Socially Responsible Firms and Stock Returns:
Evidence from Japanese Constituents in FTSE4Good Index

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Abstract

This paper investigates whether market players appreciate socially responsible firms better than conventional ones with the view on corporate social responsibility factors. Using a sample portfolio consisting of Japanese equities included in the FTSE4Good Index[2], the paper estimates that the risk-adjusted performance is positive at a statistically significant level by applying regression analysis over the period 2001–2010 which includes the recent financial crises. Furthermore, robustness tests are performed by considering style biases, etc.

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[2] http://www.ftse.com/ftse4good

1. Introduction

In recent years, an increasing number of firms proactively address corporate social responsibility (CSR) factors such as environment, social, and governance (ESG) issues. Recent cases suggest that it is possible to enhance corporate value by resolving the ESG issues through corporate efforts, such as risk management, stakeholder management, etc.

As a consequence of the aforementioned trends, various studies have been conducted on the relationship between the different aspects of ESG and corporate value. Most of the studies focus on the differences in market values and performance of socially responsible firms and conventional ones. If socially responsible firms and companies that take action to deal with corporate social responsibility issues record relatively better market returns compared to other firms, it could be concluded that corporate efforts to resolve ESG matters improve corporate values.

Prior studies mainly focus on two issues: socially responsible investment (SRI) funds and SRI indices. The present study discusses the controversial points of the former type of studies. Hamilton/Jo/Statman[1993] find no notable superior performances from SRI funds compared to conventional funds. Further, Bauer/Koedijk/Otten[2005] conclude that there is little evidence to show outstanding differences in risk-adjusted returns between SRI funds and conventional funds; they even exclude the investment style bias by applying a multi-factor model.

However, several questions remain. It is not clear whether excess returns could be brought about by other factors such as fund manager's skills. To deal with these points, Schröder[2007] analyses the performances of SRI indices instead of SRI funds and clarifies that the difference in risk-adjusted returns is much smaller than that of conventional indices. Statman[2000] shows supportive results by comparing the Domini Social Index[3] and the S&P500 Index. While these studies examine the performance of SRI indices, Derwall et al.[2005] examine the performance of equity portfolios based on corporate scores for ESG issues. Derwall et al.[2005] show substantial differences in the portfolio performance of high-score and low-score-firms based on the corporate eco-efficiency score[4] by Innovest Strategic Value Advisors. This approach considers all relevant factors at the individual stock level.

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[3] http://www.kld.com/indexes/ds400index/index.html

[4] See pp. 53-54 of Derwall et al.[2005] for details.

We examine whether socially responsible firms have excess returns as compared to that of conventional firms by monitoring a mimicking equity portfolio, which consists only of Japanese equities in the FTSE4Good Index.[5]

The rest of the paper is structured as follows. In Section 2, we explain the methodology of the analysis, and provide the data and descriptive statistics. Section 3 is the main part of the study and provides the empirical results of the regression analysis. Section 4 discusses some robustness tests. Finally, we present my observations and conclude the paper in Section 5.

2. Data and Methodology

2.1 Data

The constituents of the portfolios are the Japanese equities in the universe of the FTSE4Good Index which can be regarded as a proxy for socially responsible firms, since the constituents meet the criteria of the FTSE4Good Index. The criteria of FTSE4Good Index are as below[6]:

- Environmental Management/Climate Change
- Human and Labour Standards/Supply Chain Labour Standards
- Countering Bribery

Instead of applying the FTSE4Good Japan Index itself, we construct the equally weighted portfolio (Portfolio1) and the capitalization weighed portfolio (Portfolio2) using a sample of Japanese constituents in the universe of the FTSE4Good Index. The methods of composing sample portfolios followed the method of the FTSE4Good Japan Index based on the data provided by FTSE Group. Daily returns of each portfolio are calculated on the basis of the last prices from 8th November 2001 to 30th December 2010.

2.2 Methodology

We examine the hypothesis described below with the single-factor model (CAPM) and multi-factor model analyses, such as the Fama-French[1993] (FF3) model and the four-factor (FF4) model proposed by Carhart[1997].

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[5] http://www.ftse.com/ftse4good

[6] The inclusion criteria for the FTSE4Good index series are constantly evolving to address the concerns of stakeholders including investors. For further details please go to www.ftse.com/ftse4good

Hypothesis: The risk-adjusted returns driven by ESG issues should be positive at a statistically significant level.

The regression equations are as follows:

$$\text{CAPM: } R_{i,t} - R_{f,t} = \alpha_i + b_i EXM_t + \varepsilon_{i,t}$$
$$\text{FF3: } R_{i,t} - R_{f,t} = \alpha_i + b_i EXM_t + h_i HML_t + s_i SMB_t + \varepsilon_{i,t}$$
$$\text{FF4: } R_{i,t} - R_{f,t} = \alpha_i + b_i EXM_t + h_i HML_t + s_i SMB_t + m_i UMD_t + \varepsilon_{i,t} \quad (1)$$

where the EXM factor refers to excess returns against markets, the difference between the market portfolio return and the risk-free rate. The market portfolio covers the equities listed on the first and the second sections of the Tokyo Stock Exchange and the JASDAQ markets, and risk-free rate refers to the 1-month JP CD rate of the previous month. EXM, HML (high minus low), and SMB (small minus big) are risk factors proposed by Fama/French[1993]. The HML factor considers risks related to profitability and growth. It is computed by the difference between returns on paired portfolios—consisting of high book-to-market firms and low book-to-market firms. Similarly, the SMB factor is computed by the difference between returns on paired portfolios, that is, small and big firms. The UMD factor proposed by Carhart[1997] considers momentum risks; it is computed by the differences between returns on paired portfolios, that is, winner and loser equities, which have taken long and short positions, respectively, in the past 12 months. The left hand side (LHS) shows the excess return, that is, the difference between the portfolio return ($R_{i,t}$) and risk-free rate ($R_{f,t}$). The risk-adjusted returns (α_i) which are well known as Jensen's alpha are expressed by the intercept of equation (1). Table 1 presents daily returns and daily factor returns.

Table 1

Descriptive Statistics

Panel A: Portfolio Return		
	Portfolio 1	Portfolio 2
Mean	0.02	0.01
SD	1.42	1.51
Min	-9.51	-9.67
Median	0.04	0.05
Max	13.25	13.61

Panel B: Factor Return				
	MKT	SMB	HML	UMD
Mean	0.01	0.01	0.03	-0.01
SD	1.38	0.70	0.47	0.48
Min	-9.22	-3.72	-2.04	-2.77
Median	0.05	0.02	0.02	0.01
Max	13.40	5.22	2.10	1.86

Note:

Source: NFI.

Sample period is from 8/11/2001 to 30/12/2010.

Table 2

Regression Analysis of Excess Return over Risk-free Rate

	α	MKT	HML	SMB	UMD	AdjRSq
CAPM						
Portfolio1	0.015 **	1.008 ***				0.96
	(2.47)	(166.99)				
Portfolio2	0.002	1.061 ***				0.94
	(0.23)	(164.25)				
FF3						
Portfolio1	0.015 **	0.985 ***	0.018	-0.083 ***		0.96
	(2.53)	(151.53)	(1.15)	(-6.23)		
Portfolio2	0.012 *	0.936 ***	-0.246 ***	-0.353 ***		0.96
	(1.92)	(114.66)	(-12.48)	(-18.86)		
FF4						
Portfolio1	0.015 **	0.984 ***	0.019	-0.081 ***	-0.015	0.96
	(2.52)	(153.61)	(1.17)	(-5.95)	(-1.00)	
Portfolio2	0.012 *	0.936 ***	-0.246 ***	-0.352 ***	-0.008	0.96
	(1.91)	(105.05)	(-12.51)	(-20.33)	(-0.26)	

Note:

Source: NFI.

White(1980) heteroskedastic-consistent t-values are reported in parentheses.

Significance level at 10%(*), 5%(**), 1%(***)

3. Empirical Results of Regression Analysis

Table 2 shows the empirical results of regression analysis on excess returns over the risk-free rate. The numbers shown in parentheses indicate the t-value of heteroscedasticity regarding numbers above. In the case of Portfolio 1, all the alphas are 0.015% with a 5% significance level. As for the alpha of Portfolio2, however, the statistic significance is slightly lower but still positive at 0.012% with a 10% significance level except for CAPM model. The SMB factors of both portfolios that show significantly negative results. Compared with factors of FF3 model, the UMD factor of FF4 model does not show notable explanatory power.

4. Robustness Tests

This section examines the robustness of the results by considering measurement error problems such as screening bias. If the FTSE Japan Index constituents record superior stock performances, it is natural to bring the results in Section 3; equities belonging to the FTSE4Good index should record superior return driven by the "picking winners" effects. Likewise, the result could be explained by a sector bias for the same reason. To clear these arguments, robustness analyses are performed by focusing on validity of excess returns in the LHS of (1).

Firstly, adjustment on risk free rate for the regression and secondly matching portfolio analysis are carried out.[7]

4.1 Robustness check on excess returns

With making adjustments on benchmark risk-free rates by employing the return on the FTSE Japan Index constituents instead of orthodox risk-free rates, the robustness of excess returns was examined.

The results indicated in Table 3 show that the alphas of both portfolios are still positive, but no longer statistically significant. Especially in the case of CAPM, all of the estimates are statistically insignificant, and the adjusted r-square is equal to zero. It seems that there is little difference between the FTSE Japan Index constituents and the FTSE4Good Japan Index constituents. In contrast, in the case of FF3 model, all of the above risk factors turn out to be significantly negative. These results indicate that the FTSE4Good Japan Index constituents tend to have relatively low book-to-market values and large market capitalization. These

[7] For Portfolio1, the portfolio of the FTSE Japan Index constituents is based on equal weighting in order to avoid large-cap bias. For Portfolio2, market value weighting was applied.

characteristics are consistent with the results of FF4, which consider the momentum factor.

Table 3

Regression Analysis of Excess Return over FTSE Japan Index Constituents

	α	MKT	HML	SMB	UMD	AdjRSq
CAPM						
Portfolio1	0.003	-0.005				0.00
	(0.62)	(-1.36)				
Portfolio2	0.001	0.006				0.00
	(0.13)	(1.38)				
FF3						
Portfolio1	0.008	-0.055 ***	-0.114 ***	-0.138 ***		0.12
	(1.59)	(-9.97)	(-7.87)	(-11.92)		
Portfolio2	0.007	-0.050 ***	-0.160 ***	-0.146 ***		0.11
	(1.17)	(-7.82)	(-8.59)	(-10.92)		
FF4						
Portfolio1	0.008	-0.053 ***	-0.115 ***	-0.143 ***	0.044 ***	0.12
	(1.63)	(-9.67)	(-8.00)	(-13.43)	(3.25)	
Portfolio2	0.007	-0.050 ***	-0.160 ***	-0.145 ***	-0.012	0.11
	(1.16)	(-7.44)	(-8.59)	(-11.15)	(-0.54)	

Note:

Source: NFI.

White(1980) heteroskedastic-consistent t-values are reported in parentheses.

Significance level at 10%(*), 5%(**), 1%(***)

4.2 Matching portfolio analysis

Matching portfolio analysis considers industry bias and firm size. The Industry-matched portfolio constituents are paired-off for each industry from the universe of FTSE4Good Japan Index and sample portfolio consisting of constituents listed on the first section of Tokyo Stock Exchange which is not included in FTSE4Good Japan companies. A sample firm is randomly selected from the latter universe and the FTSE4Good Japan Index constituents on the basis of firm size. Then we apply CAPM, and FF3 and FF4 analyses on them.

In Table 4, the alphas of Portfolio 1 in the cases of both FF3 and FF4 are 0.017% at a 5% significance level. On the other hand, the alphas of Portfolio2 are not statistically significant, although the estimates are still positive. This result may be attributed to the lower performance in large-cap stocks as shown in Table 1. The results considering other risk factors are similar to those shown in Table 3.

Table 4

Regression Analysis of Excess Return over Industry-matched Portfolio

	α	MKT	HML	SMB	UMD	AdjRSq
CAPM						
Portfolio1	0.006	0.101 ***				0.10
	(0.70)	(11.39)				
Portfolio2	-0.006	0.160 ***				0.12
	(-0.49)	(12.64)				
FF3						
Portfolio1	0.017 **	-0.043 ***	-0.255 ***	-0.418 ***		0.39
	(2.36)	(-4.35)	(-11.24)	(-17.47)		
Portfolio2	0.008	0.006	-0.380 ***	-0.415 ***		0.27
	(0.70)	(0.47)	(-9.20)	(-13.57)		
FF4						
Portfolio1	0.017 **	-0.046 ***	-0.254 ***	-0.410 ***	-0.063	0.39
	(2.35)	(-3.76)	(-11.51)	(-18.58)	(-1.31)	
Portfolio2	0.008	-0.003	-0.376 ***	-0.390 ***	-0.199 ***	0.29
	(0.66)	(-0.17)	(-9.42)	(-12.00)	(-3.00)	

Note:

Source: NFI.

White(1980) heteroskedastic-consistent t-values are reported in parentheses.

Significance level at 10%(*), 5%(**), 1%(***)

5. Conclusion

This study investigates the market value of firms that emphasise on corporate social responsibility by comparing the performance of the FTSE4Good Japan Index constituents and others. According to the regression results, the alphas of the FTSE4Good Japan Index constituents are positive at a statistically significant level after controlling for the factors of investment style. These results show that the firms with corporate effort to address ESG issues could be appreciated in the markets.

Although some part of robustness tests supports the former results, its statistical significance declines with adjustments to control biases. The challenges to clarify this aspect are left for future research. Such further analysis might lead to some interesting studies to specify sources of the alpha.

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