

# Conditional performance in different states of the economy: evidence from U.K. unit trusts<sup>1</sup>

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## Abstract

The purpose of this paper is to test if U.K. unit trust managers exhibit security selection and market timing skills. In other words, can they identify underpriced securities or time the market according to whether the economy is expanding or contracting. Specifically, the security selection and timing abilities is allowed to vary throughout the sample period as different economic conditions arise. The evidence shows that there is some evidence of timing skill particularly among managers of growth & income trusts when the dividend yield levels are either relatively low or relatively high. Also, managers of balanced trusts display some evidence of market timing when interest rates are relatively high. There is very little support for the view that the security selection skills of U.K. unit trust managers contribute to fund performance.

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This paper examines whether U.K. unit trust managers exhibit security selection and market timing skills in different phases of the economic cycle. Fama (1972) suggests that the performance of managed funds such as unit trusts can be disaggregated into two components, namely selectivity and market timing. Selectivity is the ability of a fund manager to pick underpriced securities for a given risk level, while market timing is the skill to predict general market price movements. This paper investigates this topic for a sample of U.K. unit trust managers. In addition, it considers whether the selectivity and timing skills of these fund managers varies with the level of economic activity.

Ferson and Qian (2004) and Ferson et al. (2006) were the first to examine conditional timing without assuming constant timing of funds in the U.S. These researchers allowed expected performance and fund risk to alter over time according to the state of the economy. In other words, they investigated if the excess returns of U.S. funds varied depending upon some predetermined economic variables that have been found to predict stock returns. Specifically, Ferson and Qian (2004) documented evidence that the timing ability of U.S. funds was dependant on a number of factors, including conditioning on company dividend yields and the level of interest rates in the economy.

In this paper we adopt a similar approach to previous U.S. work in the area and use two<sup>2</sup> variables to measure the state of the economy: namely U.K. dividend yields and U.K. Treasury bill rates. For each of these two variables we identify two individual states of the economy, when economic performance is high or low. This allows for simplicity in the analysis and helps interpret the results. Evidence suggests that these variables are related to U.K. stock returns [Fama and French (1988), Fletcher (2001)]. In addition, this analysis of individual economy states employs a conditional approach which relaxes the assumption that market timing and security selection skills are constant across the entire sample period. It, therefore, includes the possibility that market timing and security selection abilities will vary from one period to another [Ferson and Qian (2004)].

### Literature

A substantial literature exists which attempts to access the performance of managed funds [Jensen (1968), Sharpe (1966), Henriksson (1984), Grinblatt and Titman (1989), Elton et al. (1996), Chen and Knez (1996), Ferson and Schadt (1996), Wermers (2000), Ferson and Qian (2004), Lynch and Wachter (2008)]. Early studies evaluated performance using mainly the Jensen alpha measure [Jensen (1968)]. This measure assessed whether a fund had outperformed or underperformed a market portfolio by testing to see if the constant term ( $\alpha$ ) in Equation (1) was significantly different from zero:  $r_{it} - r_{ft} = \alpha_i + \beta_i(r_{mt} - r_{ft}) + e_{it}$  (1).

In particular, positive (negative) values for  $\alpha$  indicated that a manager had good (poor) security selection skills by including securities in the portfolio which had earned a higher (lower) risk-adjusted return than expected. These studies also investigated whether a fund manager showed some evidence of being able to time the market by checking whether the fund invested in high (low) beta shares when they anticipated a rise (fall) in the market index ( $r_{mt}$ ). Early indications suggested that fund managers showed little or no ability when it came to security selection. The alpha estimates obtained from Equation (1) were either negative or not significantly different from zero [Jensen (1968), Gruber (1996)]. In addition, fund managers actually displayed evidence of perverse market timing; they typically raised (lowered) the riskiness of their fund just as the market fell (rose), thereby exacerbating (mitigating) the impact of a market decline (increase) on their overall fund performance.

In 1996, Ferson and Schadt introduced a new paradigm in the fund performance literature. Specifically, they considered conditional performance evaluation (hereafter CPE), where a fund's risk exposures and related risk premiums varied across different states of the economy. Their results suggested that conditional measures reduced the incidence of perverse timing performance. Subsequent work by Becker et al. (1999) applied conditional measures and simultaneously investigated the parameters that described the public information environment, the manager's risk aversion, and the precision of the fund's market timing signal. Their conditional timing tests focused on a sample of balanced funds<sup>3</sup> and asset allocation funds as they argued that this set of funds were more likely to aggressively time the market. Their results indicated that both the conditioning on public information and benchmark selection were important in their analysis. However, Becker et al. (1999) found no evidence of significant market timing among the balanced funds and asset allocation funds though there was less of a tendency for perverse timing by managers in their results.

Ferson and Qian (2004) modified the conditional timing approach of Ferson and Schadt (1996). Specifically, they allowed the beta and timing coefficient of funds to vary over time and across different states of the economy. Their results indicated that conditional timing was concentrated in certain fund types and during different states of the economic cycle. The funds investigated exhibited some evidence of significant conditional timing performance when the term structure of interest rates was steep. In addition, the results documented significant evidence of timing ability among fund managers. The results also showed that fund managers exhibited some evidence of timing ability when dividend yields were high, which they attributed to the positive relationship between returns and dividend yields [Fama and French (1988)].

More recently, Byrne et al. (2006) have investigated the conditional

<sup>2</sup> Ferson and Warther (1996) and Ferson and Schadt (1996) also use the short term interest rate and dividend yield as their two variables.

<sup>3</sup> This paper will also include balanced funds when examining this issue for U.K. data.

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market timing of U.K. unit trusts. They adopted a market timing methodology that incorporated different benchmarks into the analysis. This approach to evaluating timing ability models assessed the performance of a fund relative to some benchmark. Their results suggest that there was no evidence of superior conditional market timing among portfolios of trusts or individual trusts. Furthermore, the choice of benchmark was useful in improving the model specification as indicated by the highly significant benchmark preference estimate. In addition, trusts had high numerical risk aversion to deviations from the benchmark. However, similar to the early work of Becker et al. (1999), Byrne et al. (2006) found no evidence of superior market timing among U.K. unit trusts when they adopted this framework.

This paper examines a sample of U.K. unit trusts for evidence of conditional performance. Its main contribution is that market timing is allowed to vary over the sample period, unlike the work of Byrne et al. (2006). This approach to time-varying conditional performance has not been employed in previous studies of U.K. unit trust performance. Thus, the results from this investigation should add to the mainly U.S.-based findings which have been documented in this area.

## Data

The unit trust sample in this paper is comprised of 432 U.K. equity and balanced funds. The U.K. equity objectives among these sample trusts include U.K. equity growth, U.K. equity income, U.K. equity growth & income, and U.K. smaller company trusts. This classification of unit trusts is adopted from the Investment Management Association (IMA).

The sample consists of all trusts with U.K. equity and U.K. balanced objectives at the start of 1988, as given in the 1988 Unit Trust Yearbook. We track the history of each trust from January 1988 to December 2002. We treat name changes and transfers of unit trusts as the continuation of the original trust<sup>4</sup>. When a trust is merged, wound up, changes its objective to something other than U.K. equity and U.K. balanced, or is converted into an open ended investment company (OEIC)<sup>5</sup> we treat it as a termination of the trust on the date of the respective event. Fletcher and Marshall (2005) adopt a similar approach in their study. We collect monthly returns on the trusts up until their termination date.

This data collection approach controls for survivorship bias [Brown et al. (1992) and Brown and Goetzmann (1995)], which arises where a sample only includes trusts in existence at the end of the sample period. Such survivorship can cause an upward bias in the estimates of performance if the poor performers are liquidated or merged into other funds before the end of the period is reached.

4 Information on the name changes, transfers, mergers, dead trusts, and OEICs is obtained from the unit Trust Yearbooks of 1988 through to 2000. This information on trust changes is supplemented from the annual Extel U.K. Dividend and Fixed Interest Record (EXTEL) where necessary.

5 The conversion of Unit trusts into OEICs occurred mostly after 1997. Though unit trusts and OEICs are both open ended trusts and subject to the same regulation, the latter have a single price for purchase and sale unlike unit trusts that report a bid and ask price. We treat the unit trusts as though terminated on their conversion to OEICs

	Mean	Median	Stdev	Min	Max	Q1	Q3
Growth	-0.037	0.395	4.145	-12.932	10.442	-2.656	2.568
Income	0.112	0.292	3.945	-12.329	10.835	-1.926	2.624
GroInc	-0.057	0.319	3.995	-11.643	11.434	-2.113	2.528
Balanced	0.030	0.331	4.868	-18.666	16.694	-2.907	2.845
Small	0.208	0.562	3.355	-9.573	11.002	-1.559	2.679
All	0.010	0.410	3.976	-13.264	10.441	-2.467	2.677

Figure 1 - Summary statistics of U.K. unit trust by fund objectives

Monthly offer prices and dividends are obtained from the FINSTAT database provided by the Financial Times Interactive Service for the period until July 2000. To avoid survivorship bias, offer prices for the missing trusts are sourced from the Money Management Periodicals, while further information on dividends is compiled from the annual EXTEL database after July 2000. The offer price of the trusts is gross of the load charge<sup>6</sup>, brokerage fees, and stamp duty, but net of the annual charge. The offer price at month-end and net dividend in the ex-dividend month are used in computing the monthly returns ( $R_{jt}$ ).

$R_{jt} = [D_{jt} + (P_{jt1} - P_{jt-1})] \div (P_{jt-1}) * 100$  (2), where  $R_{jt}$  is the total share holder return for company  $j$  in period  $t$ ,  $D_{jt}$  is the dividend paid, and  $P_{jt}$  is the share price at time period  $t$ .

Excess returns ( $r_{jt}$ ) are calculated using the one month U.K. Treasury bill as the risk free rate ( $r_{ft}$ ) (collected from DataStream International).  $r_{jt} = R_{jt} - r_{ft}$  (3).

Figure 1 presents descriptive statistics of the portfolios of trusts by objective. This figure indicates summary statistics for the entire sample period including the mean, median, and standard deviation of returns. The minimum and maximum returns for funds with different objectives are also displayed as well as the first and third quartile return values. These results report positive excess mean monthly returns among three portfolios (income, balanced, and smaller companies). Only the growth trusts and growth & income trusts achieved negative returns on average. This negative excess return may be due to the 2001/2002 bear market.

The funds achieved a wide range of performances over the 15-year period. For example, the standard deviation values range from a low of 3.355 to a high of 4.868. In addition, the gap between the minimum and maximum returns was large in several instances.

## Methodology

Ferson and Qian (2004) allow the timing coefficient to vary as a function of the state of the economy. They derive a conditional timing model with time-varying performance. To capture time-varying performance, this paper includes predetermined variables

as in Fletcher and Marshall (2005).

6 The load charge or initial charge is an upfront fee paid by investors when they buy into the trust. Brokerage fees are a commission or fees charged by a broker for conducting transactions for the investor. Stamp duty is a form of tax charged that requires a physical stamp to be attached to or impressed upon the instrument in question. The more modern versions of the tax no longer require a physical stamp. The annual charge is a yearly fee paid by an investor.

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that have been found to predict stock returns. There is evidence of a negative relationship between the yield on Treasury bills<sup>7</sup> and stock returns [Fama and Schwert (1977), Ferson (1989), Breen et al. (1989), Fletcher (2001)] and a positive relationship between dividend yields<sup>8</sup> and stock returns [Fama and French (1988)]. Ferson and Qian (2004) use dummy variables based on dividend yields and the Treasury bill rate to proxy for different states of the economy. They calculate the average conditional timing coefficient with both high and low values of these two state variables being considered. Specifically, they split these economy variables into three equal categories, namely a low, medium, and high level. Dummy variables are then used to capture the two extreme states, that is the high and low states. This approach is preferred given that the dummy variables avoid econometric problems associated with misspecifying the functional form of the relationship. Thus, the results are robust to misspecification of the functional forms of time varying betas or conditional timing coefficients. We adopt a similar approach in this paper. We perform a regression for one state variable at a time. The state variables<sup>9</sup> are the one month lagged 1-month Treasury bills and the 1-month lagged dividend yield. The equation is:

$$r_{pt+1} = \alpha_{p0} + \alpha_{p1}D_l + \alpha_{p2}D_h + b_{p0}r_{m,t+1} + b_{p1}D_l r_{m,t+1} + b_{p2}D_h r_{m,t+1} + \gamma_{p0}(r_{m,t+1})^2 + \gamma_{p1}(D_l r_{m,t+1})^2 + \gamma_{p2}(D_h r_{m,t+1})^2 + v_{pt+1} \quad (2).$$

$r_{pt+1}$  is the fund return, measured in excess of the one-month U.K. Treasury bill return.  $r_{mt+1}$  is the excess return of the Financial Times all shares market index.  $D_l$  and  $D_h$  are the dummies when the conditional variable is low or high respectively.  $\gamma_{p1}$  and  $\gamma_{p2}$  are the conditional timing coefficients in the low and high states of economic variables respectively. The null hypothesis is that the alpha ( $\alpha_{p0}$ ,  $\alpha_{p1}$ ,  $\alpha_{p2}$ ) or timing estimates ( $\gamma_{p0}$ ,  $\gamma_{p1}$ ,  $\gamma_{p2}$ ) are equal to zero. The alternative hypothesis is that the alphas and timing estimates are not equal to zero unless stated otherwise.

### Results for U.K. dividend yield

In this section we test for conditional timing performance among our sample of U.K. unit trusts. Specifically, we study the time varying timing coefficients from Equation (2) when the conditional variable is the one month lagged dividend yield. These coefficients are analyzed for the whole period ( $\gamma_{p0}$ ), when the dividend yield levels are low ( $\gamma_{p1}$ ) and high ( $\gamma_{p2}$ ). Similar to Ferson and Schadt (1996), Ferson and Qian (2004), and Byrne et al. (2006), we also examine whether there is evidence of security selection ability with respect to the trust objectives by studying the coefficients  $\alpha_{p0}$ ,  $\alpha_{p1}$ ,  $\alpha_{p2}$  for the whole period, when dividend yields are low and high respectively. This analysis is performed for the sample period January 1988 to December 2002.

Figure 2 shows alphas and timing results from estimating the Ferson and Qian (2004) model on the sample of U.K. unit trusts over the entire period and while conditioning on lagged dividend

yield. The figure displays the estimates for the entire period as well as for the low and high dividend yield periods. The corresponding heteroscedastic consistent t-statistic, R-square, and Wald test estimates are also reported. Panel A displays results for the different trust categories while Panel B presents the findings for the portfolios of all the trusts.

The alphas across the entire period are positive. By contrast,  $\alpha_{p1}$  and  $\alpha_{p2}$  for the low and high dividend yield states are more mixed. However, the heteroscedastic t-statistics [White (1980)] suggest that all the alphas for the entire period and their counterparts for high and low dividend yield states are equal to zero, with the exception of the Growth & income trusts. For this category of trust, the alpha in the high dividend yield state is significantly less than zero at the 95 percent confidence level. This result may imply inferior security selection skills among managers of Growth & income trusts during periods when dividend yields are high for the economy. The findings further indicate that the Growth & income trusts also reject the null hypothesis of the joint tests which examine whether the three alphas (in the entire period, the low dividend yield state, and the high dividend yield state) are jointly equal to zero. This joint result is shown by the Wald test which has a significant F statistic (p-value = 0.02). The other Wald statistics indicate that the rest of the trust categories and the portfolio of all trusts fail to reject this joint null hypothesis.

These results may indicate that portfolios of unit trusts either grouped by objective or combined together do not display any evidence of security selection skill specific to the level of the dividend yield in the economy. Indeed, managers of Growth & income trusts appear to select underperforming securities when dividend yields are high and exhibit zero selectivity skill when dividend yields are low<sup>10</sup>.

The timing coefficients obtained from estimating the Ferson and Qian (2004) model over the entire period indicate no ability to time the market among the various trust categories. These results are different when we condition on the dividend yield variable. Three trust categories indicate positive timing coefficients in both the high and low dividend yield states of the economy (Growth funds, Income funds, and Growth & income funds). The heteroscedastic t statistics show that the Growth & income trusts stand out. Their timing coefficient is negative and statistically significant overall. However, when the data are split according to the high and low dividend yield states of the economy the timing coefficients are positive and statistically significant. The joint test of whether the timing coefficients of the Growth & income trusts are jointly equal to zero is rejected at the one percent level of significance. When the product of the squared market return and the dummy variable for either low or high dividend yields rises (falls) there is a general increase (fall) in the returns of unit trusts. The Growth trusts report a negative timing coefficient, which is statistically significant. Thus,

7 The current sample of funds suggests a negative significant relationship between the portfolio of all funds and one-month lagged 1-month Treasury bills at the 5% level.

8 The current sample of funds suggests a positive significant relationship between the portfolio of all funds and the dividend yield at the 5% level.

9 Byrne et al. (2006) include only two conditional variables of dividend yields and Treasury Bills which they find useful in their analysis.

10 It is also important to note that this negative selectivity may be excessive due to the bear period between 2000 and 2002.

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	Alpha			Timing			RSQ	WALD alpha	WALD timing
	Whole period	Low DY state	High DY state	Whole period	Low DY state	High DY state			
<b>Panel A - Trust objectives</b>									
Growth funds	0.132 (0.76)	-0.202 (-0.68)	-0.144 (-0.42)	-2.015* (-2.13)	1.811 (1.34)	0.417 (0.36)	85.3%	0.37	1.47
Income funds	0.140 (0.87)	0.073 (0.22)	-0.094 (-0.28)	-1.504 (-1.36)	0.532 (0.36)	0.528 (0.42)	84.3%	0.28	0.79
Growth & income	0.164 (1.33)	-0.449 (-1.70)	-0.522* (-2.86)	-2.111* (-2.77)	2.420* (2.12)	1.980* (2.40)	92.5%	5.98*	6.90*
Balanced funds	0.085 (0.23)	0.464 (0.63)	0.080 (0.16)	-0.415 (-0.21)	-1.754 (-0.55)	-1.859 (-0.86)	53.4%	0.00	0.13
Smaller companies	0.143 (0.56)	-0.088 (-0.24)	0.314 (0.66)	-1.507 (-0.97)	1.269 (0.69)	-0.017 (-0.01)	81.4%	0.07	0.16
<b>Panel B - All trusts</b>									
All trusts	0.124 (0.82)	-0.074 (-0.26)	-0.197 (-0.74)	-1.754 (-1.75)	1.203 (0.85)	0.690 (0.62)	88.5%	0.74	1.41
Surviving trusts	0.131 (0.88)	-0.059 (-0.20)	-0.240 (-1.01)	-1.485 (-1.06)	0.842 (0.48)	0.507 (0.35)	88.9%	1.12	0.50
(Surviving - all) trusts <sup>11</sup>	0.007 (0.08)	0.014 (0.13)	-0.043 (-0.32)	0.268 (0.42)	-0.361 (-0.55)	-0.184 (-0.28)	2.8%	0.06	0.12

\*denotes significantly different from zero at 5% level.

Figure 2 - Security selectivity and timing results when the conditional variable is dividend yields

managers of these portfolios show evidence of a 'perverse' timing skill. They tend to increase (reduce) the riskiness of their funds as the market declines (rises), thus underperforming relative to the benchmark.

Panel B presents the timing results when the portfolio of all trusts and the portfolio of only surviving trusts are investigated. The timing estimates are all negative. This indicates that even when both a time varying alpha and a market timing coefficient are included in the analysis the general timing results are perverse. However, though the timing coefficients are negative corresponding heteroscedastic absolute t-statistics are not in excess of [1.96]. This result indicates that no statistically significant evidence of abnormal market timing activity is detected.

The timing results for the two states of the economy (high and low dividend yield) are quite different from the general timing estimates. The timing coefficients for the two portfolios are positive in these two states. In these states, therefore, unit trusts exhibit superior market timing skills based on an analysis of dividend yields. We note, however, that the heteroscedastic t-statistics are not statistically significant. Nevertheless, this positive timing coefficient indicates some hope for managed funds given that the general evidence suggests that the managers of most U.K. unit trusts exhibit negative timing skills [Kon (1983), Henriksson (1984), Fletcher (1995), Cuthbertson et al. (2005)]. Ferson and Qian (2004) report the same result when they test a sample of U.S. open-ended mutual funds that are aggressively involved in market timing. Our findings, therefore, suggest that positive timing may not only exist among the aggressive market timers (similar to our balanced

trusts) examined by Ferson and Qian (2004) but may also be characteristic of the entire sample of U.K. unit trusts in both high and low dividend yield states of the economy.

A zero cost portfolio<sup>12</sup> is constructed from buying the portfolio of surviving trusts and selling the portfolio of all trusts. The selectivity and timing estimates of the zero cost portfolio is presented in Panel B of Figure 2. The alpha and timing coefficients of the zero cost portfolio are positive for the entire period, which indicates that the estimates of these coefficients for surviving trusts are generally higher than those of all trusts. Also, in situations where dividend yields are low throughout the economy alphas of the zero cost portfolios are generally positive. On the other hand, when the dividend yields are high a different result emerges. However, these estimates of selectivity together with the coefficients for timing ability skills for the zero cost portfolios are not statistically significant. Consequently, our findings may imply that for the sample of U.K. unit trusts considered and for the given models analyzed survivorship bias is not an issue of concern.

### Results for U.K. Treasury bills

The analysis of security selection and timing performance among our sample of U.K. unit trusts was also conducted when the state of the economy was proxied for by high and low interest rates. The results for this analysis are displayed in Figure 3. Specifically, Figure 3 displays the alpha (or security selection ability) estimates and the market timing or gamma ( $\gamma$ ) estimates from Equation (2).

Panel A of Figure 3 presents the results for the five different trust objectives while Panel B supplies estimates for the portfolio of all

11 This is a zero cost portfolio as it is similar to buying the portfolio of only surviving trust returns and selling the portfolio of all trusts.

12 A zero cost portfolio is such that there is no outlay of money needed.

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	Alpha			Timing			RSQ	WALD alpha	WALD timing
	Whole period	low TB state	high TB state	Whole Period	Low TB state	High TB state			
<b>Panel A - Trust objective</b>									
Growth funds	0.359 (1.92)	-0.374 (-1.20)	-0.793* (-2.25)	-1.579 (-1.41)	1.127 (0.74)	0.485 (0.37)	85.5%	5.80*	1.47
Income funds	0.405 (1.88)	-0.279 (-0.79)	-0.626 (-1.66)	-0.164 (-0.08)	-1.116 (-0.49)	-0.461 (-0.22)	84.6%	3.77*	0.79
Growth & income	0.088 (0.60)	-0.245 (-0.90)	-0.638* (-3.21)	-0.137 (-0.14)	-0.263 (-0.19)	0.205 (0.20)	92.5%	5.06*	6.90*
Balanced funds	0.624 (1.12)	0.341 (0.46)	-1.231* (-2.02)	-5.038* (-2.47)	3.484 (1.05)	3.779 (1.72)	54.8%	2.64	0.13
Smaller companies	0.354 (1.47)	-0.393 (-1.07)	-0.422 (-1.02)	-0.165 (-0.11)	-0.447 (-0.23)	-0.439 (-0.18)	81.3%	1.75	0.16
<b>Panel B - All trusts</b>									
All trusts	0.319 (1.84)	-0.209 (-0.72)	-0.731* (-2.63)	-1.186 (-0.94)	0.367 (0.21)	0.535 (0.39)	88.6%	6.58*	1.41
Surviving trusts	0.358 (1.92)	-0.241 (-0.80)	-0.767* (-3.05)	-1.475 (-1.01)	1.010 (0.55)	0.764 (0.50)	89.4%	7.53*	0.50
(Surviving - all) trusts	0.039 (0.69)	-0.032 (-0.31)	-0.036 (-0.28)	-0.289 (-1.24)	0.644 (1.92)	0.229 (0.69)	0.7%	0.22	0.12

\*denotes significantly different from zero at 5% level.

Figure 3 - Security selectivity and timing results when conditioning on Treasury bills

trusts and the portfolio of only surviving trusts. The first three columns present alpha estimates for the entire period, in the low interest rate state period and in the high interest rate period respectively. The fourth to sixth columns present the timing coefficients. The final three show the adjusted R-squared and Wald statistics. In particular, the last two columns show the joint Wald test estimates which test whether the alpha (or timing) coefficients are jointly zero.

In Panel A, all trust categories report positive alphas for the entire period. For the Growth trusts and Income trusts these alphas are statistically different from zero at the 10 percent level. However, a different picture emerges when the data are split according to the interest rate that prevailed. For the high interest rate state of the economy the selectivity estimates are negative across the five categories of unit trusts. T-statistics for these high-interest-rate state alphas are statistically different from zero for three trust categories, namely growth funds, growth & income funds, and balanced funds. The tests of whether the alpha estimates are jointly equal to zero, as shown by the Wald test, reject the null hypothesis for growth trusts, income trusts, and growth & income trusts. These results indicate that conditioning on interest rates may have an effect on the Ferson and Qian (2004) estimates when the trust objectives are growth, income, and growth & income.

Panel B shows the alphas of portfolios formed from all trusts and surviving trusts. The alphas are all positive and statistically different from zero at the 90 percent confidence level for the entire time period. These alphas, therefore, indicate some level of superior

security selection performance among U.K. unit trusts. However, the alphas in the low interest rate state and high interest rate state of the economy are negative, particularly for the latter category where the coefficients are statistically different from zero at the 5 percent level. The joint tests on whether the alphas are statistically different from zero are given by the Wald statistics. The results show that both the portfolios of all trusts and of the surviving trusts reject the null hypothesis that the alphas are jointly zero. These results suggest that security selection skills are affected by whether Treasury bill rates are high or low.

The timing results for the conditional model when the predetermined variable is the 1-month Treasury bills indicate that timing performance is negative across the trust categories, and statistically significant for balanced trusts. During the low interest rate state of the economy, two types of trusts indicate positive timing abilities, growth trusts and balanced trusts. Periods of high interest rates are characterized by three categories of funds achieving positive market timing estimates. The balanced trusts stand out given that the coefficient is statistically significant at the 10 percent level. This result shows that managers of balanced trusts, which are usually considered to be market timing trusts [Becker et al. (1999) and Ferson and Qian (2004)], may have superior timing skills when interest rates are relatively high. The joint test of whether the timing coefficients are equal to zero show that balanced trusts are statistically jointly different from zero; this suggests that market timing changes with the level of Treasury bill rates in the economy.

Panel B presents the results for two portfolios, one formed from

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all U.K. unit trusts and one restricted to surviving trusts over the period January 1988 to December 2002. These portfolios of all trusts and of surviving trusts have negative timing coefficients. In low interest rate and high interest rate environments the timing coefficients of all trusts and surviving trusts are, on the other hand, positive. In both these high and low interest rate states the survivors report higher timing coefficients than the portfolio of all trusts. Indeed, a zero cost portfolio, which is formed from going long in survivors and short in all trusts, has a positive timing coefficient in both high and low interest rate states of the economy. The zero cost portfolio of the low interest rate state shows a positive and significant coefficient at the 10 percent level. Hence the impact of survivorship bias for our sample of trusts in this conditional model is significant. The joint test results for the Wald and F statistics, therefore, suggest that the portfolio estimates of timing ability are jointly equal to zero. In that case there is no real statistical impact of the timing performance with respect to Treasury bill changes in the U.K. economy.

## Conclusion

This paper investigates the selectivity and timing performance in different states of the economy for the U.K. These states are based on the dividend yield and the one month U.K. Treasury bill rate. The trusts are grouped into portfolios based on their objectives. The trust objectives studied are the growth, growth & income, income, balanced, and smaller company trusts. The various portfolios formed with respect to each of these objectives are examined for selectivity and timing performance with beta and market timing estimates varying over time.

The literature on predictability of returns, such as Fama and French (1988) and Fletcher (2001), find evidence that dividend yields and Treasury bill rates may have a significant relationship with expected returns. The relationship between the expected returns and dividend yields is positive while that between the average returns and Treasury bills is negative. Fletcher (1995) and Cuthbertson et al. (2005) find evidence of negative market timing among U.K. unit trusts. In this paper, the timing results are generally positive during high and low states of the economic variables. There is evidence of superior market timing among growth & income trusts during the periods when dividends are high and low. Furthermore, the balanced trusts which are also referred to as market timing trusts [Becker et al. (1999), Ferson and Qian (2004)] display evidence of market timing when interest rates are high. In this respect, the current paper highlights that market timing may exist when broken down to certain states of the U.K. economy.

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