CORPORATE OWNERSHIP CHOICE BASED ON ETHICAL CRITERIA: IS IT BIG ENOUGH TO NOTICE?

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Abstract

Ethical investors often exclude firms that participate in so-called controversial activities, such as tobacco, alcohol, firearms, gambling, the military, and nuclear operations, from their investment portfolios. Firms excluded in this way should experience an increase in their cost of capital and a reduction in their share prices. We use the KLD database to identify S&P 500 firms involved in controversial activities. Our results show no difference between controversial activity firms and other firms regarding relative share price and we find that the cost of capital of controversial activity firms is in fact lower. We conclude that ethical investing, of the type that excludes controversial activity firms, does not influence the capital markets in the expected way.

Keywords: Corporate ownership, Ethical investing, comparison of risk and return, controversial activity firms

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Introduction

Ethical investing has made great strides in recent times (Schueth 2003). Ethical funds attract individuals and groups who want their funds invested in socially responsible ways. Criteria differ, but most ethical funds screen out firms involved in controversial business activities from their portfolios (Social Investment Forum 2007). Screening is used to manage $2.1 trillion of the $2.7 trillion that is invested ethically in the US. The method of screening out firms involved in controversial business activities has been used since the 18th century, for example Entine (2003: 353) reports that during the 18th century some businessmen excluded firms involved in alcohol, tobacco and gambling, "so-called sinful behaviour". The first screened U.S. investment fund (in 1928) excluded firms involved in alcohol and tobacco and during the 1960s firms involved in military contracting became controversial (Entine 2003). More recently it is reported that ethical funds exclude firms involved in controversial business activities, such as tobacco, alcohol, firearms, gambling, military, and nuclear operations from their portfolios (Renneboog *et al.* 2008). Kinder, Lydenberg and Domini (KLD), an independent ratings company, provide information on whether firms are involved in these controversial business activities. We use the controversial business activities derived from the KLD database (i.e. alcohol, gambling, tobacco, firearms, military and nuclear power) as the controversial business activities in our study and motivate the use of the KLD database in a later section.[2]

Chatterji *et al.* (2009: 130) suggest that some ethical investors may avoid firms involved in controversial business activities in order to influence share prices "by raising the cost of capital for misbehaving firms and lowering it for socially responsible firms". According to Merton (1987: 500), "...an increase in the relative size of the firm's investor

[2] Although controversial business activity screens are historically widely used as ethical investment screens, we acknowledge that everyone will not necessarily regard all the controversial business issues as unethical. Investor's views on these issues differ, but they have the common trait of excluding any investments that might be seen to be supportive of human suffering or environmental degradation. We use the issues that have been identified over time as controversial and that are rated in the KLD database. In the rest of the paper we use the term "controversial business activities" (in scare quotes) to acknowledge that everyone will not regard these as unethical.

base will reduce the firm's cost of capital and increase the market value of the firm." This is further explained by Angel and Rivoli (1997: 57) when they state that "[w]hen investors exclude certain firms from their portfolios, the result is a segmented market: The firm has access to one segment of the equity market but not another. Finance theory suggests that the effects of equity market segmentation will be to raise the cost of equity capital." Bauer *et al.* (2005: 1752) also comment that "…socially responsible investors are able to influence the value of socially responsible companies by driving down their expected returns and cost of capital." Herremans *et al.* (1993: 590) furthermore state that the popularity of ethical investing "is likely to have caused a relative increase in the demand for, and hence prices of, the securities of companies considered to be especially responsible." This increase would be "relative" to the non-responsible companies. In summary, the accounting and finance literature suggests that firms that are screened out by some investors will experience an increase in their cost of capital and a reduction in their share prices. Such a lowering of share prices can be observed by referring to a measure of relative share price, such as return on equity (ROE) calculated using the market value of equity (Herremans *et al.* 1993). We therefore expect the ROE of "controversial activity" firms and their cost of capital to be higher than other firms if ethical investing is big enough to make a difference in capital markets.[3]

Using an analytical model for the reaction of firms (to investing sanctions), Heinkel *et al.* (2001) concluded that more than 20% ethical investing is needed before unethical firms would reform, because their cost of capital and thereby their share price would be adversely affected to the extent that spending money on reform makes economic sense. However, Entine (2003: 352) believes that "representations of the growing financial impact...of social investing are questionable". If ethical investing is not big enough, then Entine (2003) may be correct and the ethical investment community do not influence capital markets. If ethical investing is too small, "controversial activity" firms can still exist and thrive at no real disadvantage compared to other firms.

In this paper we split the S&P 500 into "controversial activity" and other firms using the KLD database measures, and compare their relative equity value and cost of capital for 2004, 2005 and 2006. We do not find significant differences between "controversial activity" and other firms on the relative value of equity measure and find, contrary to our expectation, that "controversial activity" firms have *lower* cost of capital. We, conclude, therefore, that ethical investing of the type that excludes "controversial activity" firms, does not involve large enough amounts of investment funds to influence the capital markets. Ethical investors will have to decide whether this information requires a change in their investment strategy.

Our study contributes to the literature by revealing this important information to ethical investors who will be interested in whether the impact of their investment activities influences firms and the capital markets. Our study also complements the existing literature that compares ethical fund returns to others, by focusing on the firm level and comparing "controversial activity" firm returns with other firm returns.

In the next section we give some background to ethical investing and then develop our hypothesis. We follow this with the method, results and conclusions.

Background and development of hypothesis

Background to ethical investing

Ethical investing is growing and in the US involved $2.7 trillion in 2007 (Social Investment Forum 2007). It has its modern roots in the "impassioned political climate of the 1960s" (Schueth 2003). Ethical investors may simply invest the way they do in order to avoid feelings of culpability for bad firm behaviour or they may hope to ultimately change firm behaviour. If ethical investing keeps attracting more and more investment funds, individual firms that are screened out by ethical investment funds will find it increasingly difficult to attract investment capital and this will adversely affect their share price (Herremans *et al.* 1993, Merton 1987, Bauer *et al.* 2005, Chatterji *et al.* 2009). A time may come when they are forced to change their behaviour in order to ensure continued funding at competitive rates through the capital markets.

Heinkel *et al.* (2001) explain that when ethical investors do not invest in, for example, polluting firms, this changes the risk sharing opportunities in the market. They use an analytical model to show that the lack of risk sharing leads to lower share prices for polluting firms and that this raises their cost of capital. In their model they found that if ethical investors constitute about 20% of the investor population, fewer neutral investors results in a lower share price for unacceptable firms and therefore the cost of capital for unethical firms increases to about 9.5% while that of ethical firms would be about 3.9% (Heinkel *et al.* 2001: 440). Thus, if ethical investing is big enough,

[3] The reason we expect ROE (calculated using the market value of equity) to be higher for "controversial activity" firms, is that the literature shows that equity markets will reduce the share price of these firms (see for example Merton 1987, Bauer *et al.* 2005, Chatterji *et al.* 2009, and Renneboog *et al.* 2008), but this will not have an impact on the earnings (net profit) of these firms. The resulting ROE figure will therefore be higher than it would have been if the share price was not reduced in this way.

the effect would be noticeable in the market through lower share prices and higher cost of capital for unethical firms. However, Schepers and Sethi (2003) conclude that despite exaggerated claims, ethical investment activities have thus far failed to influence the conduct of firms. Michelson *et al.* (2004), in a balanced view of the effects of ethical investing on firm behaviour, also raise the spectre that firms may not change to become acceptable to ethical investors.

Heinkel *et al.* (2001) make their predictions using an analytical model, but do not perform empirical tests using archival data. Our study provides empirical evidence regarding returns and cost of capital at the *firm level* comparing "controversial activity" firms versus other firms. This is in contrast with many other studies that consider returns of investment funds (ethical versus other funds), i.e. at the *fund level*. There are different forms of ethical mutual funds, but many of them are exclusionary, i.e. they screen out socially irresponsible firms (Renneboog *et al.* 2008). In the following sub-section, we discuss the standing of KLD, whose ratings we use in this study.

The motivation for using the KLD controversial business activities screens

Corporate social performance is difficult to measure consistently across a large number of firms, because social information is hard to collect and classify. Various ratings for corporate social performance exist, for example, KLD, Calvert, FTSE4Good and the Dow Jones Social Index. Chatterji and Levine (2008: Appendix 1) regard KLD as "one of the oldest and most influential social raters with $8 billion invested in funds based on its index". This is echoed by Sharfman and Hart (2009) who indicate that KLD data have been more widely used by researchers than any of the other measures of social performance. KLD has been providing performance benchmarks, corporate accountability research and consulting services, analogous to those provided by financial research service firms, since 1988.[4] KLD is a leading authority on social research and indices for institutional investors and has one of the largest independent corporate research staff complements in the world. According to Harrison and Freeman (1999) one of the advantages of the KLD ratings is that they are based on the extensive research of independent analysts employed by KLD and KLD clients use these ratings as a basis for investment decisions and advice.

KLD data have been used in many research studies, see for example Cho and Patten (2007), Mahoney and Roberts (2007), Entine (2003), Milne and Patten (2002), Agle *et al.* (1999), Berman *et al.* (1999), Griffin and Mahon (1997), Waddock and Graves (1997), Graves and Waddock (1994). Graves and Waddock (1994: 1039) indicate that the assessment scheme used by KLD offers the following benefits over rating mechanisms used in previous studies:

- the ratings are applied consistently across all firms and are replicable, because it was done by the same firm using an objective set of screening criteria (multiple attributes and the use of objective measures),
- it rates all of the Standard & Poor's 500 firms, because KLD operates a service that supplies information to the investment community at large (large resulting pool of data per year and over time), and
- the people doing the ratings consist of knowledgeable individuals not affiliated with any of the rated firms or with academic researchers (independent analysis).

KLD's process therefore provides unique access to a wide range of consistently rated firms over time and across a number of important social performance attributes.

The measurement of corporate social performance used can influence a study's results (Griffin and Mahon 1997) and if the metrics are invalid, the study may not find support for the hypothesized benefits of socially responsible investment (Chatterji and Levine 2008) or may not provide credible support. Chatterji and Levine (2008) and Sharfman and Hart (2009) focused on the social responsibility scores given by the various rating companies on a range of topics (for example community relations, corporate governance, diversity, employee relations, environment, human rights, and product quality and safety). They didn't comment on the validity of the controversial business activities screens that some of the rating companies use (for example, KLD specifically indicates whether firms take part in tobacco, alcohol, firearms, gambling, military, or nuclear activities). We couldn't find any research dealing with the validity of controversial business issue screens. Furthermore, Sharfman and Hart (2009) indicate that in academic research only the social responsibility ratings are used with any regularity (as opposed to the controversial business activities screens).

In this study we use the KLD controversial business activities screens to determine if the firms in our sample take part in tobacco, alcohol, firearms, gambling, military, or nuclear activities. KLD provides these screens, because there is a demand from their customers (including ethical funds) for this information. While this provides an additional reason for choosing these six activities as the "controversial activities" in our study, it is also arguably more objective since it is easier to accurately determine if a firm meets the requirements of one of the controversial business activities screens than to

[4] Currently, 33 of the top 50 institutional money managers worldwide use KLD's research to integrate environmental, social and governance factors into their investment decisions (KLD website).

determine its social performance with any measure of accuracy.[5] Using the controversial business activities screens may overcome the concern raised in the literature that corporate social performance ratings are "*extremely* value-laden" (Sharfman and Hart (2009: 29, emphasis in original), since firms either meet the requirements of the screen (i.e. are involved in tobacco or alcohol) or not. Individual investors and investment funds can use this information and decide how important it is to exclude these firms from their portfolios.

We take the six activities included in the controversial business activities screen as the "controversial activities" and use KLD data to assess individual firms' involvement. Using industry classifications would not be satisfactory, because firms in other (non-controversial) activities with subsidiaries or segments involved in "controversial activities" could be incorrectly classified.

Previous empirical findings – ethical funds

Although our study is at the firm level and not at the fund level, we report previous findings at the fund level briefly to provide some background. Sauer (1997: 137) concludes that a social-responsibility screen "does not necessarily have an adverse effect on investment performance". Kreander *et al.* (2005) found no difference in the financial performance of ethical and non-ethical funds in Europe. Similar findings were reported by Bauer *et al.* (2005) for US, UK and German mutual funds and by Bauer *et al.* (2007) in a Canadian setting. Bauer *et al.* (2006) find the same in Australia, although they find evidence of underperformance by ethical funds in earlier years (1992-1996) and attribute it to a catch-up phase. Boasson *et al.* (2004) examine the issue using faith-based funds as they "have the toughest exclusionary screens" and find no difference in financial performance with unrestricted funds. In a review of several studies of this nature, Fowler and Hope (2007) find that ethical funds either underperform or fail to outperform other funds. Bollen (2007) finds that ethical mutual funds experience lower fund flow volatility than other funds, suggesting that ethical investors are less likely to change their investment behaviour because of changes in financial performance. Furthermore, Schroder (2007) confirms that socially responsible investment indices' risk-adjusted returns are no different from that of conventional benchmarks.

In summary, there is no evidence that the financial performance of ethical funds is different from that of other mutual funds.

Previous empirical findings – ethical and socially-responsible firms

Since there is a dearth of studies at the firm level, we review a range of studies related to ethical and socially responsible firms. This includes social performance, reputation, social disclosure and charitable giving. Moore (2001) suggests that good social performance follows prior good financial performance, at least in the UK supermarket industry. Herremans *et al.* (1993) found that large US manufacturing firms with better social responsibility reputations outperform poor reputation firms with better share market returns and lower risk for the six years from 1982 to 1987. Eberl and Schwaiger (2005) split reputation into an assessment of competence and sympathy. They find a positive correlation between competence and financial performance, but a negative correlation between sympathy and financial performance after controlling for previous financial performance. Roberts and Dowling (2002) also control for previous performance and still find a positive correlation between reputation and profit.

Although social disclosure and ethical conduct differ, one could argue that firms predisposed to the one will be likely to be predisposed to the other. Murray and Gray (2006) found no relationship between share returns and social disclosure. Jones *et al.* (2007) also found very little evidence of a link between sustainability disclosures and abnormal returns.

Donations for good causes are arguably one part of good corporate social behaviour. In fact, Gardberg and Fombrun (2006) believe that charitable giving can increase the value of firms and Godfrey (2005) elaborates that perceived genuine giving will be rewarded, but perceived ingratiating giving will be punished by the market. Patten (2008) finds positive 5-day cumulative abnormal returns for US firms which donated tsunami-relief money in 2004.

In summary, at the individual firm level, there is no evidence of a correlation between social disclosure and financial performance, but there is evidence of a positive correlation between reputation and financial performance.

Development of Hypothesis

According to Herremans *et al.* (1993), ethical investing activities will depress the share prices of "controversial activity" firms (see also, Merton 1987, Bauer *et al.* 2005, Chatterji *et al.* 2009, and Renneboog *et al.* 2008). The reason for a lower share price is that potential shareholders will expect a higher cost of capital (Merton 1987). We examine whether the cost of capital and/or equity values (share price) are affected by ethical investing. A measure of relative share price will capture a decrease in share price. We follow Herremans *et al.* (1993) and use return on equity (ROE), specifically the accounting

[5] See Appendix 1 for the determinants of the KLD screens.

return over the market value of equity, as such a measure of relative share price.[6] The accounting profits of "controversial activity" firms will be unaffected by market reactions, but the market value of their equity will decrease, leading to an increase in the ratio of accounting profits measured against market equity.

We state our hypotheses as:

Hypothesis 1: Equity values of "controversial activity" firms will be adversely affected by ethical investing.

Hypothesis 2: The cost of capital of "controversial activity" firms will be adversely affected by ethical investing.

Measured by:

Hypothesis 1: The return on equity (ROE) of "controversial activity" firms will be higher than the ROE of other firms.

Hypothesis 2: The cost of capital of "controversial activity" firms will be higher than the cost of capital of other firms.

Control variables

Size and risk have been suggested in the literature to be factors that affect firm performance (Fama and French 1993, 1995, Waddock and Graves 1997). We use total sales as a measure for size in line with other studies in the literature (e.g. Waddock and Graves 1997). Since sales may not be normally distributed, we use the log of sales as our control variable for size. Studies of the type we do here, incorporate controls for risk or assess risk separately (e.g., Herremans *et al.* 1993, Orlitzky and Benjamin 2001, Kreander *et al.* 2005, Schroder 2007, Chirinko and Elston 2006). We use Beta from the capital asset pricing model (CAPM) and leverage (following Waddock and Graves 1997) to control for risk. In the CAPM, the only firm-specific measure is Beta, therefore we ignore the rest of the model and use firm Betas as a control variable for risk.

Where profitability measures (such as ROE) are the dependent variable, other measures of the level and quality of profitability are typically used as control variables (see for example Grullon *et al.* 2005). We use quality of earnings, measured as cash flow from operations scaled by earnings, and operating margin as control variables.[7] According to Richardson and Welker (2001), disclosure levels can influence the cost of capital, therefore we include a social and environmental disclosure strength measure from KLD in the cost of capital regression to control for this effect. We exclude leverage and Beta from this equation, as these are used to calculate cost of capital.

Equations estimated

ROE = *f*(ContrIndicator, Beta, Size (Log of Sales), Quality of Earnings, Operating margin, Leverage)

Cost of Capital = *f*(ContrIndicator, Size (Log of Sales), Quality of Earnings, Operating margin, Disclosure)

We hypothesise that "controversial activity" firms will have a higher ROE and Cost of capital and, therefore expect positive correlations.

Where:

ROE = net income divided by the multiple of share price at balance date and number of shares in issue

Cost of capital = weighted average cost of capital calculated by way of the capital asset pricing model

ContrIndicator = 1 if the firm has tobacco, alcohol, firearms, gambling,military, or nuclear activities and 0 otherwise

Beta = control variable for risk (share price volatility)

Size (Log of Sales) = control variable for size

Quality of Earnings = cash flow from operations divided by earnings (net income)

Operating margin = net income divided by sales

Leverage = liabilities divided by total assets

Disclosure = 1 if the firm has a social and environmental disclosure strength

Method

We use the KLD database to determine if S&P 500 firms are involved in tobacco, alcohol, firearms, gambling, military, or nuclear activities[8] (see the background section above for the rationale) and to determine whether firms have a particular strength in social and environmental disclosure. We obtain financial data for the 2004, 2005 and 2006 years from the Compustat database. After discarding firms not

[6] The ROE measure that we use (the accounting net profit over the market value of equity) is the inverse of the Price Earnings Ratio, a well regarded market ratio (see for example, Ou and Penman 1989; White *et al.* 2003). Furthermore, we use a relative measure of share price as actual share prices are not comparable across firms since share prices are influenced by factors such as the number of shares in issue, etc.

[7] We controlled for industry as well. This made no difference to our results, except that the adjusted R-square of the model increased. We report the results without the industry controls for the sake of simplicity.

[8] KLD indicates in their database whether firms are involved in any of six controversial activities - see Appendix 1 for the determinants of the KLD screens. We take the six activities included as the "controversial business activities" for our study and use KLD data to assess individual firms' involvement. We individually assessed each S&P500 firm across the six controversial activities using the KLD data to indicate involvement or not.

rated by KLD; firms with missing financial data on Compustat; and two firms with extreme outliers (one in 2004 and one in 2005) with regards to the calculated figure of ROE, our sample includes 1201 firm-year observations.

Results

Descriptive statistics and Univariate results

Table 1 provides the results of our univariate tests that examine the differences of the means of the variables used between the "controversial activity" firms and other firms. The means and standard deviations are shown.

Insert Table 1

To emphasise some of the points, we would like to point out that Table 1 shows:

- as expected, that the "controversial activity" firms have a higher ROE, however the difference is not significant.
- contrary to our expectation, that "controversial activity" firms have a lower cost of capital (significant at the 1% level).
- that the "controversial activity" firms have a lower Beta (significant at the 5% level).
- that the "controversial activity" firms are bigger in terms of sales revenue (significant at the 1% level).
- that the operating margin of "controversial activity" firms is significantly (at the 1% level) lower than that of other firms.
- that the leverage of "controversial activity" firms is significantly (at the 1% level) higher than that of other firms.

Both our expectations, that the "controversial activity" firms will have a higher ROE as well as have a higher cost of capital, have not been confirmed in the univariate analysis. The observations of significant differences in the other variables between the two groups confirm the need for multivariate analyses where we control for these factors.

Multivariate results

We consider the correlation between our variables of interest in order to ensure that the multivariate results are not influenced or driven by multi-collinearity. The results of the Pearson correlations are shown in Table 2. From Table 2 it is clear that none of the measures are highly correlated with each other. The highest correlation of measures used in the same equation (neither Beta nor leverage is used in the cost of capital equation), is between our size measure and leverage, which at 0.337 is far below the 0.70 level of concern noted in the literature (Stevens 1999).[9]

Insert Table 2

In Table 3 we report our multivariate analyses with ROE as the dependent variable in Panel A and with cost of capital as the dependent variable in Panel B. Overall our multivariate results as reported in Table 3 show fairly low adjusted R-squares (10.4% and 12.3%), but the model is highly significant and individual control variables are highly significant, again confirming the appropriateness of the control variables. Papers with adjusted R-squares as low as 3% and 4% are published in the top finance journals (see for example Atanassov and Kim 2009), as long as the purpose of the model is not to predict outcomes, but to make deductions and conclusions with reference to the significance level of individual variables (Stock and Watson 2007). We are primarily interested in the significance of the independent variable, ContrIndicator. Several robustness tests confirm our results and report higher R-squares of up to 20.9%.

Insert Table 3

We hypothesize "controversial activity" firms to have higher ROE than others. However, in Panel A the ContrIndicator variable is not significant, even at the 10% level (see Column 2). We use ROE (calculated using the market value of equity) to find evidence that capital markets notice the involvement of ethical investing activities by depressing the share values of "controversial activity" firms relative to other firms (Herremans *et al.* 1993: 590). We therefore find no evidence that capital markets depress the share prices of "controversial activity" firms (or increase the share prices of other firms). Given the non-significance of our independent variable (the ContrIndicator dummy variable), we estimate the model without this variable to determine if it contributes to the explanatory value of the model. The results can be seen in Table 3, Panel A, Columns 3 and 4. The adjusted R-square of the model remains the same with and without the independent variable (ContrIndicator), showing that it does not contribute to the explanatory value of the model.

In Panel B, we report the results of our comparison of the cost of capital of "controversial activity" firms with others. We expect a positive correlation, i.e. "controversial activity" firms to have higher cost of capital. However, as in the univariate test, the results show that "controversial activity" firms have a lower cost of capital. You may recall that Merton (1987), Bauer *et al* (2005), and many others

[9] We also tested multicollinearity using VIF tests and this confirmed that none of the measures are highly correlated with each other.

state that the effect of ethical investing would be to increase the cost of capital of "controversial activity" firms and/or reduce the cost of capital of other firms.

We conclude that capital markets do not notice the effect of ethical investing, however, we subject our results to some robustness tests (see Table 4).

Insert Table 4

In Table 4 we report the results of our robustness tests with ROE as the dependent variable in Panel A and with Cost of capital as the dependent variable in Panel B. We winsorise the data, by setting the top 5% of variable values to the 95th percentile and the bottom 5% to the 5th percentile (Table 4, Column 1). We also trim the data (removing the top and bottom 5% of all variables) and estimate the equation with trimmed data (Table 4, Column 2). We further estimate separate regressions for each year (Table 4, Columns 3-5). In each case, our primary results are confirmed, i.e. ContrIndicator remains non-significant in Panel A and negative in Panel B. We also estimate the (ROE) regression with industry control variables included and again confirm our main result (untabulated).

Conclusions and limitations

We expect that if large numbers of ethical investors exclude "controversial activity" firms from their investment portfolios, that the cost of capital and the share prices of these "controversial activity" firms will be adversely impacted (Bauer *et al.* 2005, Herremans *et al.* 1993). It has been estimated that if 20% of investment funds are invested in this way, that the effect would become noticeable (Heinkel *et al.* 2001). If share prices are depressed, accounting returns on the market value of equity will be higher. We find no evidence that capital markets notice the activities of ethical investors, because, according to our tests, accounting returns on the market value of equity are similar for "controversial activity" firms and other firms and furthermore because "controversial activity" firms have *lower* cost of capital. The reason may be that ethical investing, using the criteria we use, are still below the 20% threshold required before a difference will become noticeable. Furthermore, as Heinkel *et al.* (2001) point out, in practice different ethical investors apply different ethical screens. If an unacceptable firm is screened out by only a fraction of ethical investors, its cost of capital will not rise as much as it would have if all ethical investors had excluded it.

A well developed body of research on the returns from ethical investment funds shows that ethical fund returns are mostly equal to (but sometimes lag) other funds. Our study complements these findings by considering firm level returns and concluding that they are similar for "controversial activity" firms and other firms.

The implications for ethical investors are that:

1. Ethical investing strategies are not, at present, detrimental to "controversial activity" firms and these firms may choose to simply ignore the ethical investing community,
2. Investors not screening out "controversial activity" firms are still profiting from their investments and is similarly unaffected by the ethical investing community,
3. Ethical investors should consider new strategies if they aim to influence firms and/or markets, because according to our results their activities currently do not have the results they might expect, and
4. Ethical investors can take heart in the fact that their strategy of avoiding "controversial activity" firms do not , according to our results, result in lower financial returns (other than to reduce diversification options).

We limit our investigation to S&P 500 firms. Care should be taken in generalising our findings to other firms and other markets. Using a different definition of "controversial activities" may also lead to different results, although we do use the criteria of the most popular commercial ratings organisations (KLD).

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Tables

Table 1. Descriptive statistics and univariate tests for differences between "controversial activity" firms and other firms for the period from 2004 to 2006

	"Controversial activity" firms	Other firms	
Variable	Mean (std. dev.)	Mean (std. dev.)	t-statistic
ROE	0.045 (0.0887)	0.040 (0.1911)	0.333
Cost of Capital	0.061 (0.0241)	0.071 (0.0332)	4.178***
Beta	1.035 (0.4869)	1.119 (0.5330)	2.097**
Size(Log of Sales)	9.291 (0.9176)	8.952 (1.1941)	3.833***
Quality of earnings	0.724 (0.4627)	0.738 (1.7091)	0.115
Operating margin	0.116 (0.0943)	0.140(0.1229)	2.572***
Leverage	0.676 (0.1467)	0.581 (0.2122)	6.141***
Disclosure	0.141 (0.3486)	0.109 (0.3123)	1.284
N	204	997	

"Controversial activity" firms are firms involved in tobacco, alcohol, firearms, gambling, military, and nuclear operations
ROE = Return on market value of equity
N = Number of firms
***, **, * denotes significance at the 1%, 5%, 10% levels (two-tailed), respectively

Table 2. Pearson correlations

	Contr Indicat	Cost of Cap	ROE	Beta	Size	Qual earn	Oper mar	Lever age
Cost of Capital	-0.120							
ROE	0.012	0.100						
Beta	-0.062	0.577	-0.154					
Size	0.107	-0.336	0.029	-0.098				
Quality of earnings	-0.003	-0.042	-0.072	-0.023	-0.021			
Operating margin	-0.074	0.114	0.207	-0.117	-0.184	0.003		
Leverage	0.175	-0.763	-0.106	-0.067	0.337	-0.021	-0.254	
SE Discl. strength	0.037	-0.039	-0.006	-0.011	0.249	-0.002	-0.032	0.009

ContrIndicat = 1 if firm involved in "controversial activities", namely tobacco, alcohol, firearms, gambling, military, and nuclear operations and 0 otherwise
Cost of Cap = Weighted average cost of capital calculated using the capital asset pricing model
ROE = Return on market value of equity
Size = Size measured by log of sales
Qual earn = Quality of earnings measured by cash flow from operations divided by earnings
Oper mar = Operating margin measured by net income divided by sales
Leverage = measured by liabilities divided by total assets
SE Discl. Strength = Social and environmental disclosure strength measure (from the KLD database)

Table 3. Multivariate analysis

Panel A: Dependent variable – ROE				
	Including ContrIndicator		Excluding ContrIndicator	
	T statistic	Significance	T statistic	Significance
	Column 1	*Column 2*	*Column 3*	*Column 4*
ContrIndicator	1.007	0.314		
Beta	-7.461	0.000***	-7.562	0.000***
Size (Log Sales)	1.951	0.050**	2.003	0.045**
Quality of earnings	-3.240	0.001***	-3.215	0.001***
Operating margin	4.694	0.000***	4.675	0.000***
Leverage	-4.210	0.000***	-4.103	0.000***
Constant	1.683	0.093*	1.655	0.098*
Adjusted R^2	0.104		0.104	
Significance of the model		0.000***		0.000***
N	1201		1201	

Panel B: Dependent variable – Cost of Capital		
	T statistic	Significance
ContrIndicator	-3.057	0.002***
Size (Log Sales)	-11.626	0.000***
Quality of earnings	-1.825	0.068*
Operating margin	1.782	0.075*
SE Discl. strength	1.735	0.083*
Constant	20.711	0.000***
Adjusted R^2	0.123	
Significance of the model		0.000***
N	1201	

ROE = Return on market value of equity
Cost of Capital = Weighted average cost of capital using the capital asset pricing model
ContrIndicator = firms involved in tobacco, alcohol, firearms, gambling, military, and nuclear_operations
Quality of earnings = Cash flow from operations divided by earnings
SE Discl. Strength = Social and environmental disclosure strength measure (from KLD database)
N = number of firms
***, **, * denotes significance at the 1%, 5%, 10% levels

Table 4. Robustness tests

Panel A: Dependent variable: ROE					
	Winsorise	Trim	2006	2005	2004
	T stat	T stat	T stat	T stat	T stat
ContrIndicator	0.477	0.733	1.007	-1.782	0.985
Beta	3.250***	1.103	1.801	0.396	-5.559***
Size (Log Sales)	11.177***	5.045***	2.314	2.938***	0.473
Quality of earnings	-3.708***	-3.361***	-0.580	6.756***	-2.119**
Operating margin	14.218***	3.159***	6.193***	6.650***	1.864
Leverage	4.586***	7.120***	-0.495	0.484	-2.878***
Constant	-7.158***	0.240	-1.537	-3.513***	2.099**
Adjusted R^2	0.209	0.124	0.095	0.187	0.132
Significance of the model	0.000***	0.000***	0.000***	0.000***	0.000***
N	1201	734	395	403	403

Panel B: Dependent variable – Cost of Capital					
	Winsorise	Trim	2006	2005	2004
	T stat	T stat	T stat	T stat	T stat
ContrIndicator	-3.566***	-3.387***	-1.973**	-1.996**	-1.347
Size (Log Sales)	-10.373***	-5.042***	-4.702***	-5.074***	-9.907***
Quality of earnings	0.849	3.100***	0.747	1.205	-2.531**
Operating margin	2.486**	1.234	3.134***	2.640***	-1.998**
SE Discl. strength	1.548	0.933	1.056	0.544	1.014
Constant	17.876***	11.012***	8.924***	9.913***	16.098***
Adjusted R^2	0.117	0.062	0.098	0.101	0.208
Significance of the model	0.000***	0.000***	0.000***	0.000***	0.000***
N	1201	839	395	403	403

ROE = Return on market value of equity
Cost of Capital = Weighted average cost of capital using the capital asset pricing model
ContrIndicator = firms involved in tobacco, alcohol, firearms, gambling, military, and nuclear operations
Quality of earnings = Cash flow from operations divided by earnings
SE Discl. Strength = Social and environmental disclosure strength measure (from KLD database)
Winsorise – The top and bottom 5% of each variable in the equation was set to the 95^{th} percentile and the 5^{th} percentile respectively
Trim – Firm year observations with variables in the top and bottom 5% of observations for the variable was removed
N = number of firms
***, **, * denotes significance at the 1%, 5%, 10% levels

Appendix 1

Controversial Business Activities – Summary of the KLD Screening Criteria

	Alcohol	Gambling	Tobacco	Firearms	Military	Nuclear Power
Licensing[1]	yes	yes	Yes			
Manufacturers[2]	yes	yes	Yes	yes	2% or more or >$50mil	yes
Manufacturers of products necessary for the production[3]	15% or more of revenue		15% or more of revenue		2% or more of revenue or >$50mil	yes
Retailers[4]	15% or more of revenue		15% or more of revenue	15% or more of revenue		
Owners and operators[5]		yes				yes
Supporting services[6]		yes				yes
Ownership	For all Issues, company is more than 50% owned by a company with a controversial activity involvement; the company owns more than 20% of another company with a controversial activity involvement					

Notes to appendix 1:

1. Yes for Licensing means the company licenses its company or brand name to the product.
2. Yes for Manufacturers means the company are involved in the manufacturing of the product.
3. Manufacturers of products necessary for production relates to companies manufacturing products that are necessary for the production of the controversial product. Yes for this category means any manufacturing.
4. Retailers are companies deriving income from the distribution or the product (wholesale or retail).
5. Yes for Owners and operators means that the company owns or operates the controversial operation.
6. Yes for Supporting services means the company provides supporting services to the controversial operation.