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# Making the switch: the financial performance of funds that relabel to SRI

Evidence from the Swedish premium pension system

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## Abstract

Amidst rising global demand for SRI<sup>1</sup> investment options, many previously conventional<sup>2</sup> funds in the Swedish premium pension system have relabelled to SRI. This thesis looks into the comparative performance of these funds with their conventional peers, as well as with funds that joined the premium pension system as SRI. It also explores funds' individual performance before and after relabelling. It finds significant evidence that relabelled funds outperform both conventional and SRI funds, and that individual funds' performance improves when they relabel to SRI.

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<sup>1</sup> Socially Responsible Investing, defined here as "a strategy and practice to incorporate environmental, social and governance (ESG) factors in investment decisions and active ownership"  
?

<sup>2</sup> non-SRI

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# 1 Introduction

The question of Socially Responsible Investing (SRI) seems to be an increasingly relevant one in today's financial landscape. Widespread scientific concerns about climate change societal concern, as well as societal concern for the way the companies behave with regards to both the environment and their various stakeholders, have given way to a rise in demand for socially responsible investments. In addition to this, the ever growing availability of information makes it easier and easier to hold companies accountable for their environmental, societal and governmental decisions.<sup>3</sup>

SRI, defined by the UN as "a strategy and practice to incorporate environmental, social and governance (ESG) factors in investment decisions and active ownership" (?), inscribes itself within the large body of initiatives taken by both private and public entities to encourage companies and financial institutions to integrate questions of ESG issues into their decision making process. In 2006, the UN introduced a new organisation, the UN Principles for Responsible Investments (PRI), with the goal of encouraging financial institution to take ESG factors into account when making investment decisions. These principles have been adopted by over 2,300 signatories over the world. However, they are relatively broad, and some amongst the signatories have denounced the organisation as not being sufficiently strict when assuring signatories' compliance with the principles.<sup>4</sup>

It has therefore been complemented by other independent ratings. Although no one rating has yet developed a status as an industry standard, the Morningstar globe rating, introduced in 2016, has been amongst the most popular SRI ratings for investment funds. Its introduction helped confirm high demand for independently rated SRI funds, as demand for highly rated funds greatly increased when the indicator was introduced, whereas the demand for low rated ones dropped (?).

This rise in demand for and supply of SRI funds has come with a large wave of

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<sup>3</sup> ESG, or environmental, social and governance issues, are ethical and regulatory issues impacting companies. Examples of ESG issues include: impact on climate change and natural environment, handling of toxic waste, workplace health and safety, community relations, board structure and accountability, executive compensation, bribery issue etc. (UN Global Compact, 2004)

<sup>4</sup> ?

research pertaining to the effect of SRI strategies on funds' financial performance.<sup>5</sup> Although the main reason for investing in SRI funds from an individual investor's perspective may not be to optimise financial returns (?), it seems a difficult question to overlook. A 2008 study by ? found that SRI investors are at least as sensitive to financial performance as investors in conventional<sup>6</sup> funds, even though they are also sensitive to ethical standards. As research still seems split on the question of over or underperformance of SRI funds, proponents and detractors of SRI have used it as an argument to support their opinions on the matter. Many detractors of SRI funds use the supposed underperformance of SRI funds to protest the rise of such strategies. ?, for instance, argues in a 2002 article that although stakeholder theory brings up interesting questions, the primary purpose of any firm should always be value maximisation. Another article by ?, estimates that current legislation on funds' fiduciary duty officially prevents them from taking investment decisions based on factors other than return maximisation for their investors. This, according to Sandberg, means that within the current legal framework, SRI at the possible cost of diminished returns is a breach of fund manager's fiduciary duty and thus illegal. On the other hand, proponents of sustainable investing, such as the PRI, argue that it leads to less risky funds (?), which are less vulnerable to crises (??) and will outperform their peers in the long run (?). They therefore advertise SRI funds as a way for investors to "do well by doing good".

Considering those opposing views, it is hardly surprising that many economists and finance researchers have undertaken to take a closer look at the performance of ESG stocks and SRI funds. This research is valuable, and may in time settle the argument between proponents and detractors of the strategy. However, it is worthy to note that the profusion of research on the topic may also partly be due to the wide availability of relatively easily analysable data on the matter. This creates a "key under the lamppost" effect as described by ? in a 2012 study of the literature on the topic of SRI funds, whereas researchers choose to focus on relatively easily verifiable hypotheses rather than conduct more complex research on topics with little available evidence. It is undeniable that while financial performance is always

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<sup>5</sup> One literature review by ? finds over 400 articles in academic journals on the topic of socially responsible investing include some mention of performance, and over 50 that specifically examine that issue of financial performance of SRI funds or indexes

<sup>6</sup> Conventional funds refers in this study to funds that do not follow an SRI strategy

a relevant question when analysing fund strategies, it is by definition not meant to be socially responsible investors' only concern. Nevertheless, as SRI fund offering keeps growing and research has so far been unable to reach a clear consensus on the difference in financial performance between conventional and SRI funds, it seems that research on the topic still has important insights to offer.

The question on the forefront of SRI performance research has however shifted. Most (but not all) of the early research that focused purely on SRI versus conventional fund performance found no financial effect linked to SRI strategies for investment funds (??) or small negative effects (??). The authors of this research did often acknowledge the possibility of certain types of SRI funds over or underperforming others, but the lack of reliable data on funds' different types of SRI strategies made further analysis difficult. As more tools to evaluate different screening and investing strategies for SRI funds were created, a growing body of recent research has been attempting to further understand the drivers of performance in SRI funds, and perhaps explain why studies on SRI versus conventional fund performance has yielded such varied results.

This study attempts to add to this body of research. By looking at the performance of funds in the Swedish premium pension system, it aims to add a brick to our understanding of the performance of different SRI funds. The Swedish premium system is particularly interesting in this regard for a number of reasons. Firstly, the premium pension system's SRI marker, added in 2004, allows for tracking not only difference between SRI and conventional funds, but also returns before and after funds relabel to SRI. This question is the predominant theme of this thesis. By looking into the differences in performance between conventional, relabelled and new SRI funds,<sup>7</sup> as well as the difference in performance before and after funds relabel to SRI, this thesis attempts to answer the question of whether funds that relabel to SRI are fundamentally different from new SRI funds. It also attempts to discover whether this relabelling is a purely cosmetic undertaking, driven by a desire to profit from investor demand for SRI labelled funds (which most likely would have

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<sup>7</sup> Funds are considered to be relabelled if they joined the Swedish pension system as conventional funds and later were labelled SRI. Funds are considered new SRI if they were labelled SRI from the first year they joined the system. Funds that were already in the system and obtained the SRI label as soon as it was introduced in 2004 are considered relabelled for the purpose of this study.

no long term effect on performance), or whether it is accompanied by a true change in strategy and reflected in returns.

Furthermore, the Swedish premium pension system has seen quite a sharp rise in the proportion of SRI rated funds between the introduction of the label in 2004, where 8% of funds were labelled SRI, and the end of our study sample in 2018, when around 34% had the label. This increase was strongly driven by funds already present in the system relabelling to SRI, making it particularly adapted to this analysis. In addition to this, the Swedish market is both quite mature and fairly innovative from an SRI standpoint.<sup>8</sup> The Swedish public pension funds (referred to as the AP funds and not included in this study), for instance, have had clear SRI guidelines from their inception.<sup>9</sup> The system also includes diverse funds in terms of size, geographic focus and management style. Although a fair number of funds are still focused towards the Nordics, the majority of funds are targeted towards other regions, making for a more diverse sample than is used in many studies. Lastly, the Swedish pension system gives the public easy access to reliable information on fund performance. For all the reasons given above, the Swedish premium system is an optimal sample of funds to evaluate the financial performance of funds adopting SRI strategies.

This thesis will therefore analyse financial performance for all funds in the Swedish premium pension system between 2004 and 2018 to try to evaluate the effects of adopting an SRI strategy.

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<sup>8</sup> Although many Swedish SRI funds still rely on exclusion policies, there is also a large and growing share of funds that follow engagement and voting strategies or other innovative SRI strategies combined with exclusion (?)

<sup>9</sup> AP7 S fa for instance, the default fund for the premium pension system, has both exclusionary policies for e.g. nuclear weapons manufacturers, and an active policy of pushing for ESG changes in portfolio companies (Pensionsmyndigheten, 2020)

## 2 Literature Review

As mentioned previously, the literature on the effects of SRI strategies on returns is quite extensive and puts forward mixed results.

On one hand, most of the research on individual ESG stock performance found an overall positive effect of ESG consciousness on stock returns. A literature review of over 2000 empirical studies by ? on the effect of ESG criteria on corporate financial performance found a large majority of positive effects, followed by neutral findings and around 10% of negative results. Other literature reviews, such as ? also find, on aggregate, outperformance by ESG conscious firms.

However, outperformance by ESG firms does not necessarily lead to outperformance by SRI funds. According to modern portfolio theory, diversification is an essential element of optimising portfolio returns (?). The exclusionary screening processes used by many SRI funds mechanically reduce their diversification by excluding certain sectors from their portfolio, thus leaving them overexposed to other sectors and reducing their risk-adjusted returns (???). This argument is further supported by evidence pointing to an outperformance of so-called "sin stocks" (e.g. tobacco, gambling, alcohol). Due to the reluctance of SRI and other morally constrained funds to invest in such stocks due to their controversial nature, they tend to have lower prices and higher expected returns than otherwise comparable stocks (?). This is explained by Hong & Kacperczyk as being due to a depreciation in prices due to low institutional demand for such stocks, as well as potential undervaluation due to multiple factors such as lack of analyst coverage and very conservative accounting because of added regulatory attention, as well as litigation risk.

On the other hand, some argue that SRI funds' focus on sustainability makes them more resilient to uncertainty and more adaptable to shifting market conditions (??). Furthermore, it is arguable that ESG firms' outperformance improves the overall quality of the stocks that SRI funds invest in, and may thus compensate for the loss in diversification associated with SRI strategies. On this subject, research conducted into fund managers' stock picking abilities has shown no significant difference between conventional and SRI fund managers (??). However, if ESG stocks do indeed consistently outperform their peers as suggested by the ma-

majority of the research, SRI fund managers should be able to achieve superior returns with comparable stock-picking abilities simply on account of having a better pool of stocks to choose from. It is also possible that the benefits of SRI are on a longer term than research has been able to analyse yet, and that funds that seem to perform similarly now may see a difference in returns in the long term.

These opposite effects facing SRI funds, and the mixed results of the research pertaining to their performance, have led some, like ?? or ? to look in more detail at the differences within SRI funds. They try to determine the factors influencing their performance, and in particular the effect of "screening intensity", ie the number of negative screens put in place by funds,<sup>10</sup> on financial performance. Those studies have also yielded mixed results. ? and ? both find an overall underperformance of SRI funds compared to conventional funds. This underperformance worsens as screening intensity increases, but then decreases for the most stringent funds. This indicates a curvilinear (U-shaped) relationship between performance and negative screening intensity. In other words, it seems that funds that are mildly committed to SRI perform worse than both funds that are not committed at all and funds that are very committed to SRI. However, ? conducted a similar study on Australia SRI funds and found no significant effect, indicating that the effects found in the aforementioned studies may not be generalised to the overall SRI fund population.

Negative screening, however, is considered by many to be an early, unsophisticated type of SRI strategy, which has now given way to new, more complex strategies, such as transversal screening. Transversal screening does not exclude any one sector or industry, but instead attempts to find best-in-class stocks based on ESG criteria. This strategy, unlike negative screening, allows funds to preserve diversification while still taking ethical factors into consideration. In their study, ? did find that funds which apply negative screening strategies significantly underperform their peers, but that transversal strategies had no significant impact on performance. This is an important point, as modern sustainability indexes, such as Morningstar's globe rating, tend to rate funds' portfolios on the relative ESG performance of their underlying stocks within their industries (?) rather than in absolute terms. In other words, in order to achieve a high score on the Morningstar sustainability rating,

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<sup>10</sup> Negative screening is the practice of completely excluding certain stocks or industries from the pool of possible investments (e.g. sin stock or polluting industries)

funds must pick best-in-class stocks in terms of ESG in each industry, rather than the overall "best" ESG stocks in the market. This allows funds to preserve diversification while maintaining high Morningstar sustainability ratings. As the demand for independently rated sustainable funds increases, it seems likely that funds will focus on the strategies which maximise their SRI ratings, and thus perhaps move from mostly exclusionary policies towards more transversal ones, which could have a positive impact on their risk adjusted returns (or at least reduce negative impact).

It is however worthy to note that such a shift in strategy, although perhaps optimal from a financial point of view, may not be so from an ethical one. As SRI funds have shifted from a niche offering to a more mainstream practice, some argue that practices such as transversal or best-in-class approach have denatured SRI funds' focus by shifting it from ethical to financial considerations (?). In other words, as SRI funds gained popularity, they lost their primary aim of "doing good" by overly focusing on "doing well". This concern is well represented in investors wariness of "greenwashing", a practice by which funds adopt SRI principles for marketing reasons without a true strategy overhaul. The concern that funds may be engaging in greenwashing is likely to be particularly present for previously conventional funds that choose to relabel to SRI, considering the current demand for such investments. Conversely, it is also possible that funds which relabel already fulfilled the criteria to be labelled SRI but had just overlooked registering their SRI status with the Pension Authority. If the majority of funds are in either one of these cases, it would be expected that relabelling would not be accompanied by any substantial change in strategy, and as such would have no discernible effect on performance. One of the objectives of this thesis is therefore to evaluate whether those funds' financial performance may be able to demonstrate a clear shift in strategy, which, although it would not assure their ethical standards, would show that their relabelling did not limit itself to an aesthetic operation.

Another aspect of this thesis hinges upon the effect of any change in strategy on financial performance. Although the analysis conducted here focuses on SRI criteria, it is possible that any change in performance after relabelling may be due to an effect of strategy change on performance. There is quite extensive literature on the effect of style-shifting activity on mutual and hedge funds. Although this literature mostly

focuses on style-shifting in the type of assets held in order to beat a fund's passive benchmark, the possibility that a shift in investment style with the goal of improving SRI measures would have similar effects cannot be ruled out. One particular 2012 study by ? showed that style shifting activity had a statistically and economically significant effect on returns. While this only applies to funds that actively shift styles regularly, it is not impossible that it would also influence funds relabelling to SRI, albeit in the short term. This study will attempt to investigate this possibility by looking at the persistence of potential differences in financial performance after relabelling, to evaluate whether they could be due to a short-term effect of any shift in strategy rather than a specific effect of relabelling to SRI.

## 3 Data and descriptive statistics

### 3.1 SRI fund sample and returns

In order to obtain a reasonably large sample of funds with a common SRI standard, this study uses data from the Swedish premium pension system. Put in place in 1998, this system mandates all workers in Sweden put 2,5% of their salary and other benefits into premium pension credits, which they can then invest into various private pension funds. Although the pension system does have a public default fund, called AP7 S fa, in which workers' premium pensions are automatically invested unless said workers choose otherwise, the Swedish premium pension system includes a total of over 800 other funds (as of April 2020), a number which has been growing steadily since the introduction of the system.

To encourage socially responsible investing, and to make it easier for Swedish workers to choose their pension funds, the system also includes an SRI label for funds since 2004. As of 2019, the Swedish pension authority has decided to phase out this indicator in favour of more stringent ones, such as Morningstar's globe rating. While this decision responds to investor demand for more reliable indicators, not all funds in the pension system are rated by Morningstar and the globe rating only exists since 2016. As such, the new indicator does not allow for studying a large sample of funds over a long period of time. This study therefore focuses on the 2004 to 2018 period and uses the previous pension authority SRI indicator. It is worthy to note that this indicator is self-reported and is tied to a transparency obligation, meaning SRI marked funds must report on the ESG measures they have put in place, and are also required to abide by the UN's PRI. However, there is no independent rating system to ensure that a certain minimum requirement is being met by these funds. It is therefore not an ideal indicator to calculate the effect of specific SRI measures on fund performance and may allow for some amount of greenwashing (which is one of the themes explored in this thesis).

The aim of this thesis, however, is to evaluate differences between different self-defined SRI funds. For this purpose, the SRI indicator provided by the Swedish pension authority is an adequate tool. This study examines monthly returns of

funds in the Swedish premium pension system between the introduction of the SRI marker in 2004 and its progressive phasing out in favour of more precise indicators in late 2018. During those 14 years, the number of funds in the premium pension system went from 661 funds to 885 funds,<sup>11</sup> with the proportion of SRI funds going from 8% to around 34%.

Figure 1 below shows the evolution in the number of conventional, new SRI, and relabelled funds over our sample period. Crucially for this thesis, the increase in the percentage of SRI marked funds was driven by two separate, although not uncorrelated trends. On one hand, an increasing proportion of funds newly joining the premium pension system are doing so with an SRI marker (those will be referred to as "new SRI funds"). On the other hand, the largest part of the increase in SRI rated funds was driven by funds that joined the system as conventional funds and later relabelled to SRI. As of 2018, over 75% of the SRI funds in the system were such funds, although the proportional year-on-year increase in new SRI funds was slightly higher than that in relabelled funds.

Because the Swedish pension authority wants to allow for as much transparency as possible to help Swedish workers make an educated choice of funds to invest their premium pension in, all of the data on market value, returns and the SRI marker is available freely on their website. This is therefore the data that this thesis uses.<sup>12</sup>

### 3.2 Risk-free rate and market indexes

This study uses a four-factor model (?) to evaluate risk adjusted performance. It therefore requires both a risk free rate and a market return.

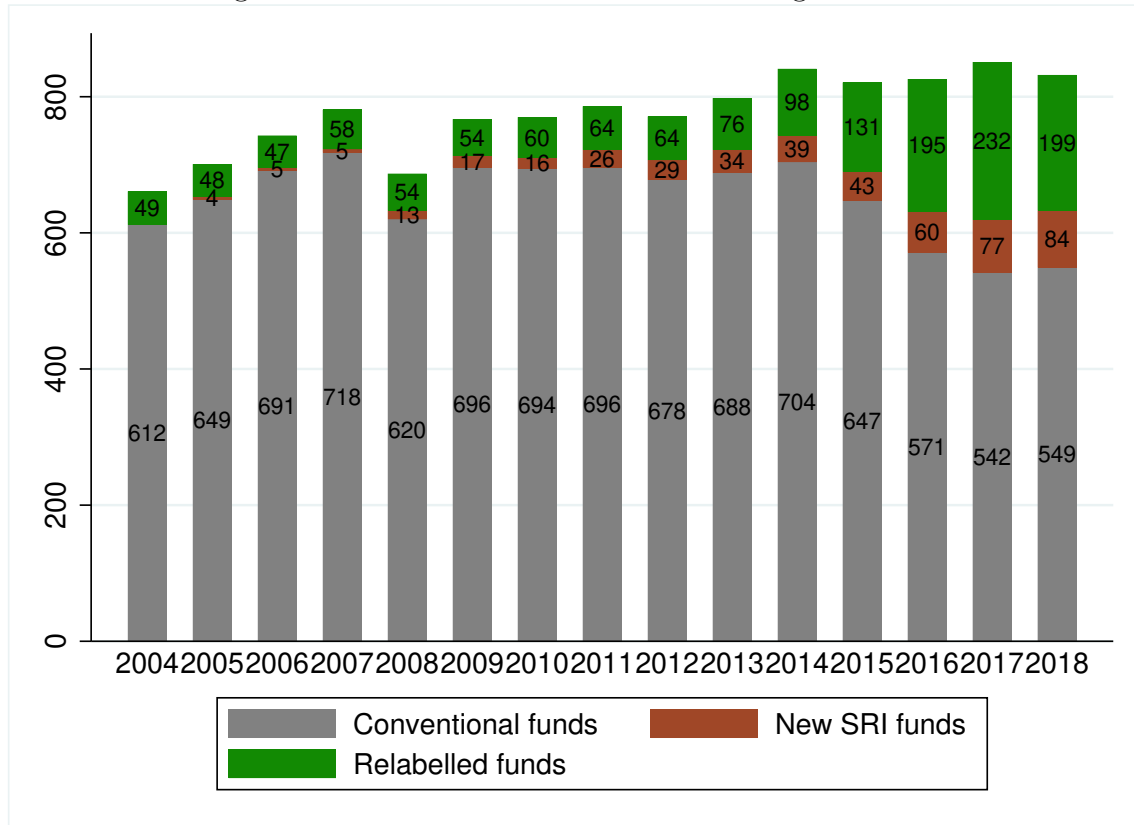
For the risk free rate, the 3-months Swedish Treasury Bill rate as given by Riskbanken (the Swedish Central Bank) was deemed suitable. Although the one year or one month rates could also have been used, the 3-month rate (converted to monthly) is often praxis when using factor models with monthly returns, and was therefore favoured.

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<sup>11</sup> Not including the public AP funds or funds that were in the premium pension system for under one year

<sup>12</sup> Before 2008, the SRI marker is not available in the statistics published in the pension authority website. Thankfully, data on this marker was already compiled by A. Anderson and D. Robinson for their research, and they have graciously shared their data with the author of this thesis

Figure 1: Evolution of the SRI fund offering over time



For market returns, considering the geographical spread the funds, but also the bias towards Swedish and Nordics funds, it would seem unreasonable to use only a Swedish market indicator. Funds' excess returns are therefore regressed against both to the Swedish market performance and a composite international index. For the Swedish market, the SIXRX<sup>13</sup> index includes capital weighted monthly returns for all stocks listed on the Stockholm stock exchange (Nasdaq Stockholm). For the international index, this thesis uses monthly returns for the MSCI World Index,<sup>14</sup> which includes mid and large cap equities from developed countries around the world. This index was deemed appropriate, as the majority of funds in the system invest in developed markets. Although some of the funds in the system do invest in developing markets, the proportion of such funds was deemed small enough for this index to be suitable.

The factors used in the analysis are the European size (SMB) and book-to-market

<sup>13</sup> more information available at : [https://www.fondbolagen.se/fakta\\_index/marknadsindex/six-index/sixrx/](https://www.fondbolagen.se/fakta_index/marknadsindex/six-index/sixrx/)

<sup>14</sup> more information available at : <https://www.msci.com/developed-markets>

(HML) portfolios from Fama & French's three factor model, as well as the momentum portfolio (WML). The monthly returns for those portfolios were obtained from Kenneth French's website<sup>15</sup> and converted into Swedish kronor for this analysis.

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<sup>15</sup> available at: [https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html)

## 4 Methodology

### 4.1 Hypothesis

As mentioned above, since the introduction of the SRI marker in the Swedish premium pension system, the number of SRI funds has grown exponentially, driven both by the addition of new SRI funds in the system and the relabelling of funds already present in the system. The first question asked by this thesis, although not the most crucial one, is therefore whether conventional and SRI funds in the system perform differently.

The core question of this thesis, however, is that of relabelled funds' financial performance compared to other SRI funds, as well as the potential effects of switching to SRI. Considering the ever-increasing demand for SRI from investors (?), it seems fair to assume that this relabelling is at least in part driven by fund managers' belief that the SRI label will make their funds more attractive to potential investors. Taking into account the size of the fund offering in the system, and individual investors' tendency to invest in a limited number of different funds, fund managers find themselves faced with a definite need to differentiate themselves. As such, and considering the low requirements attached to the SRI label, the question is raised of whether this relabelling reflects a true, well-thought-out SRI strategy on the part of the fund managers, or a more cosmetic approach to SRI based on a theoretical adherence to the UN's PRI and perhaps an exclusion of the most controversial "sin stocks", such as tobacco and alcohol producers and weapons manufacturers. Besides the previously discussed ethical issues attached to this question, this may also be reflected in financial performance.

As discussed earlier, evidence from ? and ? points towards a number of different effects of SRI screening on financial performance. On one hand, they find an under-performance of SRI funds that practice negative screening, which is less pronounced for funds that have very stringent screening. On the other hand, ? also finds no effect of transversal screening on performance. Considering those effects, it is possible that the financial performance of those relabelled funds may also shine some light on their ethical performance. Although a lack of effect on financial performance may

not necessarily indicate a lack of commitment to SRI strategies, a clear change in performance would be a strong indicator of a true change in investing behaviour.

Additionally, the comparison between relabelled and new SRI funds' performance may indicate whether those two groups of SRI funds are fundamentally different, or whether in-group differences in both those categories overweight any group effect.

The hypothesis this thesis attempts to validate is therefore three-fold:

1. SRI funds' performance is different from conventional funds
2. Relabelled funds perform differently from funds that joined the pension system as SRI
3. Funds' performance changes when they relabel

## 4.2 Analysis

Thanks to the data available through the Swedish pension authority, the fund database used is very reliable. In order to get the most representative data possible, all private funds available for choosing for which returns and SRI status were available were included in the study. In total, the complete sample includes returns for 1964 funds across a 14 year period. However, fund turnover in the system is quite high, with only 268 funds staying in the system throughout the entire sample period. In order to control for survivor bias in test results, all the regressions used in this thesis are also tested for smaller groups only including funds present throughout the sample period.

### 4.2.1 Dependent variable

In order to assess differences in risk-adjusted performance between the different types of funds in the sample, this thesis uses a four-factor regression, as per ?? with the difference that funds are regressed against two market indices instead of one to control for geographic differences between funds. The dependent variable is monthly excess returns  $Re_{i,t} = R_{i,t} - Rf_t$ , with  $Rf_t$  being the monthly return on the three-month Swedish T-Bill. All returns are in SEK, as the Swedish premium pension system is destined to Swedish investors.

### 4.2.2 Independent variables

As mentioned above, the independent variables include two market indexes. For the Swedish stock market, the SIXRX includes returns for all stocks listed on the Swedish stock exchange (Nasdaq Stockholm). For the Global index, the MSCI world index includes returns from large and mid-cap equities from 23 developed countries around the world. The factor model applied is a Fama-French four factor model with the European size, value, and momentum factors (??). Summary statistics on all variables are in table ?? below.

Table 1: **Summary statistics**

|       | mean  | sd    | min    | max   | count   |
|-------|-------|-------|--------|-------|---------|
| R_it  | 0.005 | 0.043 | -0.905 | 1.883 | 140,030 |
| MRP_S | 0.009 | 0.044 | -0.178 | 0.217 | 141,054 |
| MRP_G | 0.007 | 0.033 | -0.102 | 0.101 | 141,054 |
| SMB   | 0.004 | 0.037 | -0.106 | 0.123 | 141,054 |
| HML   | 0.002 | 0.033 | -0.089 | 0.121 | 141,054 |
| WML   | 0.010 | 0.055 | -0.277 | 0.239 | 141,054 |

### Panel regressions

The first part of the analysis focuses on the overall effect of being labelled (or re-labelled) SRI for the average fund in the sample. The regressions used are thus panel regressions with GLS (Generalised Least Squares) random effects, under the assumption that individual specific effects are uncorrelated with the independent variables. In order to account for possible differences in risk profiles between conventional and SRI funds, the regression allows for different betas for different groups. This is done by adding an additional set of betas interacted with the SRI dummy, effectively creating a set of  $\beta_{SRI}$  which correspond to the difference with the overall sample betas. In other words, when those  $\beta_{SRI}$  are significant, the factor loadings on the SRI funds differ from that of conventional funds. Formally, the model used to evaluate risk adjusted performance is therefore:

$$\begin{aligned}
Re_{i,t} = & \alpha_i + (\beta_{S,SRI} \cdot R_{S,t} \cdot SRI) + \beta_S \cdot R_{S,t} + (\beta_{G,SRI} \cdot R_{G,t} \cdot SRI) + \beta_G \cdot R_{G,t} + \\
& (\beta_{SMB,SRI} \cdot SMB_t \cdot SRI) + \beta_{SMB} \cdot SMB_t + (\beta_{HML,SRI} \cdot HML_t \cdot SRI) + \beta_{HML} \cdot HML_t + \\
& (\beta_{WML,SRI} \cdot WML_t \cdot SRI) + \beta_{WML} \cdot WML_t + e_{i,t}
\end{aligned} \tag{1}$$

With  $R_S$  and  $R_G$  the respective monthly excess returns on the SIXRX index and the MSCI world index, SRI the dummy variable indicating funds' status as SRI rated, and SBM, HML and WML the size, value, and momentum factors respectively.

In addition to this model, we add two dummy variables to control for the effect of SRI rating and of relabelling on performance. First, the SRI marker indicates for each year whether the fund is currently marked as SRI with the Swedish pension authority. This means that relabelled funds only appear as SRI once they have relabelled. In the event that funds that were previously following a SRI strategy no longer have the SRI label, they will no longer appear as SRI or relabelled. Second, the relabelled (REL) marker indicates whether the fund has been relabelled or not. As with the SRI marker, funds are only marked as relabelled once they have adopted their SRI strategy, and they lose the REL marker if they are no longer registered as SRI by the pension authority.

Formally, the models used are as follows:

$$\begin{aligned}
Re_{i,t} = & \alpha_i + (\beta_{S,SRI} \cdot R_{S,t} \cdot SRI) + \beta_S \cdot R_{S,t} + (\beta_{G,SRI} \cdot R_{G,t} \cdot SRI) + \beta_G \cdot R_{G,t} + \\
& (\beta_{SMB,SRI} \cdot SMB_t \cdot SRI) + \beta_{SMB} \cdot SMB_t + (\beta_{HML,SRI} \cdot HML_t \cdot SRI) + \beta_{HML} \cdot HML_t + \\
& (\beta_{WML,SRI} \cdot WML_t \cdot SRI) + \beta_{WML} \cdot WML_t + \alpha_{SRI} SRI_t + e_{i,t}
\end{aligned} \tag{2}$$

Model (??) is used to evaluate the effect of being marked SRI on risk adjusted performance.

$$\begin{aligned}
Re_{i,t} = & \alpha_i + (\beta_{S,REL} \cdot R_{S,t} \cdot REL) + \beta_S \cdot R_{S,t} + (\beta_{G,REL} \cdot R_{G,t} \cdot REL) + \beta_G \cdot R_{G,t} + \\
& (\beta_{SMB,REL} \cdot SMB_t \cdot REL) + \beta_{SMB} \cdot SMB_t + (\beta_{HML,REL} \cdot HML_t \cdot REL) + \beta_{HML} \cdot HML_t + \\
& (\beta_{WML,REL} \cdot WML_t \cdot REL) + \beta_{WML} \cdot WML_t + \alpha_{REL,i} REL_{i,t} + e_{i,t}
\end{aligned} \tag{3}$$

Model (??) is used to evaluate the effect of having relabelled to SRI on risk adjusted performance within SRI funds. As the effect of relabelling is the main purpose of this model, relabelled funds, rather than all SRI funds, are allowed a separate set of betas.

The second part of the analysis includes separate regressions for each fund, still using a factor model, in order to allow each fund to have its own factor loadings (betas). The regressions test for the effect of being SRI, and then the effects of being a new SRI fund versus a relabelled fund by using dummy variables.

$$Re_{i,t} = \alpha_i + SRI \cdot \alpha_{SRI,i} + \beta_{i,S} R_{S,t} + \beta_{i,G} R_{G,t} + \beta_{SMB,i} SMB_t + \beta_{HML,i} HML_t + \beta_{WML,i} WML_t + e_{i,t} \quad (4)$$

$$Re_{i,t} = \alpha_i + NEW \cdot \alpha_{NEW,i} + \beta_{i,S} R_{S,t} + \beta_{i,G} R_{G,t} + \beta_{SMB,i} SMB_t + \beta_{HML,i} HML_t + \beta_{WML,i} WML_t + e_{i,t} \quad (5)$$

$$Re_{i,t} = \alpha_i + REL \cdot \alpha_{REL,i} + \beta_{i,S} R_{S,t} + \beta_{i,G} R_{G,t} + \beta_{SMB,i} SMB_t + \beta_{HML,i} HML_t + \beta_{WML,i} WML_t + e_{i,t} \quad (6)$$

With SRI, NEW and REL the dummy variables indicating whether a fund is currently SRI, joined the system as SRI, or relabelled to SRI, respectively. With this structure,  $\alpha_{SRI,i}$ ,  $\alpha_{NEW,i}$  and  $\alpha_{REL,i}$  show the difference in abnormal returns generated by being part of one of these three categories.

## 5 Empirical Results

### 5.1 Panel regressions

In order to evaluate the fit of the four-factor model, table ?? below presents the result of application of model (??), without dummy variables, on the various subsamples used in the study.

Table 2: **Effect of the four-factor model on risk-adjusted performance of the overall sample**

Sample (1) includes all funds in the study, subsample (2) only includes equity funds, as the four-factor model is meant to evaluate equity performance and results for the overall sample may therefore be polluted by non-equity funds. Subsample (3) only includes funds present throughout the 2004 to 2018 period to control for any effect due to survivor bias which may favour one particular type of funds. Subsample (4) evaluates performance of Swedish fund only, and therefore does not include the global market index. The first set of estimates, labelled \_SRI indicate the difference in beta for SRI funds. The following estimates are the betas for conventional funds

|                   | (1)                  | (2)                  | (3)                  | (4)                  |
|-------------------|----------------------|----------------------|----------------------|----------------------|
| $\alpha$          | -0.002***<br>(0.000) | -0.002***<br>(0.000) | -0.001***<br>(0.000) | -0.001***<br>(0.000) |
| MRP_S_SRI         | 0.063***<br>(0.011)  | 0.046***<br>(0.011)  | -0.013<br>(0.014)    | 0.073***<br>(0.009)  |
| MRP_S             | 0.252***<br>(0.004)  | 0.315***<br>(0.004)  | 0.278***<br>(0.006)  | 0.711***<br>(0.003)  |
| MRP_G_SRI         | -0.047***<br>(0.013) | -0.036**<br>(0.013)  | -0.044**<br>(0.016)  |                      |
| MRP_G             | 0.596***<br>(0.006)  | 0.734***<br>(0.006)  | 0.580***<br>(0.008)  |                      |
| SMB_SRI           | -0.027<br>(0.015)    | -0.019<br>(0.014)    | -0.031<br>(0.018)    | 0.054***<br>(0.016)  |
| SMB               | 0.093***<br>(0.005)  | 0.105***<br>(0.005)  | 0.092***<br>(0.007)  | 0.080***<br>(0.006)  |
| HML_SRI           | 0.032*<br>(0.013)    | 0.053***<br>(0.013)  | 0.049**<br>(0.016)   | -0.001<br>(0.014)    |
| HML               | -0.104***<br>(0.005) | -0.159***<br>(0.005) | -0.117***<br>(0.007) | 0.090***<br>(0.006)  |
| WML_SRI           | -0.022*<br>(0.009)   | -0.024**<br>(0.009)  | -0.017<br>(0.011)    | -0.011<br>(0.009)    |
| WML               | -0.028***<br>(0.003) | -0.035***<br>(0.003) | -0.008<br>(0.004)    | 0.018***<br>(0.003)  |
| Observations      | 140,031              | 98,985               | 48,219               | 98,985               |
| Overall R-squared | 0.313                | 0.505                | 0.453                | 0.410                |

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

As visible from table ?? above, the four-factor model explains funds' risk-adjusted performance very well. The  $\beta$ s are statistically significant at a 99.9% level for all factors in the model, except the momentum factor in the sample controlling for survivor bias. By looking at the difference in betas for SRI funds, it seems that SRI and conventional funds do have different risk profiles as most of the factors show significant differences in betas, except for the size factor. The overall alpha for all samples is negative but quite small, consistently with previous research on the topic(?). Additionally, it is worthy to note that all betas are quite small, and that even a small effect on performance from one of the dummies could therefore make a substantial difference in terms of differentiation for funds.

Beta coefficients have been omitted from further tables in the interest of readability but are available in the appendix.

### 5.1.1 Differences between conventional and SRI funds

The first hypothesis put forth in this study is that SRI funds perform differently from conventional ones. Model (??) is used to evaluate this difference. The results of the regression used to test this hypothesis are in table ?? below.

Table 3: **Financial Performance of conventional versus SRI funds**

Sample (1) tests all funds in the sample, subsample (2) tests equity funds only and subsample (3) only includes funds for which returns are available throughout the entire sample period (January 2004 to December 2018). Subsample (4) only includes Swedish funds (and therefore only uses the Market Excess Return for Sweden, and not the MSCI World index). Finally, subsamples (5) and (6) break down SRI funds by testing relabelled fund and new SRI funds respectively against conventional funds.

|                   | (1)     | (2)     | (3)     | (4)     | (5)     | (6)     |
|-------------------|---------|---------|---------|---------|---------|---------|
| $\alpha_{SRI}$    | 0.001*  | 0.001*  | 0.001   | -0.000  | 0.001*  | 0.000   |
|                   | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) |
| Observations      | 140,031 | 98,985  | 48,219  | 24,536  | 134,119 | 123,021 |
| Overall R-squared | 0.313   | 0.505   | 0.453   | 0.457   | 0.307   | 0.296   |

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Overall, the SRI status of funds seems to have a weakly positive effect on fund performance in both the overall sample and the equity subsample with funds seeing on average a 0.1% increase in monthly returns (1.2% annually) as a result of being

labelled SRI. This result seems to coincide with some of the literature, which finds outperformance of ESG stocks. On the other hand, this result presents a conflict with ? and ? which found an overall negative effect of being rated SRI on performance. However, it is unclear whether this difference in results is due to funds in this sample finding ways to invest responsibly without hurting performance, or to the lesser stringency of the pension system's SRI label allowing funds to be labelled SRI without having substantially different investment strategies from conventional funds.

As the result does not hold for the sample controlling for survivor bias, it is also possible that there is a survival effect, whereas underperforming SRI funds would be more likely to drop out of the system than similarly underperforming conventional funds, although the reasons for such an effect are unclear.

Looking specifically at the breakdown between relabelled and new SRI funds, the regression shows significant outperformance by relabelled funds over conventional ones at a 95% confidence level. This seems to indicate that relabelled and new SRI funds do follow different strategies (since new SRI funds do not show the same result), with relabelled fund strategies yielding better financial results. The following section further examines this hypothesis by specifically looking into the differences in performance between new SRI funds and relabelled funds.

### 5.1.2 Differences between relabelled and new SRI funds

The results of the regression testing the difference in performance of relabelled versus new SRI funds is presented in table ?? below. The subsample used for this regression includes all funds rated SRI. In other words, it includes both funds who entered as SRI and funds who have relabelled, but not those who will relabel in the future or those who have lost their SRI label.

Table 4: **Financial Performance of relabelled versus new SRI funds**

Model (??) is used to differentiate relabelled funds from new SRI funds. Subsample (1) includes all SRI funds. Sample (2) includes only equity funds. The model used to control for survivor bias had to be adjusted due to the fact that by definition it excluded any new SRI funds (as all funds had to be in the system since 2004 when the marker was introduced and no new fund joined with the SRI marker in January 2004). Sample (3) therefore attempts to control for survivor bias by looking at a sample of funds that were present throughout a smaller period (2013 to 2018). Sample (4) only includes Swedish funds.

|                   | (1)     | (2)     | (3)     | (4)     |
|-------------------|---------|---------|---------|---------|
| $\alpha_{REL}$    | 0.001*  | 0.001*  | 0.001   | -0.000  |
|                   | (0.000) | (0.001) | (0.001) | (0.001) |
| Observations      | 22,922  | 15,979  | 16,775  | 6,797   |
| Overall R-squared | 0.557   | 0.655   | 0.564   | 0.562   |

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

As expected from the previous section's results, this table shows an outperformance of relabelled SRI funds over new ones in the model including all funds, as well as the one only including equity funds. However, it does not show statistically significant results in the models controlling for survivor bias, raising the question of whether relabelled fund outperformance may be in part driven by a lower ability to stay in the system for relabelled funds with a disappointing performance. This hypothesis may be viable, as the failure to succeed in implementing a new strategy may be highly detrimental to a fund's ability to retain its investors. However, this

question strays from the core focus of this thesis and will have to be explored in further research. There is also no significant effect for the sample containing only Swedish funds, which could be due to specificities of the Swedish market, or perhaps to the smaller sample size.

Within the overall sample, the outperformance of relabelled funds is statistically significant at a 95% level. Although it is quite a small effect (0.1% monthly), it is still economically relevant, especially considering the long term horizon of pension funds. This outperformance could be due to a number of factors (besides survivor bias). Firstly, it could be due to a performance improving effect of style shifting activity, although this would only be a short term effect and would not influence long term returns. More probable maybe is that the difference in performance may be due to a difference in investment styles between new SRI funds and relabelled funds. This could be due to a difference between existing investors of funds before they relabel and potential investors in new SRI funds, which could lead the funds to consistently undertake different strategies. Indeed, as discussed above, investors that choose to invest in SRI funds are aware of both financial and ethical performance, and may not have the optimisation of financial performance as their main priority. Investors which chose to invest in a conventional fund, however, may not pay as much attention to ethical standard even if the manager of a fund they hold takes the decision of relabelling to SRI. This difference in investor expectation may be one of the drivers behind the difference in behaviour between relabelled funds and new SRI funds.

One other possibility to explain relabelled funds' outperformance over new SRI funds could also be that relabelled funds already consistently outperformed their peers before relabelling due to other factors such as high managerial skill. In order to test for this hypothesis, the following section tests performance changes within the sample of funds that relabelled through the sample period.

### 5.1.3 Effect of relabelling on performance

Several regressions were run in order to evaluate the effect of relabelling on performance. First, table ?? below shows the difference between SRI rated funds and funds that are still conventional (i.e. that have not relabelled yet) within the sample of funds that relabelled during the 2004 to 2018 period.

Table 5: **Performance within funds that have or will relabel**

Model (??) is used, with subsample (1) including all funds that relabelled between 2004 and 2018, subsample (2) including only equity funds, subsample (3) including only funds present throughout the sample period and subsample (4) including only Swedish funds.

|                   | (1)     | (2)     | (3)     | (4)     |
|-------------------|---------|---------|---------|---------|
| $\alpha_{SRI}$    | 0.001** | 0.001*  | 0.001** | 0.001   |
|                   | (0.000) | (0.000) | (0.000) | (0.001) |
| Observations      | 29,148  | 18,110  | 18,179  | 10,146  |
| Overall R-squared | 0.471   | 0.577   | 0.513   | 0.425   |

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Similarly to the previous section, the subsample which include all types of fund and the one which includes only equity funds show a significant positive effect of funds having the SRI marker (i.e. an outperformance by funds that have already relabelled over ones that are still marked as conventional), with the addition that the sample controlling for survivor bias shows the same effect.

However, this outperformance could be due to outperformance by some funds over others, which may bias the sample. In order to control for outperformance by each individual fund, the following table runs the same model and replaces the SRI dummy by an after relabel dummy<sup>16</sup> in order to evaluate the actual effect of relabelling rather than that of having relabelled. The results of this regression are in the below table.

<sup>16</sup> With AfterREL = 1 for any period after the fund has been relabelled.

Table 6: **Effect of relabelling on performance**

Model (??) is used, with the SRI dummy replaced by an AfterREL dummy. Subsample (1) includes all funds that relabelled between 2004 and 2018, subsample (2) includes only equity funds, subsample (3) includes only funds present throughout the sample period and subsample (4) includes only Swedish funds.

|                     | (1)     | (2)     | (3)     | (4)     |
|---------------------|---------|---------|---------|---------|
| $\alpha_{AfterREL}$ | 0.001*  | 0.001*  | 0.001** | 0.001   |
|                     | (0.000) | (0.000) | (0.000) | (0.001) |
| Observations        | 29,148  | 18,110  | 18,179  | 10,146  |
| Overall R-squared   | 0.471   | 0.577   | 0.513   | 0.425   |

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

These results confirm that there is a significant positive effect of switching to SRI for funds in the Swedish premium pension system. The increase in returns for funds after they relabel is on the same scale as previously shown, although the significance on the overall sample is slightly lower.

## 5.2 Individual regressions

In order to further investigate this difference in performance before and after relabelling individual regressions including dummy variables are run on the full sample of funds, according to models (??), (??) and (??).

Table 7: **Average alpha over conventional funds**

Individual regressions are run to estimate the average difference in alpha in SRI, relabelled and new SRI funds, according to models (??), (??) and (??) respectively.

|      | $\alpha_{SRI}$ | $\alpha_{REL}$ | $\alpha_{NEW}$ |
|------|----------------|----------------|----------------|
| Mean | 0.0005***      | 0.0004***      | 0.0001*        |
|      | (0.0001)       | (0.0001)       | (0.0000)       |
| $N$  | 1964           | 1964           | 1964           |

Standard errors in parentheses

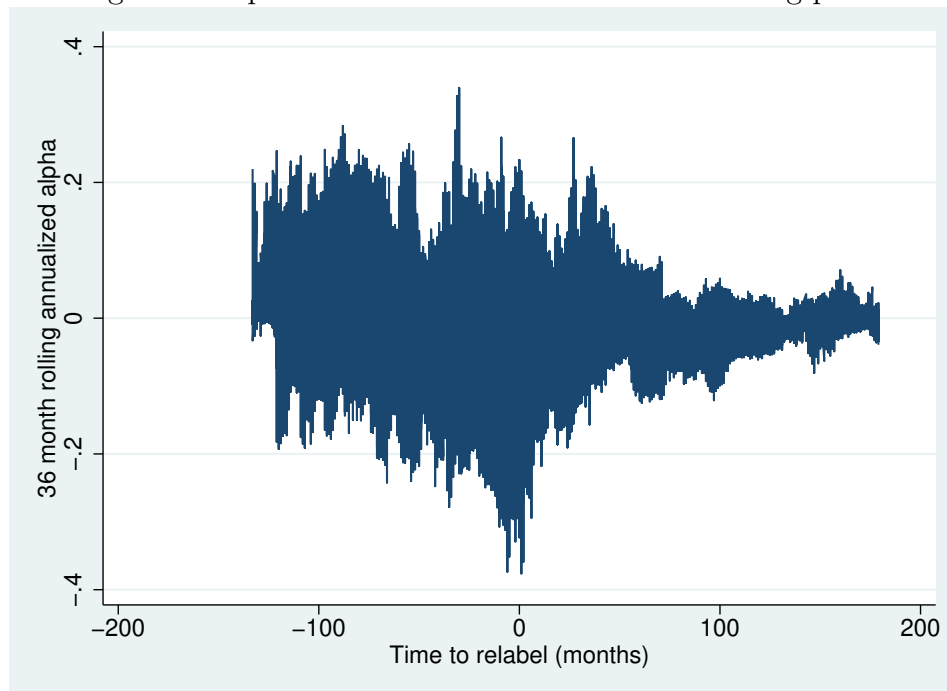
\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table ?? above shows that funds that are labelled SRI have a slightly higher average alpha than conventional funds. The effect exists for the overall SRI fund population, as well as for both the relabelled funds and the new SRI funds, although it is both stronger and more significant for the relabelled funds. This corroborates the results from the panel regressions above. The additional alpha generated by being labelled, or relabelled, SRI is quite small at around 0.04% per month, or around 0.5% per annum. However, this must be put into perspective. Literature on mutual fund alphas (?) shows that mutual funds have a persistent tendency to underperform the market portfolio, thus generating negative alphas. Furthermore, pension fund's long term horizons and prudent investor natures makes them strive for stable results rather than high-risk, high-return opportunities. A small, persistent outperformance in terms of alpha is therefore an important asset to pension funds.

To further investigate this difference in alpha, and to be able to visualise it in time, 36-months rolling annualised alphas are built for all funds across the sample period<sup>17</sup>. The graph below shows the evolution of these for relabelled funds during the relabelling process, according to model (??) (excluding the SRI dummy) above.

<sup>17</sup> Only funds that stayed in the system for a minimum of 36 months are thus included in the analysis using 36-months rolling alphas

Figure 2: Alpha of relabelled funds across relabelling process



Although figure ?? does not clearly show an increase in alpha after relabelling, it does show another effect that regressions did not put into light. Namely, it appears that alphas are much less dispersed and tend to approach zero after funds relabel. The effect comes with a small lag, probably mainly due to the fact that alphas right after relabelling still take returns before relabelling into account, due to the 36-months rolling values.

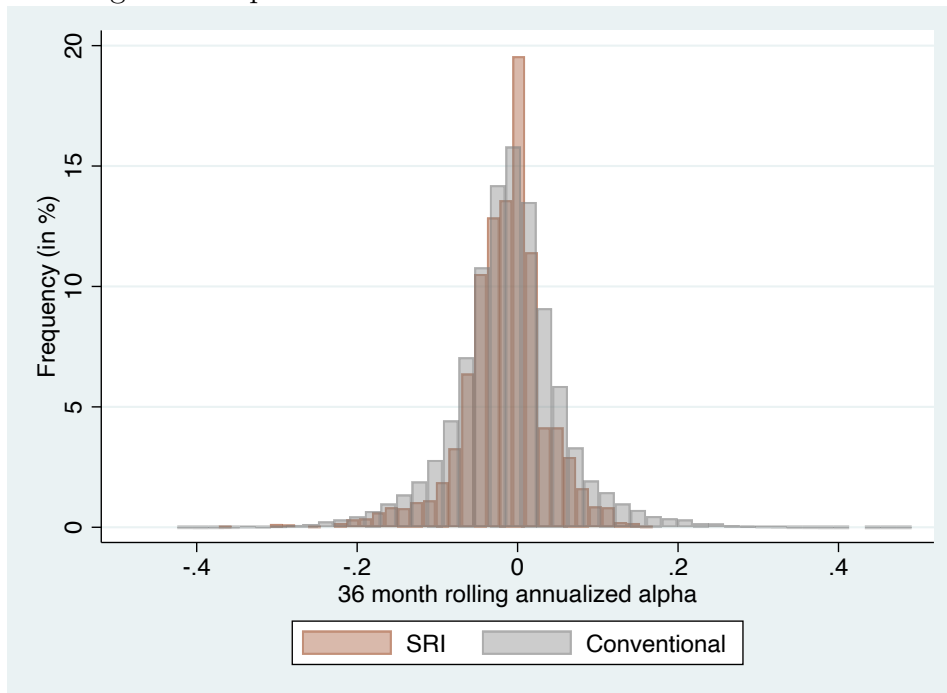
This effect is particularly interesting for several reasons. First, because not all funds relabel at the same point in time, it is unlikely that it would be due to some other uncorrelated event taking place at the same time. Second, it seems very persistent, with no sign of fading up to over 10 years after relabelling, and even small signs of getting more pronounced with time. There must therefore be a specific reason why these funds performance relative to the market becomes much more stable and predictable after their relabelling.

The simplest possible explanation for this would probably be that funds that relabelled all adopted very similar strategies, perhaps investing in many of the same asset, resulting in very similar alphas for all of them.

It is also possible that the distribution of alphas for conventional and SRI funds is different, and that funds simply go from one to the other when they relabel. The

below histograms attempt to visually explore this hypothesis.

Figure 3: Alpha distributions for conventional vs SRI funds



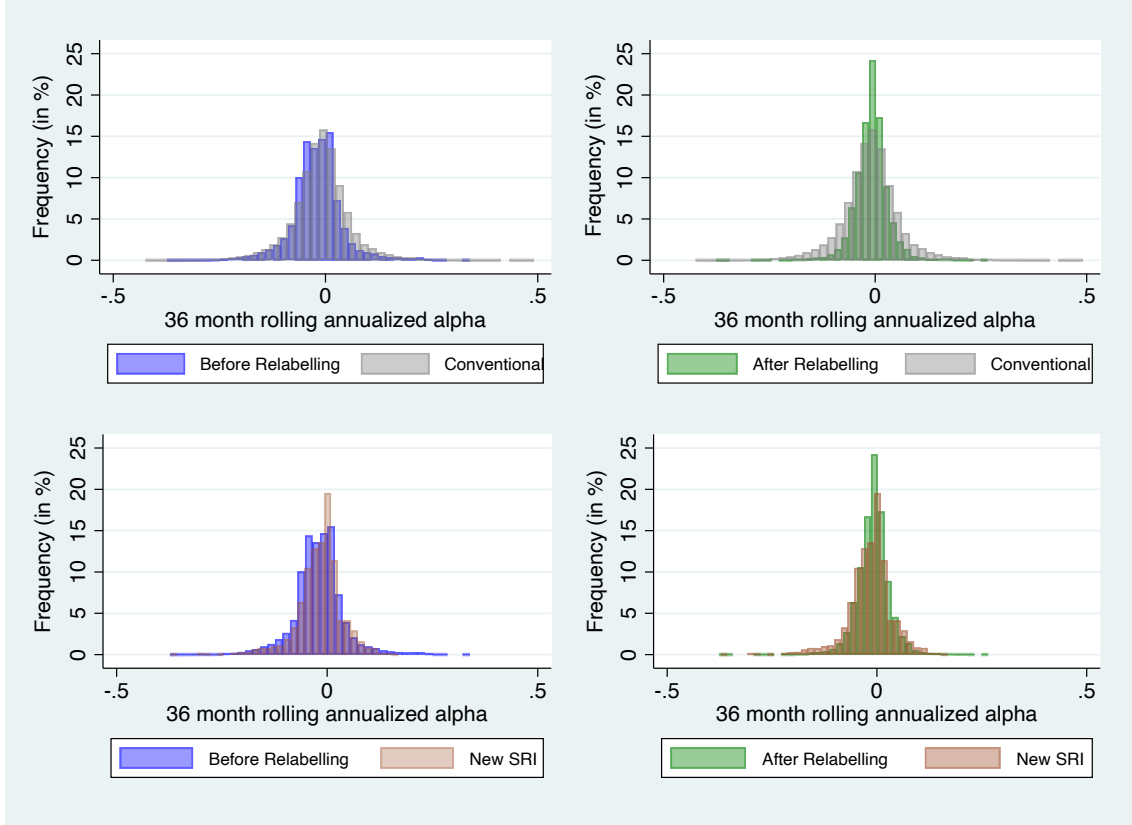
As shown in figure ?? above, conventional and SRI funds do indeed have a different distribution of alphas.<sup>18</sup> Conventional<sup>19</sup> funds alphas are less concentrated than SRI funds' and the SRI alpha distribution is slightly skewed to the left, whereas the conventional one is more symmetric around 0.

This does indicate the possibility of relabelled funds' alphas more closely resembling that of SRI funds, as they show the same concentration around zero after relabelling. However the skewness to the left does not correspond to the regression showing higher performance after relabelling. The following figure therefore shows an overlay of distribution curves before and after relabelling compared to SRI and conventional alpha distribution.

<sup>18</sup> Alphas displayed on figures ??, ?? and ?? are calculated on a 36-month rolling basis, according to model (??), excluding the SRI dummy

<sup>19</sup> Here not including funds that relabelled at any point during the sample period

Figure 4: Alpha distributions comparisons before and after relabelling



From these graphs, the distribution of fund alphas before relabelling seems to closely resemble that of conventional funds, albeit slightly more skewed to the left, suggesting a slight underperformance by funds before relabelling (which could be a factor in their decision to relabel). After relabelling however, the distribution of alphas resembles neither that of conventional nor new SRI funds. It is more concentrated than both of the other ones, and no longer skewed to the left (although it is not skewed to the right either). The outperformance by relabelled funds suggested by previous regressions is too small to be clearly visible on the histograms.

Although this thesis does not test for the causes for this difference between new SRI and conventional funds, it is clear that, whether due to a difference in strategy, screening, or otherwise, this difference exists. It also seems that after relabelling, funds become more similar and predictable in their performance than both conventional and new SRI funds.

### 5.3 Limitations

As discussed above, the effects of the relabelled status on performance, albeit statistically significant, are quite economically small. Overall, alphas in all samples remain close or equal to 0, with a tendency to be slightly negative, consistent with previous research on the question of actively managed mutual funds alphas (?). In this regard therefore, it is worth remembering that any outperformance by SRI or relabelled funds still may not allow investors to consistently and predictably outperform the market by investing in any of these types of funds (the question of whether some of the individual funds in the system consistently outperform the market is beyond the scope of this thesis). It is also worth noting that the factor model used in this thesis is usually used to evaluate performance of equity funds, and may therefore not be fully reliable to evaluate performance of all funds in the system. The models including only pure equity funds attempt to palliate this issue.

Furthermore, due to the high diversity of funds in the sample both in geographic terms and in terms of fund focus, it is possible that the effects put forward in this analysis are mainly driven by one subset of funds. However, considering that no one fund focus is heavily overrepresented in the sample (besides Swedish focused funds, for which effects were tested independently), this seems unlikely.

Additionally, it is important to note that this study does not take fees into account. This is due to an unreliable availability of data on fund fees from the pension authority, which may have resulted in skewed results had fees been included. This signifies that the economic effects of funds belonging to any of the three categories in this thesis may be mitigated or exacerbated when looking at returns net of fees.

Finally, as stated earlier in this thesis, the SRI indicator put in place by the pension authority between 2004 and 2018 had very little stringency attached to it, and did not allow to control for which type of SRI screening was put in place by sample funds. The introduction of the new, more precise SRI indicator, may allow for more in-depth analysis of the causes behind differences of performance in SRI funds in the system.

## 6 Conclusion

By looking into the performance of funds that have relabelled to SRI in the Swedish premium pension system, this thesis has attempted to further the understanding of the performance of socially responsible investment funds. The results presented in it clearly indicate that relabelling to SRI is more than a cosmetic undertaking by these funds, and that this change in strategy has clear, long term effects on performance. The choice of the Swedish premium pension system as a sample allows for both a high diversity of funds and a large sample period of 14 years.

Unlike some of the previous literature (??), this study found no negative effect on performance of funds being labelled SRI, and even found a small positive effect. The novel elements being tested however, namely the difference in performance between relabelled funds and funds that started off as SRI, as well as the effect of relabelling on performance both yielded small but significant results. As more funds join the system as SRI or relabel every year, this may have long lasting effects on the Swedish premium pension offering in the long term.

It also raises the question of whether the prevalence of relabelling to SRI amongst funds already present in the system may be driven by an incentive to improve financial performance, besides the question of demand for SRI from the individual investors in the system.

The outperformance of relabelled funds over new SRI funds also raises the question of a possible difference in strategy and portfolio construction between those two types of funds. If such a difference exists, the causes of it seem unclear, but more research could be conducted to better understand them. If the difference in performance is due to other factors than investing strategy, the characteristics of new SRI funds versus relabelled funds could also be explored more in depth. In particular, the question of why relabelling to SRI drives fund alphas to durably stay more concentrated around 0 rather than fluctuate the way other funds do seems to warrant further research. This, combined with the slight outperformance of SRI funds over conventional ones and relabelled funds over both conventional funds and new SRI ones, calls for further research into SRI strategies leading to outperformance.

In any case, the suspicion of "green washing" surrounding newly relabelled SRI

investment funds, especially considering the low requirements associated with the obtention of the SRI marker in the premium pension system until 2018, seem to be at least partly disproven by the results of this study. If a majority of the funds relabelling did so for pure communication reasons, or because they already fulfilled the criteria without having the label, without a clear change in their investment policy, it seems unlikely that significant differences would have been found between conventional and relabelled funds, or between funds before and after relabelling.

However, the question remains of the ESG performance of these funds. While this study does offer some understanding of the financial performance of these relabelled funds, it does not touch upon other factors that may be particularly important to SRI investors. Considering the results of studies on the effect of different types and levels of stringency of screens, it seems possible that the outperformance of relabelled SRI funds over conventional and new SRI ones is due to a difference in those factors, which the current system does not allow to evaluate. This reaffirms the much discussed need for clearer, widely available performance indicators on ESG measures, which would allow us to conduct a similar study to this one evaluating ESG rather than financial performance.



# Appendix

Table 8: **Performance of conventional versus SRI funds - Complete table**

Sample (1) tests all funds in the sample, subsample (2) tests equity funds only and subsample (3) only includes funds for which returns are available throughout the entire sample period (January 2004 to December 2018). Subsample (4) only includes Swedish funds (and therefore only uses the Market Excess Return for Sweden, and not the MSCI World index). Subsamples (5) and (6) break down SRI funds by testing relabelled fund and new SRI funds respectively against conventional funds.

|                   | (1)       | (2)       | (3)       | (4)      | (5)       | (6)       |
|-------------------|-----------|-----------|-----------|----------|-----------|-----------|
| $\alpha_{SRI}$    | 0.001*    | 0.001*    | 0.001     | -0.000   | 0.001*    | 0.000     |
|                   | (0.000)   | (0.000)   | (0.000)   | (0.000)  | (0.000)   | (0.001)   |
| $\alpha$          | -0.002*** | -0.002*** | -0.001*** | -0.000   | -0.002*** | -0.002*** |
|                   | (0.000)   | (0.000)   | (0.000)   | (0.000)  | (0.000)   | (0.000)   |
| MRP_S_SRI         | 0.061***  | 0.044***  | -0.016    | 0.110*** | 0.056***  | 0.079***  |
|                   | (0.012)   | (0.011)   | (0.014)   | (0.010)  | (0.013)   | (0.023)   |
| MRP_S             | 0.253***  | 0.316***  | 0.279***  | 0.505*** | 0.253***  | 0.253***  |
|                   | (0.004)   | (0.004)   | (0.006)   | (0.005)  | (0.004)   | (0.005)   |
| MRP_G_SRI         | -0.048*** | -0.037**  | -0.045**  |          | -0.052*** | -0.040    |
|                   | (0.013)   | (0.013)   | (0.016)   |          | (0.015)   | (0.025)   |
| MRP_G             | 0.596***  | 0.734***  | 0.580***  |          | 0.596***  | 0.596***  |
|                   | (0.006)   | (0.006)   | (0.008)   |          | (0.006)   | (0.006)   |
| SMB_SRI           | -0.027    | -0.018    | -0.031    | 0.037*   | -0.029    | -0.019    |
|                   | (0.015)   | (0.014)   | (0.018)   | (0.018)  | (0.017)   | (0.028)   |
| SMB               | 0.093***  | 0.105***  | 0.092***  | 0.051*** | 0.093***  | 0.093***  |
|                   | (0.005)   | (0.005)   | (0.007)   | (0.009)  | (0.006)   | (0.006)   |
| HML_SRI           | 0.033*    | 0.054***  | 0.050**   | -0.006   | 0.037*    | 0.021     |
|                   | (0.013)   | (0.013)   | (0.016)   | (0.016)  | (0.015)   | (0.024)   |
| HML               | -0.104*** | -0.159*** | -0.117*** | 0.000    | -0.104*** | -0.104*** |
|                   | (0.005)   | (0.005)   | (0.007)   | (0.009)  | (0.006)   | (0.006)   |
| WML_SRI           | -0.025**  | -0.028**  | -0.021    | -0.027** | -0.017    | -0.049**  |
|                   | (0.009)   | (0.009)   | (0.011)   | (0.010)  | (0.010)   | (0.018)   |
| WML               | -0.028*** | -0.035*** | -0.007    | -0.013*  | -0.028*** | -0.028*** |
|                   | (0.003)   | (0.003)   | (0.004)   | (0.005)  | (0.003)   | (0.003)   |
| Observations      | 140,031   | 98,985    | 48,219    | 24,536   | 134,119   | 123,021   |
| Overall R-squared | 0.313     | 0.505     | 0.453     | 0.457    | 0.307     | 0.296     |

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 9: **Financial Performance of relabelled versus new SRI funds - Complete table**

Model (??) is used to differentiate relabelled funds from new SRI funds. Subsample (1) includes all SRI funds. Sample (2) includes only equity funds. The model used to control for survivor bias had to be adjusted due to the fact that by definition it excluded any new SRI funds (as all funds had to be in the system since 2004 when the marker was introduced and no new fund joined with the SRI marker in January 2004). Sample (3) therefore attempts to control for survivor bias by looking at a sample of funds that were present throughout a smaller period (2013 to 2018). Sample (4) only includes Swedish funds.

|                   | (1)       | (2)       | (3)       | (4)      |
|-------------------|-----------|-----------|-----------|----------|
| $\alpha_{REL}$    | 0.001*    | 0.001*    | 0.001     | -0.000   |
|                   | (0.000)   | (0.001)   | (0.001)   | (0.001)  |
| $\alpha$          | -0.002*** | -0.002*** | -0.002*   | -0.000   |
|                   | (0.000)   | (0.000)   | (0.001)   | (0.001)  |
| MRP_S_REL         | -0.023    | 0.005     | -0.037    | -0.023   |
|                   | (0.015)   | (0.017)   | (0.020)   | (0.018)  |
| MRP_S             | 0.330***  | 0.355***  | 0.341***  | 0.633*** |
|                   | (0.013)   | (0.015)   | (0.019)   | (0.017)  |
| MRP_G_REL         | -0.011    | -0.029    | -0.056*   |          |
|                   | (0.016)   | (0.019)   | (0.023)   |          |
| MRP_G             | 0.555***  | 0.717***  | 0.592***  |          |
|                   | (0.013)   | (0.016)   | (0.021)   |          |
| SMB_REL           | -0.011    | 0.006     | -0.032    | -0.077*  |
|                   | (0.018)   | (0.021)   | (0.024)   | (0.033)  |
| SMB               | 0.075***  | 0.082***  | 0.094***  | 0.149*** |
|                   | (0.016)   | (0.018)   | (0.022)   | (0.030)  |
| HML_REL           | 0.016     | 0.005     | 0.033     | 0.036    |
|                   | (0.016)   | (0.019)   | (0.022)   | (0.029)  |
| HML               | -0.082*** | -0.108*** | -0.096*** | -0.033   |
|                   | (0.013)   | (0.016)   | (0.020)   | (0.025)  |
| WML_REL           | 0.032**   | 0.020     | 0.047**   | 0.022    |
|                   | (0.011)   | (0.013)   | (0.015)   | (0.020)  |
| WML               | -0.077*** | -0.077*** | -0.083*** | -0.057** |
|                   | (0.010)   | (0.011)   | (0.013)   | (0.017)  |
| Observations      | 22,922    | 15,979    | 16,775    | 6,797    |
| Overall R-squared | 0.557     | 0.655     | 0.564     | 0.562    |

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 10: **Performance within funds that have or will relabel - Complete table**

Model (??) is used, with subsample (1) including all funds that relabelled between 2004 and 2018, subsample (2) including only equity funds, subsample (3) including only funds present throughout the sample period and subsample (4) including only Swedish funds.

|                   | (1)                  | (2)                  | (3)                  | (4)                 |
|-------------------|----------------------|----------------------|----------------------|---------------------|
| $\alpha_{SRI}$    | 0.001**<br>(0.000)   | 0.001*<br>(0.000)    | 0.001**<br>(0.000)   | 0.001<br>(0.001)    |
| $\alpha$          | -0.001***<br>(0.000) | -0.002***<br>(0.000) | -0.002***<br>(0.000) | -0.000<br>(0.001)   |
| MRP_S_SRI         | -0.031*<br>(0.014)   | -0.079***<br>(0.018) | -0.070***<br>(0.015) | 0.166***<br>(0.013) |
| MRP_S             | 0.315***<br>(0.008)  | 0.419***<br>(0.011)  | 0.326***<br>(0.009)  | 0.428***<br>(0.007) |
| MRP_G_SRI         | 0.060***<br>(0.016)  | 0.046*<br>(0.022)    | 0.084***<br>(0.019)  |                     |
| MRP_G             | 0.483***<br>(0.012)  | 0.650***<br>(0.016)  | 0.448***<br>(0.014)  |                     |
| SMB_SRI           | -0.057***<br>(0.017) | -0.079***<br>(0.023) | -0.036<br>(0.019)    | 0.030<br>(0.025)    |
| SMB               | 0.103***<br>(0.010)  | 0.149***<br>(0.013)  | 0.093***<br>(0.011)  | 0.040**<br>(0.014)  |
| HML_SRI           | 0.071***<br>(0.015)  | 0.110***<br>(0.021)  | 0.036*<br>(0.018)    | 0.001<br>(0.022)    |
| HML               | -0.119***<br>(0.010) | -0.190***<br>(0.014) | -0.092***<br>(0.012) | 0.010<br>(0.013)    |
| WML_SRI           | -0.011<br>(0.011)    | -0.011<br>(0.014)    | -0.012<br>(0.012)    | -0.023<br>(0.015)   |
| WML               | -0.032***<br>(0.006) | -0.051***<br>(0.008) | -0.014*<br>(0.006)   | -0.010<br>(0.008)   |
| Observations      | 29,148               | 18,110               | 18,179               | 10,146              |
| Overall R-squared | 0.471                | 0.577                | 0.513                | 0.425               |

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 11: **Effect of relabelling on performance - Complete table**

Model (??) is used, with the SRI dummy replaced by an AfterREL dummy. Subsample (1) including all funds that relabelled between 2004 and 2018, subsample (2) including only equity funds, subsample (3) including only funds present throughout the sample period and subsample (4) including only Swedish funds

|                     | (1)       | (2)       | (3)       | (4)      |
|---------------------|-----------|-----------|-----------|----------|
| $\alpha_{AfterREL}$ | 0.001*    | 0.001*    | 0.001**   | 0.001    |
|                     | (0.000)   | (0.000)   | (0.000)   | (0.001)  |
| $\alpha$            | -0.001*** | -0.002*** | -0.002*** | -0.000   |
|                     | (0.000)   | (0.000)   | (0.000)   | (0.001)  |
| MRP_S_SRI           | -0.030*   | -0.077*** | -0.070*** | 0.165*** |
|                     | (0.014)   | (0.018)   | (0.015)   | (0.013)  |
| MRP_S               | 0.315***  | 0.419***  | 0.326***  | 0.428*** |
|                     | (0.008)   | (0.011)   | (0.009)   | (0.007)  |
| MRP_G_SRI           | 0.060***  | 0.046*    | 0.083***  |          |
|                     | (0.016)   | (0.022)   | (0.019)   |          |
| MRP_G               | 0.483***  | 0.650***  | 0.448***  |          |
|                     | (0.012)   | (0.016)   | (0.014)   |          |
| SMB_SRI             | -0.057*** | -0.079*** | -0.036    | 0.030    |
|                     | (0.017)   | (0.023)   | (0.019)   | (0.025)  |
| SMB                 | 0.104***  | 0.149***  | 0.093***  | 0.040**  |
|                     | (0.010)   | (0.013)   | (0.011)   | (0.014)  |
| HML_SRI             | 0.070***  | 0.109***  | 0.036*    | 0.001    |
|                     | (0.015)   | (0.021)   | (0.018)   | (0.022)  |
| HML                 | -0.119*** | -0.190*** | -0.092*** | 0.010    |
|                     | (0.010)   | (0.014)   | (0.012)   | (0.013)  |
| WML_SRI             | -0.010    | -0.009    | -0.012    | -0.024   |
|                     | (0.011)   | (0.014)   | (0.012)   | (0.015)  |
| WML                 | -0.032*** | -0.051*** | -0.014*   | -0.010   |
|                     | (0.006)   | (0.008)   | (0.006)   | (0.008)  |
| Observations        | 29,148    | 18,110    | 18,179    | 10,146   |
| Overall R-squared   | 0.471     | 0.577     | 0.513     | 0.425    |

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$