

# EMPIRICAL STUDY OF SOCIALLY RESPONSIBLE MUTUAL FUNDS

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## **Abstract**

The investment of socially responsible mutual funds has been practiced and questioned for more than a century. Many investors share the concern that the social and environmental criteria would probably hurt the investment returns, and as a result of that, returns of SRI would be lower than conventional investments. Being aware of this, we will correct people's common sense in this paper by empirically testing whether socially responsible mutual funds have lower excess return or not. We used return and risk indicators to examine the indexes and mutual funds performances in the latest time period. Also we collect the data both of US and Canada socially responsible mutual funds so as to get much broader and more general idea. Except for comparing the indexes performances, it is also necessary to analyse the performances between the SRI mutual funds and conventional mutual funds. According to the results, we find that the socially responsible criteria do not necessarily have a negative effect on investment performance.

**Keywords:** Socially Responsible Investing; Performance Comparison; MSCI KLD 400; JANTZI Social Index; Mutual funds; Alpha; eSDAR; Pvalue

## **Acknowledgements**

The most important thing we have learnt from the whole process of our final project is that we understood the idea that we interested and learnt some actual knowledge through thinking and practising once and once again.

We admit that it is very hard to choose a topic that we both have interests and confidence to complete it. It is really a tough process during this first part of our final project but thanks very much for our senior supervisor Peter Klein who gave us such great advice on each topic we would like to think about and encouraged us to keep going. Thanks for all his help, we finalized both the subject and precedent paper of our project in nearly two months. The topic we chose is about socially responsible mutual funds and this was one of the reading materials of the Investment Asset Allocation class. We had a strong curiosity of knowing more about socially responsible mutual funds' potential development at that time and finally we started to do that. As data calculation and analysis are the soul of our thesis, we looked through all the related matlab knowledge we had learnt during our study in this program and got lots of idea and help from them. So here, thanks all the professors that taught us those practical and technical skills and gave us a mind of thinking critically. Also due to our second reader Jijun Niu's suggestion, we could make our project much more integrated and logically and improved some places that are not clear. Thanks for great help from our second supervisor Jijun Niu. At last, thanks for Suzanne's assistance for the whole cohorts in our program meanwhile we want to thank all the staff in Beedie Business School that offered us great environment and opportunity for us growing up on both study and career in the future. We are the students come from Beedie and we definitely will try our best to be excellent representative of our school in the future.

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# **1: Background of Socially Responsible Investing**

## **1.1 Definition of Socially Responsible Investments**

Socially responsible investing is an investment concept that investors seek to invest on the basis of both financial and social criteria, White (2006). In general, socially responsible investing avoid corporates that involved in tobacco, alcohol, weapons, gambling, pornography and military but encourage investing in companies that promote environmental stewardship, human rights, consumer protection and diversity. It can be made in individual companies or by the way of socially conscious mutual funds or exchange-traded fund. Socially responsible investing is already not a new concept but it has grown very fast during these decades as its significant value in considering socially and environmentally, Katia and Gareth (2009).

## **1.2 Research Significance**

Socially Responsible Investing has been on stage for over one century, and increasing number of investors have involved into such kind of investments due to the reason that more and more people have increasing awareness to protect our world in different ways. “Socially Responsible Investing can be a tool for dialogue between corporations and society,” said Amy Domini in an interview, Statman (2000). Thus, more and more investors convey their beliefs through their investments.

In the end of the 2013, US SIF, The Forum of Sustainable and Responsible Investment (2013), announced that there were around \$6.57 trillion in total assets under management using one or more sustainable, responsible and impact investing strategies, which indicated that more than one out of every six dollars under professional management in the United States today under management involving in SRI.

Based on the facts above, studying SRI and understanding this field has huge value in nowadays, and that’s also the reason why we chose this topic.

### 1.3 Literature Review

For the already existing studies in this field, we categorized them into 3 lines. For the first line, several studies were involved into studying the performance of portfolios composed by qualified corporate stocks. For example, one example, written by Alexander and Buchholz (1978), examined the relationship between socially responsible portfolio and corporate portfolio market in the US for the period from 1970 to 1974. The authors did both the risk measure factors and differential returns of those two kinds of securities during that time. And they also calculated the rank correlations in these five years. But the results still indicated a very low significant relationship between the socially responsible portfolios and corporate stock portfolios. Another study conducted by Guerard (1996) collected monthly returns for a sample of 950 of socially screened companies versus a sample of 1300 conventional firms with no socially screening for the time frame from 1987 to 1994. After author compared these 2 samples performance, he came up with the conclusion that statistically insignificant difference between the 2 in terms of returns. Still Baron, Harjoto and Jo (2009) further studied the relationship between Corporate Social Performance (CSP) and Corporate Financial Performance (CFP) on a holistic scale. And they also found no sign of significant relationship between the CSP and CFP.

Compared to the first category, the second line compared the performance of mutual funds, which only invested in socially screened companies, versus conventional ones with no such restrictions. For example, a study from Bauer et al. in 2002 examined monthly returns for 103 SRI mutual funds against the monthly returns for 4384 traditional mutual funds from the period January 1990 to March 2001, and came up with the conclusion that during the studied period, these 2 kinds of mutual funds were evident of both higher and lower returns; in addition, no statistically difference between these 2 kind of mutual funds. Besides, another paper named “Socially Responsible Investing and Portfolio Diversification” whose author is Bello (2005) has also done research of comparing the performances of SRI funds and conventional funds. He chose 42 SRI funds as well as 84 qualified conventional funds in US from January 1994 to March 2001. After comparing, he got the results that the risk-adjusted returns of SRI funds are not distinguishable from those returns of conventional funds. What’s more, there are not any differences of the funds characteristics between the two fund groups. Actually, according to our research and collection, most of the studies on performances of SRI funds compared with conventional funds did not find any significant differences.

The third line studies were involved into the performance comparison between SRI indexes’ with benchmark index’s. Among of them, KLD 400 (previous was DSI) VS S&P 500

have been studied most. For example, one study conducted by Luke and Pilotte (1993) found that in the period of May 1990 to September 1992, DSI outperformed than S&P500. Study improved by Dibartolomeo, Dan and Kurtz (2011) in their “The Long Term Performance of a Social Performance Universe”, in the paper, they used the Northfield US Fundamental Equity Risk Model conducting a holding-based attribution analysis. After testing the characteristics of risk and return of the S&P 500 Index and the MSCI KLD 400 Index, they got the results that the MSCI KLD 400 outperformed the S&P 500 from January 1992 to November 1999, however, underperformed from November 1999 to June 2010. And the reason why it performed like this was the MSCI KLD 400 had a higher market beta and overweight positions in some specific industries. Therefore, through their analysis, they concluded that investors would not incur material benefits or cost from using the KLD 400 if they would like to seek higher investment performance. In addition, the common understanding that the socially responsible stocks had negative alpha was also wrong.

Statman (2000) published his study about socially responsible mutual funds in 2000. This is a thorough and integrated analysis of SRI mutual funds. Firstly, he introduced the situation and common knowledge of current socially responsible mutual funds industry. Then he talked about the SRI benchmark, DSI, and the method it used to screen SRI mutual funds. After that, by calculating the annualized return, standard deviation, alpha and eSDAR, the author got the results to compare the performances of DSI and S&P 500. Although DSI had higher return than S&P 500, its much higher standard deviation could definitely cover it. The author thought it was not enough and accurate just comparing the indexes. It is still necessary to examine the performance of SRI mutual funds. Therefore, after introducing socially responsible mutual funds and their screening criteria, the author got a list of 17 SRI mutual funds from Morningstar and also 64 conventional mutual funds that had the same sizes as the SRI mutual funds. He compared both the SRI mutual funds with the two indexes and SRI mutual funds with the same sizes conventional mutual funds. The result was although the performance of SRI mutual funds was better than the conventional ones, the alpha and difference between the eSDAR he got were tested to be not statistically significant. That means there was still no significant relationship between these two. Finally, the author also did a very interesting analysis about investment action and political action of the investors who want to change the world by using the tool of investing in mutual funds. Through the comparing and analysing the effect of both investment action and political action, author found that socially responsible investing could be a useful tool for connecting the corporations and society. Moreover, the investors got their wish that socially responsible mutual funds can do at least no worse than the conventional mutual funds and they



definitely can help them change the world. We think this paper written by Meir Statman is a very good reference for us to learn and get the idea of this topic. So we regard it as our precedent paper and based on that we try to extend and add more ideas as our innovations.

## **1.4 Paper Structure**

In this paper, we mainly compared the performance of the SRI index with that of the benchmark, and the performance of the SR mutual funds with that of the conventional mutual funds as well. One more thing needs to be addressed is that besides the comparisons based on US, we also did Canadian comparisons in the same way.

The whole paper structure is as following:

Chapter 1: Background of SRI: Mainly discussed the importance of studying this subject and the literature review.

Chapter 2: Introduction of SRI: Briefly introduced several related concepts to SRI.

Chapter 3: Indexes Performance Comparison: Based on countries, made performance comparisons between SRI index with that of the benchmark.

Chapter 4: Mutual funds Comparisons: Based on countries, made performance comparisons between SR Mutual funds with that of the conventional mutual funds.

Chapter 5: Conclusion: Summarized the results from the previous 2 chapters' results, and derived meaningful conclusions.

## **2: Introduction of Socially Responsible Investments**

### **2.1 Arguments of Socially Responsible Investments**

Socially responsible investments have been practiced and questioned for more than 100 years. They focus on mainly about whether the non-financial investing will hurts the investing returns. The arguments about socially responsible investments are concluded in two sides.

The opponents of SRI insist that as the socially responsible investments have so many non-financial considerations, like ESG factors, the investment opportunities are less than the traditional investments. From the view of modern portfolio theory, the larger the investment universe, the more efficient the investment will be. That means as the socially responsible investment has a smaller investment universe, so risk-adjusted return they generate will be less, RBC Global Asset Management (2012). Besides that, as socially responsible investing has so many limitation and its screening is more strict than traditional investing, the management fees are also higher. The higher cost may also affect the investment return finally.

The supporters argue that the process of the socially responsible screening is a kind of integration that can pick out healthier and better performance companies. As the screening has considered the ESG factors for investing, they will exclude the companies those are involved in unsustainable activities, which will block their profits growing over time. Also considering the ESG factors can motivate the companies to perform better results than their competitors and it is good for building a better world. So the supporters think that the smaller investment universe will be offset by the healthy characteristics of socially responsible investing.

### **2.2 Classification of Socially Responsible Investments**

The key socially responsible investing categories include tobacco, alcohol, gambling, armament, eco-harmful and eco-friendly entities. This kind of categories can be achieved by specific socially responsible screening. And different SRI indexes also have their own screening methods.

Another view of socially responsible classification is the type of investment. Socially responsible investing can be realized by investing in corporates, mutual funds and exchange-traded funds.

## **3: Indexes Performance Comparison**

### **3.1 SRI indexes introduction**

#### 1. MSCI KLD 400 Social Index

The MSCI KLD 400 Social Index is a free float-adjusted market capitalization index and was launched in May 1990. As one of the first Socially Responsible Investing indexes, its aim is to measure the performance of a broad universe of socially responsible stocks in US, RBC Global Asset Management (2012). Relative to the components in the MSCI USA Investable Market Index, The KLD 400 index consists 400 US companies with the high Environmental, Social and Governance (ESG) ratings, MSCI KLD 400 Social Index (2014). The KLD 400 Social index is designed to keep around the similar MSCI USA Index weights by targeting relative sector weights between -25% and +25%. Although the KLD 400 index maintains sector weights similar to the MSCI USA Index, it excludes companies, which involved in alcohol, tobacco, gambling, military weapons, civilian firearms, nuclear power, adult entertainment and GMOs.

The MSCI KLD 400 Social Index is made up of large, mid and small cap US companies with high ESG ratings and targets a minimum count of 200 large and mid-cap constituents. The average market capital of the index companies is \$ 7,604,888.94. According to the sector weights of the index, Information Technology takes up around 22.91%, which is the biggest part. Besides that, Financials, Health Care and Consumer Discretionary also occupy a large amount.

The MSCI KLD 400 Social Index uses the method of Values Based Exclusion Criteria as its exclusionary screens. And the exclusionary screens eliminate from the MSCI KLD 400 companies are according to the companies' revenues and classifications. For example, in tobacco industry, if the company is classified as "Producer" or the "Distributor", "Retailer" and "Supplier" companies earn 15% or more from tobacco products, those companies will be excluded from the MSCI KLD 400 Social Index, MSCI KLD 400 Social Index Methodology (2012). As for the index addition method, the MSCI KLD 400 Social Index refers to the list of eligible additions, which based on the considerations of ESG performance, size representation as well as sector alignment, MSCI KLD 400 Social Index Methodology (2012). Additions are made from the standard size segment until the number of constituents reaches 400. If it cannot be reached, it will choose from the small cap segment to add.

In our study, we use the S & P 500 index, a group of about 500 companies representing the US stock market, as the comparable traditional index. According to some data researches, the MSCI KLD 400 Social Index has slightly outperformed the S&P 500 and during a one-year period, the differences of these two indexes can be +/-2%. Especially between 1998 and 2008, the differences have been as large as 5%, according to the RBC Global Asset Management (2012). And we will compare these differences from 2007 to 2014 in our following study to test whether the argument has been consistent.

## 2. JANTZI Social Index (JSI)

The JANTZI Social Index is a Canadian Social Responsible Market Index that is based on a modified S&P/TSX Composite Index. Michael Jantzi Research Associates Inc. launched the index in 2000 and the purpose of it is to measure the effect of an environmentally and socially stock market index on market behavior. Consisting of the top 60 Canadian companies that are screened on an environment and social basis, the JSI is acting as a benchmark for the performance of socially screened portfolios in Canada.

In JSI sector weightings, Financials occupies the biggest amount (42.92%) followed by Energy (16.58%) and Industrials (11.13%). And most companies in the top 10 holdings of SRI are financial banks, like Royal Bank of Canada, TD Bank and Bank of Montreal. That is a big difference with the MSCI KLD 400 Social Index. Due to the financial market is much more stable than US, the JSI put nearly half of its holdings to the Canadian financial market is reasonable.

JSI uses a combination method of the exclusionary and qualitative screens, which is developed by MJRA. The companies that have a great involvement in tobacco products, nuclear power and weapons-related contracts have been eliminated from the JSI. What's more, it also excludes companies in poor relationships with fraudulent business records, poor environment-performance records, poor employee records, aboriginal communities, significant operational problems outside Canada and that involved in unsafe products. However, the JSI aims to include companies that are in good relationship with the diversified communities, have progressive environment records and strong relationship with employees and have excellent corporate governance records, Hoti, McAleer and Pauwels (2007).

In our study, we use the S&P/TSX Composite Index as our traditional index according to the SJI. The S&P/TSX Composite Index is an index of the largest companies on the Toronto

Stock Exchange as measured by market capitalization. Based on some previous research, the performance of SJI has not outperformed too much during the past 30 years and the trends of these two indexes are becoming increasingly consistent. We will update the time period to the latest 10 years to compare the return performances of those indices.

### **3.2 Data and Methodology**

In the precedent paper, Statman (2000) compared the performance of Domini 400 Social Index (DSI) to the S&P 500 and CRSP1-10's during the period from May 1990-September 1998 in using several measures, which were also used in our paper. And we would further explain these indicators in the following paper.

Three major differences were involved when compared the precedent paper with ours:

- 1) In our paper, in order to receive timely and meaningful results, we retrieved the data period from Oct 2007-Oct 2014.
- 2) As the most common and representative benchmark index, S&P 500 is our only benchmark in US market.
- 3) Besides US market index comparison, we also turned our attention to Canadian market, and picked representative Social index in Canada to conduct the index comparison.

Next, we will further discuss the way that how we conduct our index comparison.

We obtained monthly prices for MSCI KLD 400, S&P 500, JANTZI Social and S&P/TSX from Oct 2007 to Oct 2014 from Bloomberg to do the performance comparisons. Besides that, we also found rates of US 30 days treasury bills and Bank of Canada 1 month treasury bills for the same period in Bloomberg as well to refer them as risk free rates.

We divide those 4 indexes into 2 groups based on different countries. KLD 400 and S&P 500 is group one for US, and KLD 400 as the measured index and S&P 500 as the benchmark; JANTZI Social index and S&P/TSX is group two for Canada, and JANTZI Social as the measured index and S&P/TSX as the benchmark. For most of the papers that have been published, authors put most of their focus to US market or Europe market, but rare of them taking a look at Canadian market. So, in term of us, we not only would like to see the performance comparison in US market but also be more willing to see the performance comparison in Canadian market.

In this paper, just as Statman (2000) did, we calculated the same 6 indicators to do the performance measurement, and they are: annualized arithmetic mean return, annualized geometric mean return, annualized standard deviation of returns, Alpha of the measured index with the benchmark, Beta of the measured index with the benchmark and eSDAR of the measured index with the benchmark. All of these indicators were calculated on the basis of monthly returns of each index, so we calculated the monthly log returns of each index first, and used the formula:  $\text{monthly return} = \ln\left(\frac{P_t}{P_{t-1}}\right)$ .

For the annualized arithmetic mean return and annualized geometric mean return, the difference of these two is that for the former one, it supposes that all the monthly returns are independent to each other, thus, we may just add them together and take average; however, for the later one, it appears more practical that it thinks that every previous month return would exert an impact to the next month, so it uses a compounded way to calculate the mean return, which means multiply all the returns together, and raise their product to the power of one divided by the count of the returns in the series, and then subtract one from the result. In this paper, we adopted both of these 2 methods to do the performance measurement so that it could give audience a more clearly picture that how the SRI indexes performed compared to their corresponding benchmarks.

For annualized standard deviation of returns, it measures the risk that how likely the realistic return would be deviated from the mean return, so the reason why we putting this indicator into this paper is for a risk measurement for the SRI indexes.

Beta is another risk measurement for SRI indexes from CAPM, and it measures that how large the risk is compared to the benchmark. Alpha is a following performance measurement for SRI indexes' excessive return, when the measured indexes are compared to the benchmarks.

For US market, S&P 500 was the benchmark, and the equation used was:

$$R_{KLD\ 400} - R_F = \alpha_{KLD\ 400} + \beta_{KLD\ 400}(R_{S\&P\ 500} - R_F) + \varepsilon_{KLD\ 400},$$

where

$R_{KLD\ 400}$  = monthly return of the KLD 400

$R_F$  = monthly return of 30 – day U. S. T – bills

$R_{SP}$  = monthly return of the S&P 500

$\varepsilon_{KLD\ 400}$  = residual

For Canadian market, S&P/TSX was the benchmark, and the equation used was:

$$R_{JANTZI} - R_F = \alpha_{JANTZI} + \beta_{JANTZI}(R_{S\&P/TSX} - R_F) + \varepsilon_{JANTZI},$$

where

$R_{JANTZI}$  = monthly return of the JANTZI index

$R_F$  = monthly return of bank of Canada 1 month

$R_{S\&P/TSX}$  = monthly return of the S&P/TSX

$\varepsilon_{JANTZI}$  = residual

In addition, we also calculated a measure of risk called “excess standard-deviation-adjusted return”, or eSDAR. This measure is a modified version of Sharpe ratio and is calculated as

$$eSDAR = R_F + \left( \frac{R_{KLD400} - R_F}{SD_{KLD400}} \right) SD_{S\&P500} - R_{S\&P500}$$

where  $SD_{KLD400}$  is a standard deviation of the returns of the KLD 400 and  $SD_{S\&P500}$  is the standard deviation of the returns of the S&P 500; for Canadian market, eSDAR is calculated as

$$eSDAR = R_F + \left( \frac{R_{JANTZI} - R_F}{SD_{JANTZI}} \right) SD_{S\&P/TSX} - R_{S\&P/TSX}$$

where  $SD_{JANTZI}$  is a standard deviation of the return of the JANTZI Social index and  $SD_{S\&P/TSX}$  is the standard deviation of the returns of the S&P/TSX. Taking U.S. market as an example, eSDAR of the KLD 400 is the excess return of the KLD 400 over the return of the S&P 500, where the KLD 400 is leveraged to have the S&P 500’s standard deviation. If we take a look at the breakdowns of the equation, the item inside the parenthesis calculate that how much excess return that KLD 400 can receive on the per unit of standard deviation of the return of KLD 400. And then, using the result to times the standard deviation of the return of S&P 500 measures that how much excess return that KLD 400 can receive under the same risk with S&P 500; After all of the above steps done, we add back the risk free rate and use the result to subtract the return of S&P 500 so that we can get the excess return of KLD 400 over the return of S&P 500.



### 3.3 Indexes Performance Comparisons Results

From Figure 3.3.1 we can see that KLD 400 almost perfectly followed the trend of S&P 500 during the study period, so how did KLD 400 perform in details ? Let's take a look at the comparison table of these 2 indexes.

Figure 3.3.1 U.S. SRI index Performance VS Benchmark Performance

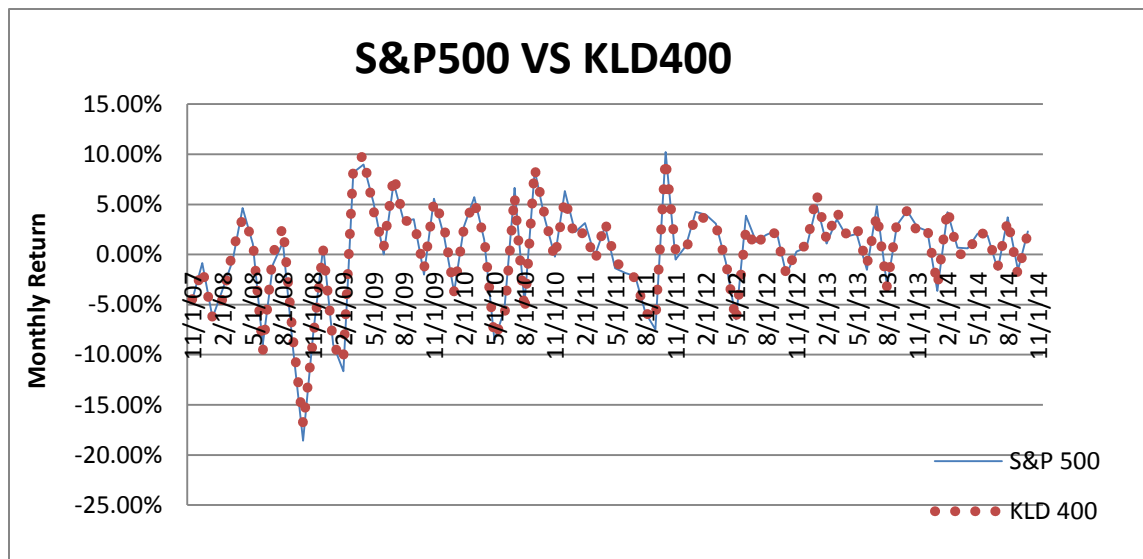


Table 3.3.1 The Performance of the KLD 400 and S&P 500, Oct 2007-Oct 2014

Index	Annualized Arithmetic Mean Return	Annualized Geometric Mean Return	Annualized Standard Deviation of Returns	Alpha of the KLD 400 with S&P 500 as Benchmark	Beta of the KLD 400 with S&P 500 as Benchmark	eSDAR of the KLD 400 with S&P 500 as Benchmark	Risk-free rate <sup>1</sup>
KLD 400	4.35%	2.94%	16.93%	0.04%	0.9997		3.80%
S&P 500	3.78%	2.28%	17.23%	(0.5797) <sup>2</sup>	(0)	0.58%	

As Table 3.3.1 shows, from the big picture perspective, KLD 400 beat the S&P 500 by a small margin when the performance is measured by no matter raw returns or risk adjusted returns.

For both the arithmetic and geometric mean return, KLD 400 was roughly 0.6% higher than S&P 500. Moreover, not only the returns that KLD 400 performed better, but also looking at

<sup>1</sup> US 30-DAYS Treasury Bills as risk free rate

<sup>2</sup> The value in parenthesis is p-value of the t-stats.

the standard deviations of these 2 indexes, standard deviation of KLD 400 is smaller than that of S&P 500, which indicates that the returns of KLD 400 was less fluctuated than S&P 500's, and less risky as well.

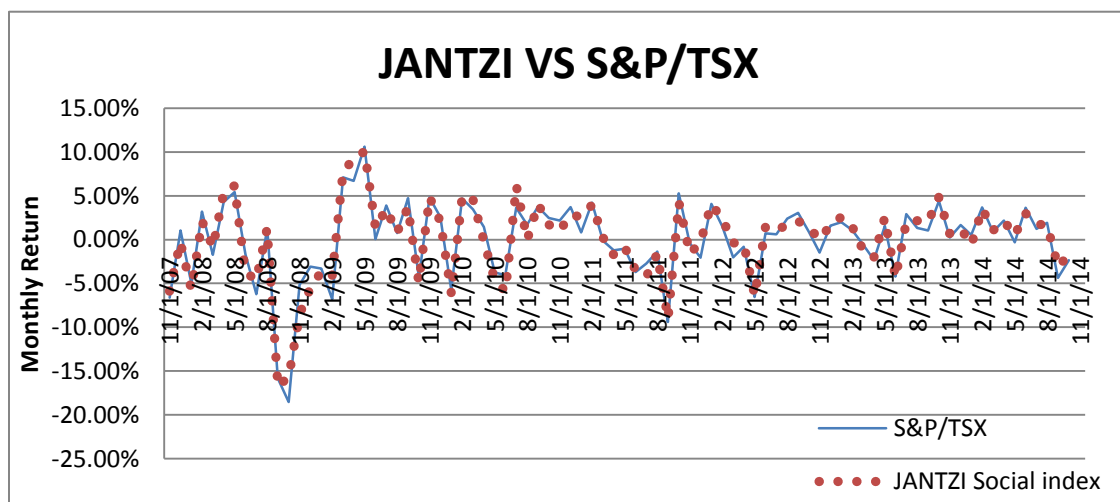
In terms of beta, we almost can declare that KLD 400 shared the same amount of risk with the market, S&P 500, because the value of beta is almost 1, and the statistical result is significant; for the following alpha, we found that the value was 0.04% from regression, virtually indistinguishable from zero and far from statistical significance.

Due to the positive effects of both higher raw returns and more stable performance of KLD 400, the result of eSDAR is a positive 0.58 percentage indicating that in terms of a risk adjusted return perspective, KLD 400, Oct 2007-Oct 2014, compared to S&P 500 was less risky and higher return.

Basically , the results we got for the KLD 400 VS S&P 500 has slightly difference with Statman (2000)'s. In his result, due to the higher standard deviation that DSI had, eSDAR was negative when DSI was measured by S&P 500, which indicated that during Meir's study period, DSI's higher standard deviation detracted from its performance more than its higher returns added to it.

After the comparison of the U.S. indexes, we also use the same methodology to compare 2 Canadian indexes, JANTZI Social index and S&P/TSX, and the comparison result is as following:

Figure 3.3.2 Canadian SRI index Performance VS Benchmark Performance



From Figure 3.3.2, we can see that the condition in Canada was pretty much similar to the one in US that JANTZI Social index perfectly followed the trend of S&P/TSX during the study period. And from the figure, we even can get an intuition that JANTZI might perform better than S&P/TSX, because for the negative returns, JANTZI didn't go as far as S&P/TSX did; however, for the positive returns, JANTZI always went higher than S&P/TSX.

*Table 3.3.2 The Performance of the JANTZI Social index and S&P/TSX, Oct 2007-Oct 2014*

Index	Annualized Arithmetic Mean Return	Annualized Geometric Mean Return	Annualized Standard Deviation of Returns	Alpha of the JANTZI with S&P/TSX as Benchmark	Beta of the JANTZI with S&P/TSX as Benchmark	eSDAR of the JANTZI with S&P/TSX as Benchmark	Risk-free rate <sup>1</sup>
JANTZI	0.48%	-0.80%	15.83%	0.11%	1.0007		1.31%
S&P/TSX	-0.01%	-1.27%	15.64%	(0.5920) <sup>2</sup>	(0)	0.48%	

Table 3.3.2 shows detailed breakdowns of those 2 indexes performance. For both the arithmetic and geometric mean return, the JANTZI social index was roughly 0.5% higher than S&P/TSX indicating that JANTZI beat the S&P/TSX by a small margin when performance was measured by raw returns. Nevertheless, when we are looking at the 2 standard deviations, we found that the value of the JANTZI was larger than that of the S&P/TSX indicating that the TANTZI is somewhat riskier than the benchmark due to the relatively larger fluctuations.

In terms of beta, we almost can declare that JANTZI Social index shared the same amount of risk with the market, S&P 500, because the value of beta is almost 1, and the statistical result is significant; for the following alpha, we found that the value was 0.11% from regression, virtually indistinguishable from zero and far from statistical significance.

The mean annual return of the JANTZI in the studied period was higher than that of the S&P/TSX, but its standard deviation was also higher. The eSDAR of the JANTZI is positive 0.48 percentage points a year, indicating that although the JANTZI's higher standard deviation detracted from its performance, it's still less than its higher returns added to it.

<sup>1</sup> 1 month bank of Canada T-bills as risk free rate

<sup>2</sup> The value in parenthesis is p-value of the t-stats.

## **4: Mutual Funds Performance Comparison**

### **4.1 Socially Responsible Mutual Funds Introduction**

Socially responsible mutual funds are those hold securities in companies that adhere to social, environment, religious or moral beliefs. As for the number of the socially responsible mutual funds today, there are more than 300 socially responsible mutual funds in the market and the number has increased by 33% since 2010. And in terms of the assets, Sustainable and Responsible Investment Forum (2014) detailed that the assets were estimated around \$3.7 trillion professional managed and increased up to 22% since 2009 according to SRI principles.

Socially responsible mutual funds have some significant differences with the traditional mutual funds. Firstly, shareholders are very active in influencing the funds' management. They achieve their aim by attending shareholder meetings, exercising voting rights, filing proposals and writing letters to management. So shareholders' active involvement is one of the most significant parts of socially responsible mutual funds. Secondly, as for the management fees, socially responsible mutual funds tend to be higher than traditional mutual funds. For example, the expenses of doing ethical research will be a great contribution to the funds' manager. Finally, most socially responsible mutual funds are managed by smaller mutual funds companies so their management assets also tend to be smaller compared with the traditional mutual funds. Although the socially responsible mutual funds have some operational limitation in practice, they invest almost in stable and healthy industry that will reduce the investment risks and also benefit the society.

In order to ensure the chosen stocks will be coincide with the mutual fund's social, environment, religious and moral standards, it has a careful SRI screening process for choosing. Some funds have strong sensitivity of social security and environmental issues so they will avoid picking certain companies. For example, the Ariel Appreciation Fund screens out all the handgun or tobacco manufacturers. And due to the consideration of avoiding poor track records and potentially high environmental costs, it also standardizes companies' environmental policies. Some top-performing socially responsible mutual funds tend to look for high quality and dividend-paying companies by specific screening process. For example, the Amana Income Fund, it obeys the Islamic principles by avoiding companies related to liquor, pornography, gambling

and finance. For the purpose of preserving capital and generate income, its screening process for finance part is only looking for those high-quality and dividend-paying stocks, 5 Socially Responsible Funds (2014). So we can see that the specific screening criteria for stocks are all based on the values and goals of the mutual funds.

As we know that the screening criteria can be very strict, sometimes that will limit the performance of the Social Responsible mutual funds. The topic of “Whether the Socially Responsible Mutual Funds Outperform or Underperform Compared with Traditional Mutual Funds” has been discussed for a long period indicates that the potential socially responsible investors still consider the return a lot. Unless the socially responsible mutual funds perform as good as the conventional mutual funds, investors will still prefer the socially responsible mutual funds with higher return. Like the Amana Income Fund we just mentioned, as the fund wants to pick high-quality stocks, it has a great restriction on owning finance companies. And this screening standard can be good or bad. The fund has bet the market during the financial crisis in 2008 but even cannot reach the average market when the financial stocks soaring in the past five years, 5 Socially Responsible Funds (2014). Therefore, some certain screening criteria can be a limitation for those investors who pursue high returns but it is hard to say when we consider the risk when comparing the performances of the socially responsible mutual funds and conventional mutual funds.

Will investors finally choose socially responsible mutual funds? We will compare and analyze some indicators of both the socially responsible mutual funds and conventional mutual funds in the following part.

## **4.2 Data and Methodology**

Statman (2000) used Morningstar as his list to collect SR mutual funds information, and with the existing list, he adjusted the list, so he got 31 distinct socially mutual funds at last. Slightly difference what we did is that we used a different list with 55 mutual funds for US, and then we used the same adjustments and screens with Meir, and screen out 15 mutual funds, which means 26 SR mutual funds left at last. More details will be followed in the following chapter.

Besides that, for the data part, we did one step further, compared to the Statman (2000)’s paper, which is that we also collected Canadian socially responsible mutual funds data so that we could also make a performance comparison based on Canada to give more meaningful guidance to Canadian SRI investors.

We use the list of socially responsible mutual funds comes from the Bloomberg. It lists 55 US and 20 Canadian socially responsible mutual funds at the end of October 2014. As different criteria of classification can lead to different funds list, Bloomberg collected the data from company sourced filings. These filings include Corporate Social Responsibility reports and annual reports. Bloomberg also has the most recent socially responsible mutual funds list and most of funds in list have established more than 7 years. So we can get sufficient observation for each one. Except that, using the same criteria with Statman (2000) that no more than 20 percent in bonds and cash, we excluded the funds those are classified as fixed income or mixed allocation and only left equity funds. Due to we used S&P 500 as our benchmark for US mutual funds, we also exclude those mutual funds mainly invested in other countries but not in US. And the final numbers of the socially responsible mutual funds in our list are 26 of US and 15 of Canada. Among the 40 US funds, 10 of them were established after October 2007. As for 15 Canadian funds, 3 of them were after that time. So the 10 funds have shorter time periods than the other 30 ones. Canadian funds are similar.

*Table 4.2.1 40 U.S. SR Mutual Funds*

Name	Assets (millions)	Expense Ratio	Front Load	End Load	12b-1 Charge
VALIC II-SOCAILLY RESPONSIBL	\$681.65	0.56%	0.00%	0.00%	0.00%
PRAXIS GROWTH INDX FD- A	155.52	1.01	5.25	2	0.25
DOMINI SOCIAL EQUITY- INV	1200	1.2	0	0	0.25
VANGUARD FTSE SOC INDX-INV	1300	0.27	0	0	0
DREYFUS 3RD CENTURY FUND-Z	340.58	1.01	0	0	0
WFA LARGE CAP CORE FUND-A	359.23	1.14	5.75	0	0
STEWARD LRG CAP ENH INDX-IS	238.61	0.54	0	0	0
PRAXIS VALUE INDEX FD- A	110.1	1.03	5.25	2	0.25
TIMOTHY PL LRG/MID CAP VAL-A	164.41	1.49	5.5	0	0.25
NEUBERGER BERMAN SOC RES-INV	2460	0.86	0	0	0
TIMOTHY PLAN L/M CAP GRWTH-A	63.4	1.59	5.5	0	0.25

VALIC I SOCIAL AWARENESS FD	434.28	0.62	0	0	N.A.
DFA US SOCIAL CORE EQUITY 2	534.41	0.33	0	0	0
GABELLI SRI FUND INC-A CITY NATL SOCIAL RES EQ-I	75.64	1.93	5.75	0	0.25
TRIBUTARY GROW OPP- INST	251.33	0.87	0	0	0
TIMOTHY PLAN AGGRESS GRWTH-A	167.14	1.08	0	0	0
TIMOTHY PLAN AGGRESS GRWTH-A	23.72	1.86	5.5	0	0.25
STEWARD SMALL-MID CAP EN-INS	145.97	0.62	0	0	0
LKCM AQUINAS VALUE FUND	60.23	1.5	0	0	0.25
BARRIER FUND	299.51	1.47	0	0	0.25
TIMOTHY PLAN SML CAP VALUE-A	87.47	1.55	5.5	0	0.25
LKCM AQUINAS GROWTH FUND	32.16	1.5	0	0	0.25
LKCM AQUINAS SMALL- CAP FUND	8.81	1.5	0	0	0.25
PRAXIS SMALL CAP FUND- A	77.37	1.69	5.25	2	0.25
AMERICAN CENTURY NT CORE EQUITY PLUS FUND	401.97	1.1	0	0	0
NEUBERGER BERMAN NVIT SOCIALLY RESPONSIBLE FUND	165.52	N.A.	N.A.	N.A.	N.A.

According to Table 4.2.1, we can see the characteristics of the 40 US funds at the end of October 2014. The funds' assets range from \$0.079 million of SEI Screened World Equity to \$1,300 million of Vanguard FTSE Social Index Inv. The expense ratios range from the lowest 0.27 of Vanguard FTSE Social Index Inv to the highest 1.93 of Gabelli SRI A. Only 12 out of 40 have front load and 4 out of 40 have end load. As for the 12b-1 charge, 18 of them are not zero.

Table 4.4.2 15 Canadian SR Mutual Funds

Name	Assets(Million)	Expense Ratio	Front Load	Back Load	12b-1 Charge
NEI ETHICL AM MULTI- STRAT-A	69.78	2.55%	5.00%	6.00%	N.A.
MFS RESPONSIBLE CN EQUITY FD	56.85	N.A.	N.A.	N.A.	N.A.
PHIL HAGER & NO COM V CN E-D	72.88	2.06%	0.00%	0.00%	N.A.

MFS RESPONSIBLE GLBL RESRH	94.33	N.A.	N.A.	N.A.	N.A.
RBC JANTZI CANADIAN EQ-A	40.77	2.10%	0.00%	0.00%	N.A.
PHIL HAGER & NO COM V GL E-D	103.8	2.10%	0.00%	0.00%	N.A.
MERITAS MONTHLY DVD & INC-A	126.32	2.64%	N.A.	6.00%	N.A.
PHIL HAGER & NO COM V BAL-D	43.94	1.05%	0.00%	0.00%	N.A.
NEI ETHICAL CANADIAN EQ F-A	605.18	2.62%	5.00%	6.00%	N.A.
RBC JANTZI GLOBAL EQUITY-A	22.42	2.28%	0.00%	0.00%	N.A.
IA CLARINGTON INH GL E SRI-A	23.77	N.A.	N.A.	5.75%	N.A.
ETHICAL SPECIAL EQUITY FD-A	481.02	2.84%	5.00%	6.00%	N.A.
NEI ETHICAL GLOBAL EQTY FD-A	28.23	2.71%	5.00%	6.00%	N.A.
NEI ETHICAL INTERNAT EQT F-A	49.8	2.98%	5.00%	6.00%	N.A.
NEI ETHICAL GLOBAL DIVID F-A	184.21	2.64%	N.A.	6.00%	N.A.
IA CLARINGTON-IN CA EQ SRI-A	9.41	N.A.	N.A.	5.75%	N.A.

From Table 4.4.2, we can get the lowest fund assets are \$9.41 million of IA Clarington Inhance Canadian Equity SRI Class and the highest assets are \$605.18 million of NEI Ethical Canadian Equity Fund/Canada. 4 of the 15 Canadian funds do not have expense ratio. The lowest value of expense ratio is 1.05% of Phillips Hager & North Community Values Balanced Fund and the highest one is 2.98% of NEI Ethical International Equity Fund. 5 out of 15 have front load and 9 have end load. None of them has 12b-1 Charge.

To still get the comparable results in the same periods each time, we used the same method with Statman (2000) in dealing with different data period for different mutual funds, which is we chose the same period of the indexes corresponding to the specific funds' time period. For example, the Towle Deep Value Fund was established in October 2011, so we chose the time period from October 2011 to October 2014 for both the S&P 500 and MSCI KLD 400 Social Index as the benchmark comparison. Both the annualized returns and risk-adjusted returns are measured similarly as this method.

It is not sufficient to argue that SRI performs better only by comparing with the conventional investment index. The differences in performance can be caused by various factors, like size biases, industry, style and material impacts. Therefore, in order to eliminate the biases of



the argument, we analyzed more indicators of the benchmark comparisons and also compared the SRI mutual funds with the comparable conventional mutual funds, which is exactly consistent with what Statman (2000) did in his paper .

As for the comparable indicators, Statman (2000) used both the Jensen's alpha and eSDAR to measure the performance of socially responsible mutual funds and conventional mutual funds from 1990 to 1998. Although the mean performance of the socially responsible funds was better than that of the conventional ones and the negative mean eSDAR was smaller than that for conventional funds, the difference in performance between the two funds was not significantly statistical.

In order to get more general and valuable analysis, we extend our study objective to both US mutual funds and Canadian mutual funds. As the performance benchmarks, we use S&P 500 and MSCI KLD 400 Social Index for US and S&P/TSX and JANTZI Social Index for Canada. Also for the time period, we updated it from Oct 2007 to Oct 2014. In the study, we calculated the same indicators, like annualized return, alpha, beta and eSDAR, as the previous indexes comparison to compare both the SRI mutual funds with indexes and SRI mutual funds with conventional mutual funds.

### 4.3 SR Mutual Funds Performance Comparison with Benchmarks

Table 4.3.1 U.S. Mutual Funds VS Benchmarks

Name	Period	Fund Annualized Return	S&P 500 as Benchmark					KLD 400 as Benchmark				
			S&P 500 Annualized Return	Excess Fund Return	Alpha	Beta	eSDAR	KLD 400 Annualized Return	Excess Fund Return	Alpha	Beta	eSDAR
VALIC II-SOCAILLY RESPONSIBL	07/10/31-14/10/31	4.05%	3.78%	0.27%	0.12%	1.0036	0.26%	4.35%	-0.31%	0.08%	1.0037	-0.32%
PRAXIS GROWTH INDX FD-A	07/10/31-14/10/31	6.36%	3.78%	2.58%	0.15%	0.9975	2.66%	4.35%	2.01%	0.11%	0.9977	2.04%
DOMINI SOCIAL EQUITY-INV	07/10/31-14/10/31	4.48%	3.78%	0.70%	0.16%	1.0037	0.66%	4.35%	0.12%	0.12%	1.0039	0.07%
VANGUARD FTSE SOC INDX-INV	07/10/31-14/10/31	4.15%	3.78%	0.37%	0.15%	1.0042	0.34%	4.35%	-0.20%	0.11%	1.0044	-0.24%
DREYFUS 3RD CENTURY FUND-Z	07/10/31-14/10/31	5.77%	3.78%	1.99%	0.07%	0.9964	2.01%	4.35%	1.41%	0.03%	0.9966	1.40%

WFA LARGE CAP CORE FUND-A	07/12/31- 14/10/31	5.59%	4.65%	0.94%	0.03%	0.99 76	1.03%	5.06%	0.53%	0.00%	0.9988	0.57%
STEWARD LRG CAP ENH INDX-IS	07/10/31- 14/10/31	2.50%	3.78%	-1.28%	0.05%	1.00 55	-1.13%	4.35%	-1.85%	0.00%	1.0056	-1.68%
PRAXIS VALUE INDEX FD-A	07/10/31- 14/10/31	0.87%	3.78%	-2.91%	-0.03%	1.00 76	-2.58%	4.35%	-3.49%	-0.08%	1.0078	-3.11%
TIMOTHY PL LRG/MID CAP VAL-A	07/10/31- 14/10/31	2.13%	3.78%	-1.65%	-0.05%	1.00 29	-1.54%	4.35%	-2.22%	-0.10%	1.0031	-2.09%
NEUBERGER BERMAN SOC RES-INV	07/10/31- 14/10/31	3.91%	3.78%	0.13%	-0.06%	0.99 73	0.12%	4.35%	-0.45%	-0.10%	0.9975	-0.45%
TIMOTHY PLAN L/M CAP GRWTH- A	07/10/31- 14/10/31	1.22%	3.78%	-2.56%	-0.07%	1.00 53	-2.38%	4.35%	-3.13%	-0.11%	1.0055	-2.91%
VALIC I SOCIAL AWARENESS FD	07/10/31- 14/10/31	-2.24%	3.78%	-6.02%	-0.25%	1.00 92	-5.04%	4.35%	-6.60%	-0.30%	1.0094	-5.53%
DFA US SOCIAL CORE EQUITY 2	07/12/31- 14/10/31	4.99%	4.65%	0.34%	0.03%	0.99 93	0.00%	5.06%	-0.06%	-0.01%	0.9996	-0.43%
GABELLI SRI FUND INC-A	07/10/31- 14/10/31	5.11%	3.78%	1.33%	0.07%	0.99 81	1.11%	4.35%	0.76%	0.02%	0.9983	0.52%
CITY NATL SOCIAL RES EQ-I	07/10/31- 14/10/31	-0.58%	3.78%	-4.36%	-0.43%	0.99 77	-3.93%	4.35%	-4.93%	-0.47%	0.9979	-4.44%
TRIBUTARY GROW OPP- INST	07/10/31- 14/10/31	2.39%	3.78%	-1.39%	0.00%	1.00 42	-1.15%	4.35%	-1.96%	-0.04%	1.0044	-1.71%
TIMOTHY PLAN AGGRESS GRWTH-A	07/10/31- 14/10/31	2.63%	3.78%	-1.15%	0.14%	1.00 86	-0.90%	4.35%	-1.72%	0.10%	1.0087	-1.45%
STEWARD SMALL-MID CAP EN-INS	07/10/31- 14/10/31	2.85%	3.78%	-0.93%	0.16%	1.00 86	-0.67%	4.35%	-1.50%	0.12%	1.0089	-1.23%
LKCM AQUINAS VALUE FUND	07/10/31- 14/10/31	2.40%	3.78%	-1.38%	0.02%	1.00 48	-1.21%	4.35%	-1.96%	-0.02%	1.0050	-1.76%
BARRIER FUND	07/10/31- 14/10/31	2.59%	3.78%	-1.19%	0.01%	1.00 39	-1.19%	4.35%	-1.76%	-0.03%	1.0041	-1.74%
TIMOTHY PLAN SML CAP VALUE- A	07/10/31- 14/10/31	3.56%	3.78%	-0.22%	0.16%	1.00 63	-0.16%	4.35%	-0.80%	0.11%	1.0065	-0.73%
LKCM AQUINAS GROWTH FUND	07/10/31- 14/10/31	2.81%	3.78%	-0.97%	-0.16%	0.99 70	-0.94%	4.35%	-1.55%	-0.20%	0.9971	-1.50%
LKCM AQUINAS SMALL-CAP FUND	07/10/31- 14/10/31	3.21%	3.78%	-0.57%	-0.06%	0.99 96	-0.45%	4.35%	-1.14%	-0.10%	0.9998	-1.01%
PRAXIS SMALL CAP FUND-A	07/10/31- 14/10/31	3.51%	3.78%	-0.27%	-0.08%	0.99 77	-0.20%	4.35%	-0.84%	-0.12%	0.9979	-0.77%
AMERICAN CENTURY NT CORE EQUITY PLUS FUND	11/11/30- 14/10/31	16.77 %	16.51%	0.26%	-0.99%	0.37 60	-1.94%	15.92 %	0.85%	-0.97%	0.3853	-1.18%

NEUBERGER BERMAN NVIT SOCIALY RESPONSIBL E FUND	09/6/30- 14/10/31	15.38 %	14.74%	0.64%	0.08%	0.97 17	-0.49%	14.42 %	0.97%	-0.07%	0.9618	-0.29%
Mean		4.09%	4.76%	-0.67%	-0.03%	97.7 1%	-0.68%	5.24%	-1.15%	-0.07%	97.73 %	-1.15%
Standard Deviation		4.01%	3.22%	1.86%	1.24%	12.2 2%	1.67%	2.94%	1.94%	0.23%	12.11 %	1.64%

*\*\* Statistically significant at 5% level*

*\*\*\*Statistically significant at 1% level*

Firstly, for US, we got the analysis from the results in table 4.3.1. If compared with the S&P 500, there are only 11 SRI mutual funds' annualized returns are higher which means they outperformed the benchmark. The highest excess fund return is 2.58% of Praxis Growth Index A and the lowest excess fund return is negative 6.02% of VALIC I SOCIAL AWARENESS FD. The mean raw return of the SRI mutual funds is 4.09% lower than that of S&P 500 (4.76%) and considering the risk-adjusted factor, the mean eSDAR of SRI mutual fund is negative 0.68%. But its mean beta related to the S&P 500 is nearly 1. So that means SR mutual funds basically has the same amount of market risk with benchmark, but their performances are worse than the benchmark. However, all of the pvalues relative to alpha we got are much larger than 0.05, it means the values of alpha are insignificant. Compared with the MSCI KLD 400 Social Index, only 8 mutual funds out of 26 have higher annualized returns than the benchmark. The highest excess return is 2.01% still of Praxis Growth Index A and the lowest value is negative 6.60% of VALIC I SOCIAL AWARENESS FD. The risk-adjusted return eSDAR relative to the MSCI KLD 400 is negative 1.15%. And the related beta is also close to 1 showing that the SRI mutual funds' risk is similar as that of the benchmark. Still, none of the SRI mutual funds' alphas is statically significant.

Analyzing the comparison results based on these two benchmarks, the mean excess annualized return compared to the MSCI KLD 400 (-1.15%) is lower than that compared to S&P 500 (-0.67%). Also the mean alpha of SRI mutual funds relative to S&P 500 is negative 0.03% higher than that related to MSCI KLD 400 (-0.07%). The SRI mutual funds' average performance trailed both two indexes during the period and they performed much worse compared to S&P 500 than to MSCI KLD 400. The difference between mutual funds' performance with S&P 500 is

smaller than that of KLD 400 also indicating that indicates MSCI KLD 400 had a much better performance than S&P 500 during the time from Oct 2007 to Oct 2014.

Basically we got the consistent results with Statman (2000). During his studied period, SR mutual funds performed worse than both S&P 500 and DSI as well; however, for the difference, the one for S&P 500 was larger than the one for DSI for the reason that in that period, S&P 500 outperformed than DSI. And for the t-stats of alphas, he also got most of the results insignificant, which is strongly consistent with our results.

Table 4.3.2 Canadian SR Mutual Funds VS Benchmarks

Name	Period	S&P/TSX as Benchmark						JANTZI as Benchmark				
		Fund Annualized Return	S&P/TSX Annualized Return	Excess Fund Return	Alpha	Beta	eSDAR	JANTZI Annualized Return	Excess Fund Return	Alpha	Beta	eSDAR
NEI ETHICAL AM MULTI-STRAT-A	07/10/31 -	6.64%	-0.01%	6.65%	0.11%	0.9956	5.77%	0.48%	6.16%	0.02%	0.9950	5.20%
MFS RESPONSIBLE CN EQUITY FD	07/10/31 -	0.18%	-0.01%	0.19%	0.39%	1.0038	0.26%	0.48%	-0.30%	0.28%	1.0030	0.38%
PHIL HAGER & NO COM V CN E-D	07/10/31 -	0.67%	-0.01%	0.68%	0.38%	1.0032	0.57%	0.48%	0.19%	0.27%	1.0025	0.06%
MFS RESPONSIBLE GBL RESRH	07/10/31 -	3.00%	-0.01%	3.01%	-0.23%	0.9952	0.02%	0.48%	2.52%	-	0.9946	0.62%
RBC JANTZI CANADIAN EQ-A	07/10/31 -	2.34%	-0.01%	2.35%	0.21%	1.0001	1.25%	0.48%	1.86%	0.08%	0.9992	0.62%
PHIL HAGER & NO COM V GL E-D	07/10/31 -	1.91%	-0.01%	1.92%	0.20%	1.0004	0.94%	0.48%	1.43%	0.09%	0.9997	0.30%
MERITAS MONTHLY DVD & INC-A	07/10/31 -	-2.30%	-0.01%	-2.29%	-0.59%	0.9961	-8.11%	0.48%	-2.78%	0.71%**	0.9953	8.86%
PHIL HAGER & NO COM V BAL-D	07/10/31 -	0.95%	-0.01%	0.96%	-0.31%	0.9962	-7.19%	0.48%	0.47%	-	0.9954	7.92%
NEI ETHICAL CANADIAN EQ F-A	07/10/31 -	0.52%	-0.01%	0.53%	-0.10%	0.9986	-3.21%	0.48%	0.04%	-	0.9979	3.89%
RBC JANTZI GLOBAL EQUITY-A	07/10/31 -	2.65%	-0.01%	2.66%	-0.23%	0.9955	-0.67%	0.48%	2.17%	-	0.9948	1.32%
IA CLARINGTON INH GL E SRI-A	09/11/30 -	8.42%	5.84%	2.58%	-2.75%	0.9626	3.30%	6.49%	1.93%	-	0.9683	2.90%
ETHICAL SPECIAL EQUITY FD-A	07/10/31 -	5.29%	-0.01%	5.30%	0.80%	1.0035	4.60%	0.48%	4.81%	0.68%	1.0027	4.01%
NEI ETHICAL GLOBAL EQTY FD-A	07/10/31 -	2.52%	-0.01%	2.53%	-0.26%	0.9953	0.77%	0.48%	2.04%	-	0.9947	0.13%
NEI ETHICAL GLOBAL DIVID F-A	07/11/30 -	-1.23%	-0.01%	-1.22%	-0.03%	1.0016	-2.37%	0.48%	-1.71%	-	1.0002	2.90%
IA CLARINGTON-IN CA EQ SRI-A	09/11/30 -	7.20%	5.84%	1.36%	-0.68%	0.9892	1.41%	6.49%	0.71%	-	0.9962	0.96%
Mean		2.58%	0.77%	1.82%	-0.21%	0.9958	-0.18%	1.28%	1.30%	-	0.9960	0.79%
Standard Deviation		3.10%	2.06%	2.26%	0.80%	1.00%	3.82%	2.12%	2.26%	0.68%	0.83%	3.88%

*\*\* Statistically significant at 5% level*

Secondly, for Canada, we got the analysis from the results in table 6. When relative to S&P/TSX, only two SRI mutual funds have lower annualized return than that of S&P/TSX. The highest excess return is 6.65% of NEI Ethical AM Multi-Strat-A and the lowest is negative 2.29% of Meritas Monthly DVD & Inc-A. The mean annualized return of the SRI mutual funds is 2.58 and considering the risk-adjusted factor, the mean eSDAR is negative 0.18%. The beta relative to the benchmark is 0.9958 nearly 1. However, most of the pvalues of alpha are more than 0.05 so the alphas we got are insignificant. Only MFS Responsible CN Equity FD and Meritas Monthly DVD & INC-A's alphas are not too far away from significant. Compared with the benchmark of JANTZI Social Index, 3 out of 15 have lower annualized return. The highest excess fund return is 6.16% and the lowest is negative 2.78% and the mutual funds are the same as relative to S&P/TSX. The mean eSDAR related to JANTZI is negative 0.79% lower than compared with S&P/TSX. The relative beta is 0.996 similar to 1. Still only Meritas Monthly DVD & INC-A's alpha is statistically significant whose pvalue is around 0.03. All the others are insignificant.

Analysing the comparison results based on these two benchmarks, the mean excess annualized return of S&P/TSX is 1.82% higher than that related to the JANTZI (1.30%). So we can see that the performance of the Canadian SRI mutual funds is better than that of the benchmarks. As for the mean alpha, still relative to S&P/TSX is negative 0.21% higher than that negative 0.25% relative to JANTZI. The benchmark of socially responsible mutual fund, JANTZI, performs better than S&P/TSX in the same time period.

#### **4.4 SR Mutual Funds Performance Comparison with Conventional Mutual Funds'**

It is very important to compare performances of the socially responsible mutual funds and the conventional mutual funds as the excess performance is the main elements that the investors consider to buy or not. As the similar asset size may share more equity commons and the results probably will have more reference value. We chose two conventional mutual funds that have nearly the same asset sizes corresponding to each SRI mutual fund's asset size. Then we got 80 conventional mutual funds for US and 30 funds for Canada as our database.

We exactly followed the method in Statman(2000) that we calculated the mean return, mean alpha and mean eSDAR as three measures of each of these two kinds of funds to make comparison.

The result we got for US is that the mean annualized return of SRI mutual funds (4.09%) is slightly higher than that of conventional ones (2.66%). Also the mean eSDAR of SRI (-0.68%) is higher than that of conventional mutual funds. But the difference between the two performances was not statistically significant. Although the result was statistically insignificant, at least it shows the average performance adjusted by risk of SRI mutual funds was no worse than conventional mutual funds' (-3.64%). Besides, the mean alpha of SRI is negative 0.12% lower than 0% of conventional ones. And the difference of these two alphas was also insignificant.

For Canada, the mean performance of SRI is much better than that of conventional mutual ones. The annualized return is 2.58% of SRI but that of conventional mutual fund is only 0.65%. If considering risk factors, the results were surprised. The mean eSDAR of SRI was 3.56%, however, the number for conventional mutual funds was 1.66%. The conventional mutual funds have suffered a lot during the financial crisis in 2008 so their mean return is that low. But it seems that socially responsible mutual funds survived that time so it has been stable for the period. In terms of alpha, SRI's 1.36% is higher than conventional mutual funds' 0.35%. Nevertheless, the differences for both alphas and eSDARs were still insignificant. Thus, it still cannot say SRI shows better performance but definitely not worse.

Still, our results are largely consistent with Statman(2000)'s. During the period of May 1990-Sep 1998, Meir derived the conclusion that SR mutual funds performed no worse than conventional mutual funds' with insignificant statistical results as well.

## **5: Conclusion**

According to the findings presented above, our conclusion is that the socially responsible indexes tracked the benchmark indexes performance in recent 10 years, and even have done a better performance. And for the socially responsible mutual funds, both US and Canadian SRI mutual funds have much better risk-adjusted returns than the conventional ones, however unfortunately, the test of both alpha and the difference between the eSDAR is not statistically significant. But it still indicates that the SRI mutual funds are no worse than the conventional mutual funds of equal sizes.

Investors can definitely get their wish by considering both financial and social screenings when investing mutual funds. It is not only good for diversifying risks and investing in much more promising and stable corporations in the long run also can be an efficient way to guide a much healthier investing environment for the world. In a word, the social and environmental criteria are not a limitation for investors to pursue excess return; on the contrary, it is a protection for investing stably. We encourage investors to think about the world through paying more attention to socially responsible investing.



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Does Socially Responsible Investing Hurt Investment Returns? RBC Global Asset Management, 2012

MSCI KLD 400 Social Index, 2014

MSCI KLD 400 Social Index Methodology, 2012

## Appendix A Matlab Code

```
% alpha,Beta
close all;
clear;
sheet=4;
data = xlsread('CANADA RESULTS.xlsx',sheet);
sd_sp=data(:,16);
re_SRI=data(:,1);
sd_SRI=data(:,15);
re_sp=data(:,2);
rf=data(:,18);
x=(rf-re_SRI)./sd_SRI;
y=rf-re_sp;
stats1 = regstats(y, x);
alpha1 = stats1.beta(1);
pvalue1 = stats1.tstat.pval(1);

marpr1=re_sp-rf;
port1=re_SRI-rf;
stats2 = regstats(port1, marpr1);
alpha2 = stats2.beta(1);
pvalue2 = stats2.tstat.pval(1);

%Conventional Mutual Funds Mean Return
close all;
clear;
sheet1=3;
data1 = xlsread('US Results.xlsx',sheet1);
sheet2=4;
data2=xlsread('US Results.xlsx',sheet2);
data1(:,1)=[];
data2(:,1)=[];
logRe=nan(length(data1)-1,size(data1,2));
for i=2:length(data1)
    logRe(i-1,:)=log(data1(i-1,:)./data1(i,:));
end
b=nan(1,size(data1,2));
for i=1:size(data1,2)
    b(1,i)=sum(logRe(:,i));
end
re_con=(b./length(logRe)).*12;
re_sr=data2(:,1);
h=ttest(re_)
meanAv=mean(re_con);
std_con=std(logRe).*sqrt(12);
```

```

rf=0.03841412.*ones(length(std_con),1);
re_sp=0.0378.*ones(length(std_con),1);
std_sp=0.1722727.*ones(length(std_con),1);
es=rf+((re_con-rf)./std_con)-re_sp;
meanEs=mean(es);

```

```

%Geometric Return

```

```

close all;
RETURNE = xlsread('4 index data.xlsx');
sp=RETURNE(1:84,3);
kld=RETURNE(1:84,7);
jan=RETURNE(1:84,11);
tsx=RETURNE(1:84,15);
a=ones(84,1);
sp1=a+sp;
b=1;
for i=1:84
    b=sp1(i)*b
end
spg=((nthroot(b,84)-1)+1)^12-1;

```

```

kld1=a+kld;
b=1;
for i=1:84
    b=kld1(i)*b
end
kldg=((nthroot(b,84)-1)+1)^12-1;

```

```

jan1=a+jan;
b=1;
for i=1:84
    b=jan1(i)*b
end
jang=((nthroot(b,84)-1)+1)^12-1;

```

```

tsx1=a+tsx;
b=1;
for i=1:84
    b=tsx1(i)*b
end
tsxg=((nthroot(b,84)-1)+1)^12-1;

```

```

%Index Return, alpha, beta

```

```

clc
close all;
RETURNE = xlsread('4 index data.xlsx');
ustbill=RETURNE(1:84,18);
canadatbill=RETURNE(1:84,21);
sp=RETURNE(1:84,3);
kld=RETURNE(1:84,7);
jan=RETURNE(1:84,11);

```

```

tsx=RETURNE(1:84,15);
marpr1=sp-ustbill;
port1=kld-ustbill;
stats1 = regstats(port1, marpr1);
alpha1 = stats1.beta(1);
beta1= stats1.beta(2);
pvalue1 = stats1.tstat.pval(1);
marpr2=tsx-canadatbill;
port2=jan-canadatbill;
stats2 = regstats(port2, marpr2);
alpha2 = stats2.beta(1);
beta2= stats2.beta(2);
pvalue2 = stats2.tstat.pval(1);
pvalue3 = stats2.tstat.pval(2);

%SRI alpha
close all
clear
sheet=2;
data1 = xlsread('US Equity.xlsx',2,'AM3:AM38');
data2 = xlsread('risk_free.xlsx','B3:B37');
data3= xlsread('4 index data.xlsx','C3:C37');
logRe=nan(length(data2),1);
for i=2:length(data2)+1
logRe(i-1)=log(data1(i-1)./data1(i));
end
marpr1=data3-data2;
port1=logRe-data2;
stats1 = regstats(port1, marpr1);
alpha1 = stats1.beta(1);
beta1= stats1.beta(2);
pvalue1 = stats1.tstat.pval(1);

%SRI Return
close all;
clear;
sheet= 3;
data1 = xlsread('US Results.xlsx',sheet);
data2 = xlsread('risk_free.xlsx','B3:B86');
data3= xlsread('4 index data.xlsx','C3:C86');
data1(:,1)=[];
logRe=nan(length(data1)-1,size(data1,2));
for i=2:85
    logRe(i-1,:)=log(data1(i-1,:)./data1(i,:));
end
alpha = NaN(size(data1,2),1);
beta = NaN(size(data1,2),1);
pvalue1 = NaN(size(data1,2),1);
riskpr=data3-data2;
for idx = 1:size(data1,2)
    portfolio = logRe(:,idx) - data2;

```

```

stats1 = regstats(portfolio,riskpr);
alpha(idx) = stats1.beta(1);
pvalue1(idx)=stats1.tstat.pval(1)
end
meanAlpha=mean(alpha)

%Standard Deviation
close all
clear
sheet=2;
data = xlsread('Canadian Equity.xlsx',sheet);
data(:,1)=[];
len=length(data)*ones(1,15);
logRe=nan(length(data)-1,15);
for i=2:85
    logRe(i-1,:)=log(data(i-1,:)./data(i,:));
end
S_us=std(logRe)'.*sqrt(12);

```