

See discussions, stats, and author profiles for this publication at:  
<https://www.researchgate.net/publication/228018553>

# The Financial Performance of Ethical Investment Funds

Article in *Journal of Business Finance & Accounting* · December 2006

DOI: 10.1111/j.1468-5957.1995.tb00373.x

---

CITATIONS

169

---

READS

570

3 authors, including:



**Chris Mallin**

University of East Anglia

**58 PUBLICATIONS 799**

CITATIONS

SEE PROFILE



**Brahim Saadouni**

The University of Manches...

**29 PUBLICATIONS 322**

CITATIONS

SEE PROFILE

## THE FINANCIAL PERFORMANCE OF ETHICAL INVESTMENT FUNDS

C.A. MALLIN, B. SAADOUNI AND R.J. BRISTON\*

### INTRODUCTION

There has been a considerable increase in the number of ethical trusts in the UK over the last ten years. Most studies of ethical trusts (for example Harte et al., 1991; and Perks et al., 1992) have tended to concentrate on their investment policies (e.g. are the companies that they invest in themselves operating in an ethical manner), whilst there has been comparatively little empirical work carried out on the financial performance of ethical investment funds. In this paper this issue is addressed by analysing the financial performance of UK ethical investment funds, and comparing their performance with that of UK non-ethical investment funds, and with benchmark portfolios.

### REVIEW OF THE EMPIRICAL EVIDENCE

Most of the studies which have examined the performance of unit trusts have found that they do not outperform the market, and in some cases significantly underperform the market. This conclusion seems to pervade across continents as well. In the UK, Samuels (1968), Ward and Saunders (1976), Guy (1978) and Moles (1981) found that unit trusts did not outperform the market; whilst Robson (1986) produced similar findings for Australia. These studies are therefore all supportive of the early studies in the US by Treynor (1965), Sharpe (1966), and Jensen (1968 and 1969). It should be noted that Luther, Matatko and Corner (1992) found weak evidence of overperformance in a study of UK ethical unit trusts but they state that 'it is difficult to disentangle ethical from small company effects'. This study attempts to overcome this shortcoming *by using a matched sample approach* as discussed in the 'Data' section below.

Another recent dissenting paper was by Black, Fraser and Power (1992) who in a study of 30 UK unit trusts over the period 1980–1989 found that 21 of the 30 trusts in the sample were able to supply investment opportunities to the individual investor which were superior to a buy-and-hold strategy. The

\* The first author is Lecturer in Accounting and Finance, Warwick Business School, University of Warwick, and ICAEW Academic Fellow; the second and third authors are respectively, Lecturer in Finance, and Professor of Accounting and Finance, University of Hull. Thanks are due to Steve Tuplin for help with data collection. (Paper received July 1994, revised and accepted January 1995)

**Address for correspondence:** C.A. Mallin, Department of Accounting and Finance, Warwick Business School, University of Warwick, Coventry CV4 7AL, UK.

unique feature of Black et al. is that the performance of unit trusts is analysed while permitting market risk to vary. They use a model which allows for time-varying risk: the CAPM model in 'state space'. The results contrast sharply with the findings of earlier studies on the ability of unit trusts to beat the market while using fixed beta methodology.

However, none of the studies to date has tried to differentiate between ethical and non-ethical trusts and compare their performance. This paper concentrates on analysing the performance of the ethical and non-ethical funds using the 'traditional' risk-adjusted measures used in the majority of studies previously carried out i.e. the Jensen, Sharpe and Treynor measures.

There are a number of statistical problems in comparing fund performance. Ashton (1990), in a theoretical paper, analysed the problems associated with detecting superior investment performance by checking for the presence, or otherwise, of a risk adjusted abnormal return, i.e. he investigated the reason for the possible failure of the Jensen methodology to detect superior performance. He stated that the failure appears to arise from two main causes:

- (i) a failure to identify correctly the relationship between superior performance based on superior information and appropriate tests of superior performance (Dybvig and Ross, 1985), and
- (ii) possibly more importantly, the weakness of the statistical test used. This, he argues, is the real reason why so many empirical investigations have been forced to accept the null hypothesis of no evidence of superior performance.

#### DATA

The total population of all ethical trusts was obtained from Finstat and cross-checked to other sources to ensure that the sample was complete and correctly classified. An ethical fund is defined as one which has either stated 'negative criteria' or 'positive criteria'. The 'negative criteria' funds might have a policy not to invest in certain industries (for example, alcohol, tobacco, gambling, armaments, pornography) or in certain countries (for example those with oppressive regimes — until recently South Africa was the prime example). The 'positive criteria' funds might have a policy of investing in companies which are environmentally friendly. Some funds have objectives which combine negative and positive criteria.

A matched sample was created so that the performance of every ethical trust could be compared to a non-ethical trust. The sample was matched, as far as possible, on the basis of fund size and the date the fund was formed. This method of matching should help to eliminate the effect of specific characteristics which may be endemic in ethical investment funds' portfolios. These special characteristics are (i) the comparatively short time that most ethical funds have been in existence and (ii) the fact that their portfolios tended to consist of

Table 1

## UK Ethical Investment Funds and the Matched Sample of UK Non-Ethical Investment Funds

<i>Trust Ref.</i>	<i>Ethical Trusts Name of Fund</i>	<i>Date Started</i>	<i>Trust Ref.</i>	<i>Non-Ethical Trusts Name of Fund</i>	<i>Date Started</i>
(1A)	Abbey Ethical	12/91	(1B)	Acuma UK Equity	12/91
(2A)	Friends Provident Stewardship	1/86	(2B)	Cannon 2nd Equity	1/86
(3A)	NM Conscience	11/87	(3B)	Irish Life Global Equities	11/87
(4A)	Scottish Equitable	12/91	(4B)	Barclays Life Leisure	12/91
(5A)	Clerical/Fidelity Evergreen	8/92	(5B)	Black Horse Worldwide	8/92
(6A)	Homeowners Green Chip	9/92	(6B)	Criterion Managed Fund	9/92
(7A)	Homeowners Green Chip 2	9/92	(7B)	City of Westminster Adventurous Manag.	9/92
(8A)	Skandia Ethical	4/92	(8B)	Consolidated Life	4/92
(9A)	Abbey Ethical Pension	7/92	(9B)	American Life UK Equity	7/92
(10A)	Friends Provident Steward. Pens. Acc.	7/86	(10B)	London Life Equity	7/86
(11A)	Skandia Eth. Sel.	8/92	(11B)	Citibank Green Series 2	8/92
(12A)	Abbey Ethical	10/87	(12B)	Metropolitan UK Growth	10/87
(13A)	Allchurches Amity	4/88	(13B)	Arkwright Growth	4/88
(14A)	Eagle Star Environ.	10/89	(14B)	Invesco Rupert Childrens	10/89
(15A)	Friends Prov. Stew.	1/86	(15B)	Allied Dunbar Overseas Earnings	1/86
(16A)	NM Conscience	11/87	(16B)	Laurentian Growth	11/87
(17A)	Scottish Equitable	12/91	(17B)	S&P Special Sitns.	12/91
(18A)	Sovereign Ethical	12/89	(18B)	Baring UK Growth	12/89
(19A)	TSB Environmental Investor Fund	8/89	(19B)	Abbey Assets & Earnings	8/89
(20A)	Friends Prov. Stewardship Income	1/86	(20B)	Edinburgh Growth & Income	1/86
(21A)	Acorn Ethical Trust	4/89	(21B)	Brown Shipley Intern'l Growth	4/89
(22A)	Clerical Medical Evergreen Acc.	4/90	(22B)	Baring Global Growth	4/90
(23A)	Edinburgh Global Opps.	12/87	(23B)	Legal & General Overseas Equity	12/87
(24A)	Framlington Health	11/91	(24B)	GA Growth Portfol.	11/91
(25A)	Merlin Jupiter Ecology	6/88	(25B)	Merlin Jupiter Intern'l Growth	6/88
(26A)	NPI Global Care Acc.	9/93	(26B)	Hambros Intern'l	9/93
(27A)	Friends Prov. Stew. N. America	1/86	(27B)	Cornhill North American	1/86
(28A)	CU Environmental Exempt Pension	8/91	(28B)	Gartmore Pen. Str. UK	8/91
(29A)	TU British Trust	1/86	(29B)	Eagle Star UK Bal.	1/86

investments in smaller companies and so may be subject to a small company effect. These characteristics might well make comparison with a 'traditional' benchmark, such as the *FTSE 100*, somewhat misleading, therefore this paper tries to overcome this in two ways, firstly, by comparing each ethical trust to a non-ethical one having the same formation date and fund size (see Tables 1 and 2), and secondly, by using the *Financial Times All Share Actuaries* as the market benchmark.

Table 2

## UK Ethical Investment Funds and the Matched Sample of UK Non-Ethical Investment Funds

<i>Trust Ref.</i>	<i>Ethical Trusts Name of Fund</i>	<i>Fund Size £mn</i>	<i>Trust Ref.</i>	<i>Non-Ethical Trusts Name of Fund</i>	<i>Fund Size £mn</i>
(1A)	Abbey Ethical	1.5	(1B)	Acuma UK Equity	1.6
(2A)	Friends Provident Stewardship	77.5	(2B)	Cannon 2nd Equity	71.7
(3A)	NM Conscience	2.0	(3B)	Irish Life Global Equities	3.3
(4A)	Scottish Equitable	1.7	(4B)	Barclays Life Leisure	3.7
(5A)	Clerical/Fidelity Evergreen	2.0	(5B)	Black Horse Worldwide	1.9
(6A)	Homeowners Green Chip	5.8	(6B)	Criterion Managed Fund	5.6
(7A)	Homeowners Green Chip 2	1.1	(7B)	City of Westminster Adventurous Manag.	1.1
(8A)	Skandia Ethical	1.6	(8B)	Consolidated Life	1.4
(9A)	Abbey Ethical Pension	5.5	(9B)	American Life UK Equity	6.4
(10A)	Friends Provident Steward. Pens. Acc.	72.1	(10B)	London Life Equity	96.7
(11A)	Skandia Eth. Sel.	0.3	(11B)	Citibank Green Series 2	0.6
(12A)	Abbey Ethical	15.7	(12B)	Metropolitan UK Growth	15.6
(13A)	Allchurches Amity	15.1	(13B)	Arkwright Growth	13.4
(14A)	Eagle Star Environ.	10.3	(14B)	Invesco Rupert Childrens	12.0
(15A)	Friends Prov. Stew.	131.7	(15B)	Allied Dunbar Overseas Earnings	155.9
(16A)	NM Conscience	11.4	(16B)	Laurentian Growth	15.5
(17B)	Scottish Equitable	10.2	(17B)	S&P Special Sitns.	13.7
(18A)	Sovereign Ethical	7.5	(18B)	Baring UK Growth	5.7
(19A)	TSB Environmental Investor Fund	20.0	(19B)	Abbey Assets & Earnings	20.3
(20A)	Friends Prov. Stewardship Income	30.8	(20B)	Edinburgh Growth & Income	31.7
(21A)	Acorn Ethical Trust	3.4	(21B)	Brown Shipley Intern'l Growth	3.0
(22A)	Clerical Medical Evergreen Acc.	11.4	(22B)	Baring Global Growth	11.1
(23A)	Edinburgh Global Opps.	2.7	(23B)	Legal & General Overseas Equity	2.6
(24A)	Framlington Health	7.9	(24B)	GA Growth Portfolio	8.2
(25A)	Merlin Jupiter Ecology	10.1	(25B)	Merlin Jupiter Intern'l Growth	11.2
(26A)	NPI Global Care Acc.	3.2	(26B)	Hambros Intern'l	3.3
(27A)	Friends Prov. Stew. N. America	4.4	(27B)	Cornhill North American	5.1
(28A)	CU Environmental Exempt Pension	10.9	(28B)	Gartmore Pen. Str. UK	10.7
(29A)	TU British Trust	7.4	(29B)	Eagle Star UK Bal.	13.6

Monthly observations were collected on the ethical and non-ethical trusts. The trust prices are mid-market closing prices net of all costs and were collected from Datastream. The dividend information was collected from the *Unit Trust Year Book* (1993).

The proxies for market return and the risk-free interest rate are more problematic. One of the previous main studies of UK data by Ward and

Saunders (1976) examined 49 UK unit trusts over nine years 1964–1972. Ward and Saunders used annual data with the 12-month deposit rate (Local Authority) as the measure of risk free return ( $R_f$ ) and *FT 650 Index* ( $R_{mt}$ ) as a proxy for the market. The authors of this paper feel, in line with the type of difficulties raised by Roll (1977), that these proxies may well not have provided reasonable representations of the risk free return and the market. Indeed Ward and Saunders themselves gave as one of the possible explanations for their results that the selection of the Index to represent the market portfolio may have been incorrect.

It was therefore decided to use the monthly returns on the *Financial Times All Share Actuaries Index* as a proxy for market returns, and the monthly return on the three-month Treasury Bill as a proxy for the risk-free interest rate. The data was collected from Datastream.

#### HYPOTHESES AND RESEARCH METHODOLOGY

The financial performance of the total population of UK ethical investment funds over the period 1986–1993 is analysed. The null hypotheses to be tested were as follows:

- (i) ethical investment funds do not outperform (or underperform) the market,
- (ii) the performance of ethical investment funds is no different to that of non-ethical investment funds.

Direct comparisons between the various ethical investment funds are made, following the methodology of Friend, Blume, and Crockett (1970). The performance of the funds are then analysed using several different one-parameter performance measures to evaluate the portfolios:

- (i) the excess return to variability measure (Sharpe, 1966),
- (ii) the excess return to nondiversifiable risk (Treynor, 1965), and
- (iii) the differential return with risk measured by beta (Jensen, 1969).

The present paper overcomes the shortcomings of Luther, Matatko and Corner (1992), Luther and Matatko (1994) and Black, Fraser and Power (1992) as none of these papers compares the financial performance of ethical trusts to that of non-ethical trusts.

#### EMPIRICAL RESULTS

The mean annualised returns were calculated from the monthly data for all the ethical and non-ethical funds, and for the *FTASA* for the period of activity of each fund (i.e. from the formation date to the end of the sample period in

Table 3

Analysis of Mean Rates of Return on UK Ethical Investment Funds, UK Non-Ethical Investment Funds and Benchmark Market Portfolio

<i>Ethical Trusts</i>			<i>Non-Ethical Trusts</i>			<i>Market (FTASA)</i>
<i>Trust Ref.</i>	<i>Mean Ann. Return %</i>	<i>Mean Ex. Return %</i>	<i>Trust Ref.</i>	<i>Mean Ann. Return %</i>	<i>Mean Ex. Return %</i>	<i>Mean Ann. Return %</i>
(1A)	13.44	-3.65	(1B)	25.60	8.51	17.09
(2A)	12.78	-0.14	(2B)	12.06	-0.86	12.92
(3A)	9.84	-1.85	(3B)	9.41	-2.28	11.69
(4A)	15.46	-1.63	(4B)	11.70	-5.39	17.09
(5A)	32.04	7.10	(5B)	31.16	6.22	24.94
(6A)	23.30	-7.48	(6B)	27.06	-3.72	30.78
(7A)	26.62	-4.16	(7B)	36.69	5.91	30.78
(8A)	12.74	-7.85	(8B)	15.35	-5.24	20.59
(9A)	19.61	-0.96	(9B)	19.27	-1.30	20.57
(10A)	18.68	5.76	(10B)	11.19	-1.73	12.92
(11A)	17.88	-2.71	(11B)	23.42	2.83	20.59
(12A)	10.01	3.03	(12B)	7.27	0.29	6.98
(13A)	12.31	0.36	(13B)	10.92	-1.03	11.95
(14A)	12.79	3.45	(14B)	12.66	3.32	9.34
(15A)	16.14	3.22	(15B)	15.25	2.33	12.92
(16A)	14.88	-2.21	(16B)	13.61	-3.48	17.09
(17A)	6.70	-3.70	(17B)	14.43	4.03	10.40
(18A)	9.20	-0.52	(18B)	11.63	1.91	9.72
(19A)	8.50	-0.44	(19B)	12.93	3.99	8.94
(20A)	13.01	1.41	(20B)	16.10	4.50	11.60
(21A)	12.44	2.22	(21B)	8.83	-1.39	10.22
(22A)	7.40	-4.30	(22B)	14.69	2.99	11.70
(23A)	12.53	-0.79	(23B)	10.43	-2.89	13.32
(24A)	15.82	2.09	(24B)	26.85	13.12	13.73
(25A)	11.88	0.28	(25B)	16.97	5.37	11.60
(26A)	5.10	-11.62	(26B)	7.86	-8.86	16.72
(27A)	16.80	5.20	(27B)	8.03	-3.57	11.60
(28A)	4.86	-7.09	(28B)	11.02	-0.93	11.95
(29A)	15.47	2.55	(29B)	18.35	5.43	12.92

*Notes:*

- (i) The trust ref. identifies the trust (as defined in Table 1).
- (ii) The mean excess return is calculated as an annual return for the whole period of each trust in the sample.
- (iii) Sample period is from January 1986–December 1993.
- (iv) *FTASA* is the *Financial Times All Share Actuaries Index*.

December 1993). Table 3 shows the mean annualised returns and the mean excess returns. Taking the raw results without any adjustment for risk, the ethical trusts have outperformed the market (as measured by the *FTASA*) in 12 cases and underperformed in 17 cases. This compares with the non-ethical

trusts which have outperformed the market in 15 cases and underperformed in 14 cases. On this raw evidence the non-ethical trusts outperform both the ethical trusts and, marginally, the market. There are eight cases where both the ethical trusts and its matched non-ethical trusts outperform the market, otherwise it is either one or the other which outperforms the market.

The ex-post alpha (or differential return) was estimated using the equation:

$$\alpha_p = ar_p - ar_p^e$$

where  $\alpha_p$  = the ex-post alpha of the portfolio (denoted as  $\alpha_{pe}$  for the ethical trusts and  $\alpha_{pn}$  for the non-ethical trusts),

$ar_p$  = the return on the portfolio (denoted as  $ar_{pe}$  for the ethical trusts and  $ar_{pn}$  for the non-ethical trusts),

$ar_p^e$  = the return on the market benchmark (defined as  $[ar_f + (ar_m - ar_f)\beta_p]$ ).

The results of the OLS model estimation are shown in Table 4. It is interesting to note that the betas for the ethical trusts are all less than unity, whereas there are five betas for the non-ethical trusts which are greater than unity. In 21 out of the 29 matched pairs, the beta is lower for the ethical trust than for the non-ethical trust. This implies that the non-ethical trusts are generally riskier than the ethical trusts in the sample.

The  $R^2$  statistic, which shows the proportion of variation in the return of the fund that is explained by variations in the market generally, is not high in many cases, suggesting perhaps that the funds are 'skewed' or 'tilted' and it is clear that some of the funds do not move in line with the market as a whole. This is particularly true of the ethical trusts for which the  $R^2$  is lower in 20 cases out of 29 when compared with their matched non-ethical trust. For the ethical trusts, the lowest  $R^2$  is 0.141 whereas, for the non-ethical trusts, the lowest is 0.369.

From Table 4, it can be seen that 22 ethical trusts and 23 non-ethical trusts have a positive alpha (Jensen coefficient) indicating performance superior to the market or benchmark portfolio. It can also be seen that for both the ethical and the non-ethical trusts the Jensen measure was significantly different to zero in eight cases (four ethical and four non-ethical), although in no case did this apply to both parts of a matched pair. The relevant  $t$ -statistics are shown in Table 5.

The Sharpe measure, or reward-to-variability ratio, is calculated as:

$$RVAR_p = \frac{ar_p - ar_f}{\sigma_p}$$

where  $RVAR_p$  = reward-to-variability ratio for portfolio<sub>*p*</sub> (where 'e' indicates ethical trust and 'n' indicates non-ethical trust),

$ar_p$  = as defined in equation (1),

$ar_f$  = the risk-free return,

$\sigma_p$  = the standard deviation of the portfolio.



**Table 4**  
OLS Model Estimation

<i>Trust Ref.</i>	<i>Ethical Trusts</i>		<i>R</i> <sup>2</sup>	<i>Trust Ref.</i>	<i>Non-Ethical Trusts</i>		<i>R</i> <sup>2</sup>
	<i>Alpha</i>	<i>B<sub>i</sub></i>			<i>Alpha</i>	<i>B<sub>n</sub></i>	
(1A)	0.190 (0.391)	0.652 (0.083)	0.737	(1B)	0.689* (0.359)	1.037 (0.076)	0.894
(2A)	0.221 (0.242)	0.782 (0.042)	0.791	(2B)	0.140 (0.149)	0.802 (0.026)	0.914
(3A)	0.017 (0.221)	0.832 (0.045)	0.831	(3B)	0.117 (0.205)	0.683 (0.041)	0.793
(4A)	-0.113 (0.521)	0.983 (0.111)	0.782	(4B)	-0.336 (0.482)	0.919 (0.102)	0.785
(5A)	0.843 (0.975)	0.879 (0.238)	0.494	(5B)	0.598 (0.823)	0.961 (0.201)	0.621
(6A)	0.913* (0.482)	0.400 (0.120)	0.460	(6B)	0.080 (0.434)	0.847 (0.108)	0.825
(7A)	1.211* (0.692)	0.391 (0.173)	0.284	(7B)	1.555* (0.688)	0.585 (0.171)	0.473
(8A)	0.272 (0.415)	0.459 (0.085)	0.620	(8B)	0.182 (0.406)	0.638 (0.083)	0.767
(9A)	0.157 (0.710)	0.861 (0.173)	0.622	(9B)	-0.129 (0.349)	1.012 (0.085)	0.904
(10A)	0.683* (0.258)	0.810 (0.044)	0.781	(10B)	0.246 (0.189)	0.730 (0.032)	0.853
(11A)	0.683 (0.586)	0.470 (0.119)	0.462	(11B)	0.509 (0.431)	0.693 (0.105)	0.757
(12A)	0.375 (0.318)	0.785 (0.054)	0.747	(12B)	0.045 (0.262)	0.963 (0.044)	0.867
(13A)	0.247 (0.230)	0.780 (0.047)	0.804	(13B)	-0.033 (0.430)	0.946 (0.088)	0.634
(14A)	0.396 (0.305)	0.859 (0.062)	0.800	(14B)	0.324 (0.204)	0.939 (0.042)	0.914
(15A)	0.454* (0.250)	0.826 (0.043)	0.798	(15B)	0.188 (0.174)	1.005 (0.030)	0.924
(16A)	-0.021 (0.495)	0.885 (0.105)	0.763	(16B)	0.108 (0.321)	1.054 (0.065)	0.789
(17A)	-0.230 (0.346)	0.908 (0.071)	0.759	(17B)	-0.181 (0.688)	0.970 (0.146)	0.667
(18A)	-0.020 (0.335)	0.971 (0.069)	0.811	(18B)	0.240 (0.393)	0.899 (0.081)	0.728
(19A)	0.103 (0.303)	0.811 (0.062)	0.775	(19B)	0.311 (0.298)	1.030 (0.061)	0.851
(20A)	0.417 (0.334)	0.691 (0.068)	0.617	(20b)	0.314 (0.208)	0.954 (0.036)	0.884
(21A)	0.447 (0.469)	0.690 (0.098)	0.479	(21B)	0.150 (0.579)	0.684 (0.121)	0.373
(22A)	-0.195 (0.654)	0.831 (0.132)	0.484	(22B)	0.428 (0.536)	0.815 (0.108)	0.573

Table 4 (continued)

Trust Ref.	Ethical Trusts		R <sup>2</sup>	Trust Ref.	Non-Ethical Trusts		R <sup>2</sup>
	Alpha	B <sub>e</sub>			Alpha	B <sub>n</sub>	
(23A)	0.197 (0.358)	0.761 (0.073)	0.606	(23B)	0.148 (0.418)	0.647 (0.085)	0.450
(24A)	0.624 (1.475)	0.605 (0.311)	0.141	(24B)	1.367* (0.571)	0.759 (0.120)	0.634
(25A)	0.351 (0.301)	0.658 (0.061)	0.643	(25B)	0.802 (0.483)	0.629 (0.098)	0.390
(26A)	-0.132 (0.484)	0.397 (0.183)	0.825	(26B)	-0.405 (0.924)	0.759 (0.350)	0.825
(27A)	0.857 (0.610)	0.558 (0.124)	0.240	(27B)	-0.013 (0.496)	0.630 (0.085)	0.369
(28A)	-0.279 (0.611)	0.685 (0.133)	0.505	(28B)	0.065 (0.837)	0.856 (0.182)	0.459
(29A)	0.773 (0.550)	0.476 (0.095)	0.213	(29B)	0.477* (0.163)	0.977 (0.028)	0.929

Notes:

R<sup>2</sup> is the coefficient of determination.

Figures in parentheses under the regression coefficients are standard errors.

An asterik denotes the estimate of the constant, A, is significantly different from zero at the 5% level of significance.

Sample period is from January 1986–December 1993.

The calculation of the Treynor measure, or reward-to-volatility ratio, is analogous to the calculation of the Sharpe ratio. The Treynor ratio is calculated as:

$$RVOL_p = \frac{ar_p - ar_f}{\beta_p}$$

where RVOL<sub>p</sub> = reward-to-volatility ratio,

ar<sub>p</sub> = as defined in equation (1),

ar<sub>f</sub> = as defined in equation (2),

β<sub>p</sub> = the portfolio's beta (defined as β<sub>e</sub> for the ethical trusts and β<sub>n</sub> for the non-ethical trusts).

The Sharpe and Treynor measures, and for ease of comparison the Jensen measure, are all shown in Table 6. It is apposite to summarise the overall performance of ethical versus non-ethical trusts on the basis of the three measures. It can be seen that in 18 out of the 29 matched pairs, the ethical trusts outperform the non-ethical on the basis of the Jensen measure; whilst in the case of both the Treynor and Sharpe measures, for 14 out of the 29 matched pairs the ethical trusts outperform the non-ethical. The Jensen measure therefore puts the most favourable light on the performance of ethical trusts

Table 5

'T' Statistics for Performance of Ethical versus Non-Ethical Trusts

Trust Ref.	Ethical Trusts		Trust Ref.	Non-Ethical Trusts	
	Alpha	$B_t$		Alpha	$B_n$
(1A)	0.485	7.855	(1B)	1.921*	13.596
(2A)	0.913	18.759	(2B)	0.945	31.348
(3A)	0.075	18.681	(3B)	0.568	16.498
(4A)	-0.217	8.879	(4B)	-0.696	8.974
(5A)	0.865	3.695	(5B)	0.727	4.786
(6A)	1.894*	3.327	(6B)	0.185	7.830
(7A)	1.750*	2.268	(7B)	2.261*	3.413
(8A)	0.655	5.425	(8B)	0.449	7.708
(9A)	0.221	4.968	(9B)	-0.369	11.875
(10A)	2.643*	18.207	(10B)	1.298	22.493
(11A)	1.166	3.931	(11B)	1.182	6.595
(12A)	1.181	14.586	(12B)	0.170	21.677
(13A)	1.074	16.478	(13B)	-0.078	10.698
(14A)	1.301	13.850	(14B)	1.585	22.587
(15A)	1.815*	19.160	(15B)	1.082	33.526
(16A)	-0.042	8.409	(16B)	0.335	16.275
(17A)	-0.665	12.799	(17B)	-0.263	6.636
(18A)	-0.059	14.053	(18B)	0.610	11.102
(19A)	0.339	13.108	(19B)	1.044	16.918
(20A)	1.240	10.163	(20B)	1.513	26.668
(21A)	0.953	7.048	(21B)	0.259	5.666
(22A)	-0.298	6.281	(22B)	0.798	7.515
(23A)	0.551	10.386	(23B)	0.353	7.572
(24A)	0.423	1.946	(24B)	2.394*	6.305
(25A)	1.166	10.726	(25B)	1.661	6.397
(26A)	-0.272	2.170	(26B)	-0.438	2.170
(27A)	1.405	4.495	(27B)	-0.026	7.374
(28A)	-0.456	5.150	(28B)	0.077	4.696
(29A)	1.405	5.021	(29B)	2.933*	34.913

Note:

\* Indicates significant at the 5% level.

*vis-à-vis* non-ethical, this is consistent with the fact that the ethical trusts tend to have lower betas, which in turn are reflected in higher alphas. In contrast, those funds with higher betas will tend to have a higher Treynor measure.

Analysing the ranking on all three performance criteria, there are 12 ethical trusts which outperform the non-ethical trusts on all three criteria, and nine non-ethical trusts which outperform the ethical trusts on all three criteria. There are therefore eight trusts for which the measures do not give a consensus on superiority, or otherwise, of performance. A two tailed 't' test indicates that it would be significant at the 5% level if between 1 to 9, or 20 to 29, trusts

Table 6

Summary of Performance of Ethical and Non-Ethical Trusts Based on Treynor, Sharpe and Jensen Measures

Market	Ethical Trusts			Non-Ethical Trusts						
	<i>S</i>	<i>T</i>	<i>Trust Ref.</i>	<i>J</i>	<i>S</i>	<i>T</i>	<i>Trust Ref.</i>	<i>J</i>	<i>S</i>	<i>T</i>
1	1.220	8.771	1	0.190	-0.303	-5.598	1	0.689	0.489	8.206
2	0.128	1.198	2	0.221	-0.008	-0.179	2	0.140	-0.052	-1.072
3	-0.016	-0.170	3	0.017	-0.120	-2.224	3	0.117	-0.175	-3.338
4	1.220	8.771	4	-0.113	-0.092	-1.658	4	-0.336	-0.327	-5.865
5	3.495	17.903	5	0.843	0.449	8.077	5	0.598	0.403	6.472
6	5.505	23.977	6	0.913	-1.145	-18.700	6	0.080	-0.360	-4.392
7	5.505	23.977	7	1.211	-0.511	-10.639	7	1.555	0.627	10.103
8	1.924	12.807	8	0.272	-0.825	-17.102	8	0.182	-0.440	-8.213
9	2.394	13.337	9	0.157	-0.066	-1.115	9	-0.129	-0.092	-1.285
10	0.128	1.231	10	0.683	0.316	7.111	10	0.246	-0.109	-2.370
11	2.641	13.553	11	0.683	-0.240	-5.766	11	0.509	0.281	4.084
12	-0.466	-4.869	12	0.375	0.163	3.860	12	0.045	0.014	0.301
13	-0.006	-0.066	13	0.247	0.025	0.462	13	-0.033	-0.052	-1.089
14	-0.202	-2.354	14	0.396	0.212	4.016	14	0.324	0.199	3.536
15	0.128	1.198	15	0.454	0.175	3.898	15	0.188	0.112	2.318
16	-0.016	-0.170	16	-0.021	-0.137	-2.497	16	0.108	-0.173	-3.302
17	1.220	8.771	17	-0.230	-0.214	-4.075	17	-0.181	0.214	4.155
18	-0.156	-1.794	18	-0.020	-0.029	-0.536	18	0.240	0.108	2.125
19	-0.248	-2.881	19	0.103	-0.028	-0.543	19	0.311	0.211	3.874
20	-0.013	-0.122	20	0.417	0.095	2.041	20	0.314	0.223	4.717
21	-0.157	-1.803	21	0.447	0.135	3.217	21	0.150	-0.075	-2.032
22	0.056	0.618	22	-0.195	-0.212	-5.174	22	0.428	0.164	3.669
23	0.136	1.436	23	0.197	-0.049	-1.038	23	0.148	-0.181	-4.467
24	0.733	5.304	24	0.624	0.080	3.455	24	1.367	0.845	17.286
25	-0.047	-0.507	25	0.351	0.020	0.426	25	0.802	0.317	8.537
26	17.582	10.892	26	-0.132	-2.787	-29.270	26	-0.405	-1.112	-11.673
27	0.128	1.198	27	0.857	0.271	9.319	27	-0.013	-0.173	-5.667
28	0.439	3.231	28	-0.279	-0.465	-10.350	28	0.065	-0.047	-1.086
29	0.128	1.198	29	0.773	0.125	5.357	29	0.477	0.269	5.558

were ranked differently to their paired trust. The evidence is therefore not conclusive at this level, although on the Jensen measure individually there is evidence that the ethical trusts tend to outperform the non-ethical trusts, and the consensus on the rankings of trusts on all three performance criteria tends to support the ethical trusts outperforming the non-ethical. These results would lead us to reject the null hypothesis that the performance of ethical trusts is no different to that of non-ethical trusts.

In relation to the market (benchmark portfolio), it can be seen that the majority of the trusts, both ethical and non-ethical, tend to underperform the market. From Table 7 it can be seen that the ethical trusts perform slightly better than the non-ethical trusts with 12 ethical trusts having a Treynor ratio which is greater than the market's and 11 ethical trusts having a Sharpe ratio

**Table 7**  
Summary of the Best Performers

<i>Performance Measure</i>	<i>Ethical Trusts</i>	<i>Non-Ethical Trusts</i>	<i>Market</i>
Alpha	22	23	13
RVAR	11	10	37
RVOL	12	10	36

greater than the market's. This compares to 10 non-ethical trusts which have a Treynor ratio greater than the market's, and 10 non-ethical trusts which have a Sharpe ratio greater than the market's. Some trusts fare better on both measures, whilst others are superior only on one measure — in the case of ethical trusts, 12 trusts had superior performance to the market on one or both of the criteria, whilst in the case of non-ethical trusts, 11 trusts had superior performance on one or more of the criteria. These findings lead to a rejection of the null hypothesis that ethical trusts do not outperform — or underperform — the market, as it seems that both ethical and non-ethical trusts tend to underperform the market.

These results are supportive of Guy (1978) who, in a study of 47 UK investment trusts over the period 1960–1970 using Jensen, Treynor and Sharpe measures, found that of the 47 trusts, negative measures were derived for 11 trusts during 1960–1964; for three trusts during 1964–1970; and for three trusts during 1960–1970. Although there was some similarity in the ranking within intervals, the trusts varied considerably in performance between intervals. Also considering the same measure in different intervals, if a trust had been in the top 23 in 1960–64 based upon the Jensen measure, the probability would be only 11/23 that it would be in the top 23 in 1964–70. Using the rankings based on the Treynor and Sharpe measures, the probabilities would be 13/23 and 12/23 respectively. He also estimated an SML and found that of the 47 trusts only nine had any significant measures of performance, and the number of trusts with negative measures varied from 14 to 19, depending on the performance measure considered (six different estimates were derived for each trust).

The present results are also supportive of Ward and Saunders (1976) who found that no unit trust in their sample achieved a significantly superior rate of return over the period studied, and that nearly a quarter (21%) of the sample performed significantly worse than expected. The results are also consistent with Jensen's (1968) study of mutual funds which showed that over the period 1945–64 just over 12% of the sample performed significantly worse than expected.

## CONCLUSIONS

In this paper the performance of ethical trusts has been compared to both the performance of non-ethical trusts, and to the market. Initially analysing the mean excess returns, we found that ethical trusts appear to underperform both non-ethical trusts and the market generally. There is however weak evidence that non-ethical trusts outperform the market in this sample.

On a risk-adjusted basis both the ethical and non-ethical trusts tend to underperform the market, and interestingly the ethical trusts tend to outperform the non-ethical trusts, with the Jensen measure being the one most likely to be indicative of superior performance. Taking the ranking of all three measures, Jensen, Treynor and Sharpe, again it is the ethical trusts which outperform the non-ethical ones.

The weakly superior performance of ethical funds evidenced in the sample may have been a temporary phenomenon caused by an increased awareness and interest in ethical investment. This in turn led to increasing levels of demand for appropriate investment products establishing a premium in realised rates of return. Indeed this phenomenon may still be continuing as ethical investment gains in acceptance.

## REFERENCES

- Ashton, D.J. (1990), 'A Problem in the Detection of Superior Investment Performance', *Journal of Business Finance & Accounting*, Vol. 17, No. 3 (Summer), pp. 337-350.
- Black, A., P. Fraser and D. Power (1992), 'UK Unit Trust Performance 1980-1989: A Passive Time-Varying Approach', *Journal of Banking and Finance*, Vol. 16, pp. 1015-1033.
- Crenshaw, T.E. (1977), 'The Evaluation of Investment Performance', *Journal of Business*, Vol. 50, No. 4 (October), pp. 462-485.
- Dybvig, P.H. and S.A. Ross (1985), 'Differential Information and Performance Measurement Using a Security Market Line', *Journal of Finance*, Vol. 40, No. 2, pp. 383-399.
- Friend, I., M. Blume and J. Crockett (1970), 'Mutual Funds and Other Institutional Investors' (New York: McGraw Hill).
- Guy, J. (1978), 'The Performance of the British Investment Trust Industry', *Journal of Finance*, Vol. XXXIII, No. 2 (May), pp. 443-455.
- Harte, G., L. Lewis and D. Owen (1991), 'Ethical Investment and the Corporate Reporting Function', *Critical Perspectives on Accounting*, Vol. 2, pp. 227-253.
- Jensen, C.M. (1968), 'The Performance of Mutual Funds in the Period 1945-1964', *Journal of Finance*, Vol. XXIII, No. 2 (May), pp. 389-415.
- \_\_\_\_\_ (1969), 'Risk, the Pricing of Capital Assets and the Evaluation of Investment Portfolios', *Journal of Business*, Vol. 42, pp. 167-247.
- Jobson, J.D. and B. Korkie (1984), 'On the Jensen Measure and Marginal Improvements in Portfolio Performance: A Note', *The Journal of Finance*, Vol. 39, No. 1 (March), pp. 245-252.
- Luther, R.G. and J. Matatko (1994), 'The Performance of Ethical Unit Trusts: Choosing an Appropriate Benchmark', *British Accounting Review*, Vol. 26, pp. 77-89.
- \_\_\_\_\_ and D.C. Corner (1992), 'The Investment Performance of UK "Ethical" Unit Trusts', *Accounting, Auditing and Accountability Journal*, Vol. 5, No. 4, pp. 57-70.
- McDonald, J. (1974), 'Objectives and Performance of Mutual Funds: 1960-1964', *Journal of Financial and Quantitative Analysis*, Vol. IX, No. 3 (June), pp. 311-333.
- Moles, P. (1981), 'Components of Unit Trust Performance', *The Investment Analyst*, Vol. 37, pp. 5-10.

- Perks, R.W., D.H. Rawlinson and L. Ingram (1992), 'An Exploration of Ethical Investment in the UK', *British Accounting Review*, Vol. 24, No. 1, pp. 43-65.
- Robson, G.N. (1986), 'The Investment Performance of Unit Trusts and Mutual Funds in Australia for the Period 1969 to 1978', *Accounting and Finance* (November), pp. 55-79.
- Roll, R. (1977), 'A Critique of the Asset Pricing Theory's Tests, Part 1: On Past and Potential Testability of the Theory', *Journal of Financial Economics*, Vol. 4, pp. 120-176.
- Samuels, J.M. (1968), 'The Performance of Unit Trusts', *Bankers Magazine*, pp. 80-87.
- Sharpe, W.F. (1966), 'Mutual Fund Performance', *Journal of Business*, Vol. 39, pp. 119-138.
- Simonson, D.G. (1972), 'The Speculative Behavior of Mutual Funds', *Journal of Finance*, Vol. XXVII, No. 2 (May), pp. 381-391.
- Treynor, J. (1965), 'How to Rate Management of Investment Funds', *Harvard Business Review*, Vol. 43, No. 1 (Jan/Feb), pp. 63-75.
- \_\_\_\_\_ and K.K. Mazuy (1966), 'Can Mutual Funds Outguess the Market?' *Harvard Business Review*, Vol. 44, No. 4 (July/August), pp. 131-136.
- Unit Trust Year Book* (1993), (Unit Trust Association).
- Ward, C.W.R. and A. Saunders (1976), 'UK Unit Trust Performance 1964-1974', *Journal of Business Finance & Accounting*, Vol. 3, No. 4 (Winter), pp. 83-99.

Copyright of Journal of Business Finance & Accounting is the property of Blackwell Publishing Limited. The copyright in an individual article may be maintained by the author in certain cases. Content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.