	-0,233	0,968**	0,123**
Danske Suomi Kasvuosake Kasvu	-0,606	1,387**	0,758	1,25	-0,927	1,372**	0,798	-1,269	1,240**	0,277
Danske Suomi Osake Kasvu	-0,253	1,077**	0,962	1,04	-0,376**	1,071**	0,308**	-0,459**	1,031**	0,086*
Danske Suomi Yhteisöosake Kasvu	-0,067	1,078**	0,953	0,97	-0,239	1,070**	0,426**	-0,340*	1,018**	0,114*
Evli Select	0,010	1,035**	0,906	1,24	-0,087	1,031**	0,239	-0,199	0,989**	0,087
FIM Fenno	0,684	1,139**	0,813	0,92	0,320	1,122**	0,907	0,037	0,996**	0,271*
Fondita Equity Spice	0,401*	1,041**	0,948	1,12	0,246	1,034**	0,386	0,009	0,954**	0,164**
Handelsbanken Suomi	0,068	1,012**	0,995	1,87	0,049	1,011**	0,047	-0,005	0,995**	0,031
Nordea Fennia Kasvu	-0,143	0,989**	0,981	1,38	-0,302**	0,981**	0,394**	-0,497**	0,910**	0,148**
Nordea Fennia Plus Kasvu	-0,032	1,067**	0,892	0,98	-0,460*	1,048**	1,065**	-0,837**	0,889**	0,337**
Nordea Pro Suomi Kasvu	-0,017	0,987**	0,982	1,43	-0,203**	0,979**	0,463**	-0,414**	0,899**	0,167**
OP-Delta	0,156	1,032**	0,964	1,38	-0,075	1,022**	0,577**	-0,303*	0,931**	0,193**
OP-Suomi Arvo	0,667*	0,767**	0,784	1,18	0,538	0,761**	0,321	0,402	0,708**	0,111
OP-Suomi Indeksi	-0,193*	1,080**	0,979	1,51	-0,267**	1,077**	0,184	-0,277*	1,062**	0,035
SEB Gyllenberg Finlandia	0,041	1,080**	0,961	1,43	-0,042	1,076**	0,207	-0,154	1,037**	0,082
SEB Gyllenberg Small Firm	-0,027	1,119**	0,773	1,04	-0,218	1,111**	0,474	-0,380	1,041**	0,148

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Table 8

(Continued)

Seligson & Co Suomi-indeksirahasto	-0,260**	1,084**	0,981	1,63	-0,302**	1,082**	0,104	-0,287*	1,079**	0,011
t-statistics										
	(0,14)	(37,38)			(-0,60)	(42,73)	(1,80)	(-1,10)	(25,41)	(1,97)

Table 9

The table reports the twelfth-order autoregression output for total returns of the countries in the sample. The given coefficients are the estimates of autocorrelation, the sum of autocorrelation coefficients, the coefficient of determination and the *F*-statistic testing for joint insignificance of all the autocorrelation coefficients reported. The asterisks stand for the statistical significance, positive or negative, at the 5% (**) and 10% (*) level.

Investment objective	AR(1)	AR(2)	AR(3)	AR(4)	AR(5)	AR(6)	AR(7)	AR(8)	AR(9)	AR(10)	AR(11)	AR(12)	Σ AR(*i*)	R^2	*F*-test
Danish equities	0,08	0,13	0,05	0,07	0,12	0,02	-0,08	-0,06	0,09	0,23**	-0,23**	-0,04	0,38	0,167	1,269
Swedish equities	0,15	-0,13	0,16	-0,04	0,05	0,13	-0,04	0,06	-0,04	-0,02	0,02	0,02	0,33	0,076	0,524
Norwegian equities	0,10	0,03	0,07	-0,05	0,00	0,16	0,05	0,05	0,01	-0,08	0,06	-0,03	0,35	0,059	0,399
Finnish equities	0,42**	-0,06	-0,02	-0,12	0,18*	0,04	0,01	0,05	-0,16	0,22**	-0,08	-0,09	0,39	0,238	1,978**

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Table 10

The table presents the winner-loser test estimates for total returns ranked across the intervals of approximately three years for all countries in the sample. The fifth column gives the size of the repeat winners expressed in percentage points. The *LOR* statistics together with its standard error and the *Z*-statistic are given in the sixth through eights columns accordingly.

Investment objective	Initial period	Following period		Repeat winners (in %)	Log Odds Ratio	Standard error	Z-test
Danish equities		Winner	Loser				
2000/2002 - 2002/2005	Winner	5	4	55,6	0,00	0,95	0,00
	Loser	5	4				
2002/2005 - 2005/2008	Winner	7	3	70,0	1,95	1,07	1,82
	Loser	2	6				
Swedish equities							
2000/2002 - 2002/2005	Winner	22	15	59,5	0,79	0,48	1,64
	Loser	14	21				
2002/2005 - 2005/2008	Winner	23	13	63,9	1,14	0,49	2,33
	Loser	13	23				
Norwegian equities							
2000/2002 - 2002/2005	Winner	11	9	55,0	0,40	0,64	0,63
	Loser	9	11				
2002/2005 - 2005/2008	Winner	13	7	65,0	1,02	0,65	1,57
	Loser	8	12				
Finnish equities							
2000/2002 - 2002/2005	Winner	6	5	54,5	0,41	0,90	0,45
	Loser	4	5				
2002/2005 - 2005/2008	Winner	5	5	50,0	0,00	0,89	0,00
	Loser	5	5				

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Table 11

The table depicts the outcome of the two cross-sectional regressions of the total returns from the latter period on those from the former period. The exercise has been done for all four countries from the sample and the sample has been split up into three-year intervals. The asterisks point to the statistical significance at 5% (**) and 10% (*) level respectively.

Investment objective	a_0	*P*-value	a_1	*P*-value	R^2
Danish equities					
2000/2002 - 2002/2005	2,76**	0,000	0,63**	0,001	0,223
2002/2005 - 2005/2008	0,44*	0,101	0,29**	0,015	0,213
Swedish equities					
2000/2002 - 2002/2005	2,04**	0,000	0,06	0,390	0,015
2002/2005 - 2005/2008	0,67**	0,000	0,18**	0,004	0,160
Norwegian equities					
2000/2002 - 2002/2005	3,03**	0,000	-0,10	0,507	0,013
2002/2005 - 2005/2008	1,16**	0,017	0,08	0,618	0,007
Finnish equities					
2000/2002 - 2002/2005	2,10**	0,000	-0,12	0,316	0,130
2002/2005 - 2005/2008	1,12**	0,004	0,01	0,926	0,000