Ethical Investing in Australia
Is there a Financial Penalty?

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Introduction

- Imposing ethical constraints on the equity investment process will come at the cost of inferior portfolio performance.
  - The universe of securities of socially responsible companies is limited
  - Screening process can be an expensive practice

Literature

- US Studies
  - Diltz (1995), Guerard (1997), Sauer (1997) - Hamilton, Jo and Statman (1993) and Statman (2000) - Goldreyer and Diltz (1999)
- UK Studies
  - Luther, Matatko and Corner (1992), Luther and Matatko (1994), Mallin, Saadouni and Briston (1995) and Matatko and Luther (1997)
- International (US, UK and Germany)
  - Bauer, Koedijk and Otten (2002)

Literature

- Australia
  - Cummings (2000) examined the performance of 7 ethical Australian equity funds compared to common market benchmarks. He finds an insignificant difference in return to for instance the ASX and a small cap benchmark for the 1986-1994 period.
  - Tippet (2001) finds that the average of the three largest Australian ethical mutual funds significantly under-performs the All Ordinaries index by 1.5% per year during 1991-1998.

Table 1: Overview of Ethical Mutual Fund Market as of end 2001

Country	# of Ethical Mutual funds	Ethical assets under management in billion Euro	As a % of total mutual fund assets
The Netherlands	24	1.70	1.93 %
United States	181	136.00	1.74 %
United Kingdom	62	5.90	1.66 %
Belgium	37	1.20	1.56 %
Italy	9	1.80	0.45 %
Germany	22	0.80	0.33 %
Australia	74	0.90	0.20 %
France	38	1.10	0.01 %
New Zealand	1	0.02	0.01 %

Objectives

- The objective of this study is twofold.
  - First, with the intention to provide significant complementary evidence on ethical mutual fund performance, this paper examines the **<u>Australian</u>** ethical fund market, which has attracted little attention in the academic literature.
  - The second purpose of the paper is to address potential **<u>benchmark problems</u>** when assessing the relative performance of ethical mutual funds in Australia.

Benchmark Problems

- Among others, Dibartolomeo (1996), Guerard (1997), Kurtz (1997) and Bauer, Koedijk and Otten (2002) find ethical portfolios to be tilted towards **small-cap growth stocks**.

- This potentially biased some of the previous results for the Australian market. We consider the well-known CAPM-framework as well as multifactor models in the spirit of Carhart (1997) and Ferson and Schadt (1996). In doing so, we are able to investigate both **ethical mutual fund performance** *and* **investment style** relative to conventional funds.

Single-Factor Model

- $R_{it} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + \varepsilon_{it}$

where

Rit =	Return on fund i in month t,
Rft =	Return on a local one month T-bill in month t,
Rmt =	Return on the relevant equity benchmark in month t
εit =	error term.

Multi-Factor Model (Carhart 1997)

$R_{it}-R_{ft} = \alpha_i + \beta_{0i} (R_{mt} - R_{ft})+ \beta_{1i}SMB_t + \beta_{2i}HML_t + \beta_{3i}Mom_t + \varepsilon_{it}$

where

- SMB_t = the difference in return between a small cap portfolio and a large cap portfolio at time t
- HML_t = the difference in return between a portfolio of high book-to-market stocks and one of low book-to-market stocks at time t
- Mom_t = the difference in return between a portfolio of past 12 months winners and a portfolio of past 12 month losers at time t

Time-Varying Multi-Factor Model

$Rit\text{-}Rft = \alpha i + \beta i0\ (Rmt - Rft) + \mathbf{B}'i\ \mathbf{Z}t\text{-}1(Rmt - Rft) + \varepsilon it$

were **Z**t-1 is a vector of lagged pre-determined instruments. Assuming that the beta for a fund varies over time, and that this variation can be captured by a linear relation to the conditional instruments, then $\beta it = \beta i0 + \mathbf{B}'i\ \mathbf{Z}t\text{-}1$, where **B**′i is a vector of response coefficients of the conditional beta with respect to the instruments in **Z**t-1.

Bond Exposure

- $R_{it} - R_{ft} = \alpha_i + \beta_{0i}(R_{mt} - R_{ft}) + \beta_{1i} SMB_t + \beta_{2i} HML_t + \beta_{3i} Mom_t + \beta_{4i}(R_{bt} - R_{ft}) + \varepsilon_{it}$
- where

R_{bt} = the return on a government bond index at time t

Home Bias

- Rit-Rft = αi + β0i (Rmt - Rft)+ β1i SMBt + β2i HMLt + β3i Momt + β4i (Localt - Rft) + εit
- where

Localt = the return on the local Worldscope equity benchmark at time t

Relative Performance Over Time

- To Observe if young ethical investment sector is undergoing changes
- Sample period is divided into three equal, non-overlapping sub-periods.
- Carhart 4-factor model using 3 different sub-periods

Empirical Findings

- Australian domestic ethical mutual funds under-perform both their relevant indices and conventional peers.
- Australian international ethical funds out-perform their conventional counterparts.
- However, only for the Australian domestic funds the difference is statistically significant after we control for common factors like size, book-to-market and momentum.

Table 2: Summary Statistics on AU and NZ Mutual Funds 1992:11 – 2003:04

Country / *Objective*	Excess Return	Standard deviation	Size	Expense ratio	# of Funds
Australia					
Domestic					
Ethical	1.53	9.23	25	1.75	14
Conventional	5.11	10.90	110	1.64	189
Worldscope Australia index	5.92	12.97			
International[§]					
Ethical	2.10	17.04	52	1.67	9
Conventional	-1.33	12.53	90.7	1.96	75
Worldscope Global index	1.46	13.40			
New Zealand					
International[#]					
Ethical	-31.02	11.92	2	1.85	1
Conventional	-28.06	11.98	38	1.73	22
Worldscope Global index	-32.20	14.88			

Table 3: Results CAPM model

Country / *Objective*	Alpha	Market Beta
Australia		
Domestic		
Ethical	-1.68	0.54***
Conventional	0.57	0.77***
Difference	-2.25*	-0.23***
International§		
Ethical	1.21	0.60***
Conventional	-2.48	0.78***
Difference	3.69	-0.18***
New Zealand		
International#		
Ethical	-10.01*	0.65***
Conventional	- 3.26	0.77***
Difference	- 6.75	-0.12*

Table 4: 4-factor Carhart Model

Country / *Objective*	4-factor Alpha	Market Beta	SMB	HML	Mom
Australia					
Domestic					
Ethical	-3.05*	0.56***	-0.07**	0.06*	0.12***
Conventional	-0.47	0.79***	-0.10***	0.00	0.07***
Difference	-2.58**	-0.23***	0.03*	0.06**	0.05**
International[§]					
Ethical	0.46	0.61***	-0.20	-0.07	0.07
Conventional	-2.85	0.77***	-0.05	-0.08	0.02
Difference	3.31	-0.16***	-0.14	0.01	0.05
New Zealand					
International[#]					
Ethical	-10.18*	0.63***	0.10	-0.03	0.02
Conventional	-5.49*	0.68***	-0.07	-0.04	-0.15*
Difference	-4.68	-0.05*	0.17	0.01	0.17

Empirical Findings

- Ethical funds exhibit distinct investment styles if compared to conventional funds.
  - Ethical funds exhibit significantly less market exposure compared to conventional funds
  - They are relatively more exposed to small caps.

Table 5: Unconditional versus Conditional performance evaluation

Country / *Objective*	Unconditional 4f-alpha	Conditional 4f-alpha	Wald (p-value)
Australia			
Domestic			
Ethical	-3.05*	-3.48**	0.00
Conventional	-0.47	-0.36	0.03
Difference	-2.58**	-3.12**	0.00
International§			
Ethical	0.46	0.64	0.00
Conventional	-2.85	-2.01	0.04
Difference	3.31	3.65	0.00
New Zealand			
International#			
Ethical			
Conventional		*NA*$^{\Phi}$	
Difference			

Empirical Findings

- We explore the added value of including a bond index and a local benchmark.
- This revealed a significant exposure of the Australian international ethical funds to a local government bond index.
- We further document a strong and significant home bias in for international ethical funds.

Table 6: Bond Exposure

Country / *Objective*	4-factor Alpha	Market Beta	SMB	HML	Mom	Bond
Australia						
Domestic						
Ethical	-2.81*	0.58***	-0.08**	0.05*	0.12***	-0.04
Conventional	-0.55	0.79***	-0.10***	0.00	0.07***	0.06
Difference	-2.24*	-0.21***	0.02*	0.05**	0.05**	-0.10
International§						
Ethical	0.37	0.43***	-0.00	0.04	0.08	0.46***
Conventional	-2.85	0.75***	-0.04	-0.07	0.02	0.04
Difference	3.22	-0.32***	0.04	0.11	0.06	0.42***
New Zealand						
International#						
Ethical	-13.82*	0.50***	0.10	-0.07	0.04	-0.81
Conventional	-6.69*	0.64***	-0.07	-0.05	-0.14*	-0.27
Difference	-7.13	-0.14*	0.17	-0.02	0.21*	-0.54

Table 7: Home Bias

Country / *Objective*	4-factor Alpha	Market Beta	SMB	HML	Mom	Local
Australia						
Domestic						
Ethical						
Conventional			*NA*$^{\Omega}$			
Difference						
International§						
Ethical	-0.17	0.39***	-0.08	-0.03	0.09	0.40***
Conventional	-2.94	0.73***	-0.04	-0.08	0.02	0.05
Difference	2.76	-0.34***	-0.04	0.05	0.07	0.35***
New Zealand						
International$^{\#}$						
Ethical	-12.60*	0.50***	0.22	0.02	0.11	0.31**
Conventional	-6.77*	0.61***	0.00	-0.01	-0.10*	0.16*
Difference	-5.83	-0.11*	0.22*	0.03	0.21*	0.15*

Empirical Findings

- After significant under-performance in the beginning of the 1990’s, they match conventional fund performance more closely during the 1996-2003 period.

Table 8: Difference between Ethical and Conventional funds for 3 equal Sub-periods

Country / region	4 factor alpha 1992:11-1996:04	4 factor alpha 1996:05-1999:10	4 factor alpha 1999:11-2003:04
Australia			
Domestic	- 3.93**	2.70*	-1.55
International§	6.65	8.91	8.83
New Zealand			
International		*NA*Ψ	

Conclusions

- Employing Australian data we document partly corroborative evidence for the results that ethical funds **do not under-perform relative to conventional funds**.

- The significant under-performance of Australian domestic ethical funds however was mainly confined to the **beginning of our sample period**.