

# **The Impact of Manager Changes on Fund Performance**

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## **ABSTRACT**

Using our unique database of UK fund manager changes and event study methodology, we examine the impact of such changes to establish whether this impact varies depending upon whether the fund manager is male or female; whether the fund is a developed or emerging market; and depending upon the fund's style, that is, growth, value or small cap. Our results show clearly across different categories of funds that a change in fund manager can have a significant impact on fund performance. We document that funds improve their performance after a female fund manager has been replaced. Finally, we find persistence in performance of the bottom performing funds compared with the top performing funds pre- and post management change.

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## **1. Introduction**

In recent years, studies on investment styles and fund manager performance have become wide-spread. In particular, studies by Chevalier and Ellison (1999) and Wermers et al. (2004) focused on the characteristics of fund managers, such as experience and education, and found evidence that fund performance is positively correlated with manager education and experience. However, there has been little evidence devoted to the influence of gender on fund management. For example Niessen et al. (2006) look at the different management styles between male and female fund managers in the US market, and found significant differences between them: while men are more aggressive, women appear to be more methodological and risk averse in their investment choices. However, most of the studies on gender of fund managers tend to assess the behavioural issues rather than look at the manager performance which is of essence to investors. There has been little attention devoted to the fund manager tenure and its relationship to performance of a fund and additionally, most of the research in this area has been focusing on the US market.

The objective of this paper is to examine the performance of mutual funds and in particular, to study how the performance of a fund is affected when its fund manager leaves. Using our unique database of UK fund manager changes in recent history (2002-2005), we examine whether the impact of a change is more pronounced among male or female managed funds, emerging or developed market funds and whether the persistence of performance depends on fund's style, i.e. growth, value or small cap. We also examine the persistence of the top performing funds compared with the bottom performing funds pre-and post management change. This study attempts to fill the gap in the literature by offering a comprehensive study of fund manager changes and gender influences in different types of funds in the UK managed fund industry and to highlight the effect a fund manager change (replacement) has on the performance of a fund.

This paper presents the first evidence of the effect of fund management changes in the UK's fund management industry.

## **2. Literature Review**

Although mutual funds have stated investment objectives, the fund manager normally has a significant impact on the selection of the individual securities in a fund's portfolio and, therefore, the risk and return characteristics of the portfolio. It would be logical to assume that there is a direct correlation between fund performance and portfolio manager experience, age, education and even gender. If a fund has experienced persistently positive performance, investors often assume that positive performance to continue as long as the same manager is associated with a particular fund.

### **2.1. Does Gender Matter?**

From previous studies it has been shown that performance can persist. But how much of this performance persistence is accountable by female managers? It is a known fact that women and men behave differently and this may affect fund manager performance. Apart from characteristics such as fund's size, structure and expenses, the age tenure, educational level and compensation of the manager that can influence performance of a fund, the issues such as turnover and risk profile of the fund are key differentiating characteristics between male and female managed funds. It is a known fact that women view money, risk and investing differently to men. This may not have been a major issue in the past as the funds management industry has traditionally been male dominated, however, nowadays there are more women managing money on behalf of others. Furthermore, with women being more risk averse would imply that they prefer lower levels of portfolio volatility, individual stock volatility, beta and size.

Atkinson et al. (2003) compare the performance and investment behaviour of female and male fixed-income mutual fund managers. They find that there is no significance difference between the two groups of managers in terms of performance, risk, and other fund characteristics. Their results suggest that differences in investment behaviour often attributed to gender may be related to investment knowledge and wealth constraints. In addition, despite the similarities between male and female managers, there is evidence that gender influences the decision-making of mutual fund investors.

A recent study by Niessen et al. (2006) investigated gender differences between US equity mutual fund managers. Their results indicate that women seen to take moderately less unsystematic risk and less small firm risk, while the total risk does not differ. Higher

idiosyncratic risk taken by male fund managers implies that they trade more actively than the female fund managers. Furthermore, authors report that female fund managers follow less extreme investment styles and that their styles are more stable over time. However, they conclude that although the differences in behaviour between female and male fund managers are apparent, the differences in abnormal returns between the two are not significantly high. Bliss and Potter (2002) find that both US and international female fund managers obtain higher raw returns than male. They do not find that women are more risk averse than men as suggested by some of the previous studies and find that both men and women managers have the same turnover ratio in US funds, while men have higher turnover in international funds. Additionally, according to traditional performance measures such as Sharpe ratio and Alpha, their findings suggest that women outperform men in US funds but not in international ones.

## **2.2 Does Style of investing matter?**

Chevalier and Ellison (1999) find that the older managers use momentum strategies. However, in given that they also report that older managers are out performed by the younger managers, this finding is somewhat contrary to the findings of Carhart (1997) and Daniel, Grinblatt, Titman and Wermers (1997), who showed that momentum strategies are the main reason for performance persistence. Subsequently, the MBA managers showed a statistically significant tendency to purchase 'glamour' stocks (stocks with lower book-to-market ratios). Gallagher's (2003) findings indicate that better performance is achieved by fund managers who follow stock picking approach.

## **2.3. Is there persistence in mutual fund performance?**

Past studies on performance persistence have shown mixed evidence that performance actually persists. Blake and Timmerman (1998) formed portfolios of high and low alpha funds and evaluated that performance did persist for a holding period of up to two years. Allen and Tan (1999) verified that performance persisted even after adjusting for risk and for holding periods of up to two years among 131 UK funds. Quigley and Siquefied (1998) find that underperforming funds continue to under perform, while outperforming funds do not continue to outperform. Keswani and Stolin (2004, 2006) suggest that performance persistence differs between sectors, and conclude that it is not the sector characteristics that explain the different levels of persistence, but the differences in securities invested. Similarly to Hendriks et al. (1993), Elton et. al. (1996) report that past

'winner' funds outperform past 'loser' funds in short term periods and also for longer periods of three years. Goetzman and Ibbotson (1994) find that two-year performance is predictive of performance over the successive two years. They report evidence of relative performance persistence, particularly for underperforming funds. Moreover, Malkiel (1995) found that performance persists in the 1970s but does not continue in the 1980s. The evidence of non-persistence can be found in Carhart (1997) and Daniel et al. (1997) for example.

Given the evidence from prior literature which suggests that there is performance persistence in the short run and that investment strategies of a fund depend largely on managers themselves and their characteristics, this paper will examine how the change of a fund manager in a fund impacts its performance and whether different conclusions apply to different types of funds.

### **3. Data and Methodology**

We use an event study methodology to examine the relationship between mutual fund performance in the pre and post managerial turnover. We apply steps suggested by Campbell, Lo and MacKinlay (1997):

**1. Event definition:** Our event is the managerial turnover, which is defined as the event that occurs when a fund manager is replaced/resigned from the fund. The event date is the month of the management change. Standard event studies use daily data, however, we believe that 1) using a month of managers' change as an event date is sufficient to capture the effect of the change and 2) the data on managers' changes is only available on month-to-month basis. We measure the performance of the fund three years before the event date and one year after the event date<sup>2</sup>, which constitutes our event window of 36 months prior to the event and 12 months after the event. We require this pre-event time period as Khorana (2001) in his paper advocates that funds which experience a management turnover have at least two years of performance history before the management replacement month. Furthermore, Hendricks et al. (1993), Goetzmann et al. (1994) and Brown et al. (1995) all find evidence of performance persistence in mutual funds over a horizon of one to three years. In addition, to a certain extent, this will also enable us to determine the reason of replacement. Some of the reasons to which fund

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<sup>2</sup> Where the manager has not managed the fund three years prior to the event, we apply a minimum data requirement of one year prior to the event date.

manager changes occur are retirement, poor performance of the fund manager or good performance. In the latter case, good performance can give rise of opportunities to the fund manager where s/he moves to a better job position or is simply taken by another fund management company.

**2. Selection criteria for managers and data sources:** Our sample of managers and their corresponding fund performance originates from our primary data source of Citywire<sup>3</sup>, and the Financial Express Database. Both databases cover UK mutual funds and provide information on fund management structures, investment objectives, fund benchmarks, fund managers' characteristics and other fund characteristics. Furthermore, the Standard & Poor's data source provides us with information of manager replacements from April 2002 to December 2005. Our sample data includes a total of 258 fund manager changes. The price data for the funds and their respective benchmarks is obtained from Datastream. We concentrate our analysis on single-managed funds and exclude all manager changes that occur in team-managed funds. In a way, this will assist us to distinguish the differences in fund behaviour due to management structure (team- vs. single-managed) from differences that can be attributed to gender of the manager or investment strategy (value or growth, developed or emerging markets etc.) for example. In addition to this, the data for peer group benchmarks is obtained from Investment Management Association.

**3. Normal and abnormal performance:** To generalise our results across different groups of funds we group our funds according to the following categories: (1) male managed, (2) female managed, (3) emerging markets funds, (4) developed markets funds, (5) equity value funds, (6) equity growth funds, (7) equity small cap funds, (8) top 10 percent performing funds before the management change and (9) bottom 10 percent performing funds before the management change.

We measure the performance of the funds pre-and post- event date in three ways:

a) Performance using benchmark adjusted model:

The traditional event study methodology is using Market model, which is a statistical model, estimated through OLS regression, it relates fund *i* return to the market return and estimates parameters  $\alpha_{it}$  and  $\beta_{it}$  that are used for calculation of abnormal returns. This implies that the estimation period for alphas and betas is needed. Since most of our funds have quite a short history prior to management change, we find that this method is not appropriate for our analysis. The alternative to use in such circumstances is the Market-

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<sup>3</sup> Citywire is a UK data source providing information on UK fund managers and tracks their performance.

adjusted model. Since the funds for which we analyse the impact of fund managers' changes are benchmarking their performance against benchmarks pre-defined in their investment objectives, we feel that it is more appropriate to calculate abnormal returns adjusted for benchmark returns, rather than the market (i.e. FTSE All Share Index) itself. Therefore, the benchmark adjusted return model we use can be treated as restricted Market model in which  $\alpha_{it}$  is equal to zero and  $\beta_{it}$  is equal to one. According to Campbell et. al. (1997), since coefficients alpha and beta are prespecified, an estimation period is not required and abnormal returns can be calculated as:

$$AR_{it} = R_{it} - R_{bt} \quad (1)$$

Where  $AR_{it}$  is abnormal return of fund i in period t,  $R_{it}$  is the actual return of fund i in period t and  $R_{bt}$  is the actual return of the benchmark for fund i in period t. As a benchmark we use i) benchmark index defined by the investment objectives of a fund and ii) peer group benchmark.

Further, we calculate Average Abnormal Returns for each of the 9 groups of funds:

$$\overline{AR}_t = \frac{1}{n} \sum_{i=1}^n AR_{it} \quad (2)$$

Where n is the number of funds in which the change of a fund manager has occurred.

Additionally, typical event study methodology will assess the impact of the event by testing whether there is a difference between cumulative abnormal returns for fund i before and after the event, in our case the change of fund manager:

$$CAR_{it} = \sum_{t=-36}^{+12} AR_{it} \quad (3)$$

$CAR_{it}$  gives us returns from investing in fund i from the start of the event horizon till the 12 months post event date.

For each of our group of funds we calculate Average Cumulative abnormal returns:

$$\overline{CAR}_{it} = \sum_{t=-36}^{+12} \overline{AR}_i \quad (4)$$

b) Performance using mean adjusted model:

$$AR_{it} = R_{it} - \overline{R}_i \quad (5)$$

Where  $\overline{R}_i$  is the mean return of fund i for which the management change has occurred over the pre-event estimation period (in our case 36 months prior to the change of fund manager) as suggested by Campbell et al. (1997). Although this model appears to be the simplest out of the three, Brown and Warner (1980, 1985) state that it often gives similar results as the other more complex models.

In the same manner as in a), we calculate Average Abnormal Returns, Cumulative Abnormal Returns and Average Cumulative Abnormal Returns for the Mean Adjusted Model using equations (2), (3) and (4).

c) Performance using information ratio:

$$IRi_{t<0} = \frac{\overline{Ri}_{t<0} - \overline{Rb}_{t<0}}{St.Deviation(Ri_{t<0} - Rb_{t<0})} \text{ and}$$

$$IRi_{t>0} = \frac{\overline{Ri}_{t>0} - \overline{Rb}_{t>0}}{St.Deviation(Ri_{t>0} - Rb_{t>0})} \quad (6)$$

Where  $IRi_{t<0}$  ( $IRi_{t>0}$ ) is the information ratio obtained by fund i before (after) the management change;  $\overline{Ri}_{t<0}$  ( $\overline{Ri}_{t>0}$ ) is the average return of fund i before (after) the event;  $\overline{Rb}_{t<0}$  ( $\overline{Rb}_{t>0}$ ) is the average return of the benchmark for the pre-event (post-event) period; and Standard deviation of  $Ri_{t<0} - Rb_{t<0}$  ( $Ri_{t>0} - Rb_{t>0}$ ) is taken as measure of total risk over the pre-event (post-event) period. The information on appropriate benchmarks for each fund is obtained from Citywire, S&P database or fund fact sheets. Note that we do not use

peer-group performance as a benchmark for calculation of Information ratios but the benchmark which is defined by fund objectives.

Further, to avoid any fund-specific bias in our results, we calculate the average Information Ratio for each of our 9 groups of funds as:

$$\overline{IR}_{t<0} = \sum_{i=1}^n IRi_{t<0} \quad \text{and} \quad \overline{IR}_{t>0} = \sum_{i=1}^n IRi_{t>0} \quad (7)$$

Where  $\overline{IR}_{t<0}$  ( $\overline{IR}_{t>0}$ ) is the average information ratio of n funds for each of our 9 groups in the period prior to (after than) event.

**4. Testing procedure:** To test for significance of Average abnormal returns and Average cumulative abnormal returns in b) and c) we need to calculate the aggregate pre-event standard deviation of abnormal returns for each of the funds within each of the 12 sample groups (Brown and Warner (1985):

$$\sigma_{i,pre-event} = \sqrt{\frac{\sum_{t=-36}^{-1} (\overline{AR}_{it} - \overline{AR}_{pre-event})^2}{n-1}} \quad (8)$$

Where  $\sigma_{i,pre-event}$  is the standard deviation of abnormal returns of fund i estimated from pre-event period,  $\overline{AR}_{pre-event}$  is the average abnormal return of fund i in the pre-event period and n is the number of months in the pre-event period (in our case 36).

The aggregate standard deviations across all funds in each of the 9 sample groups are calculated as:

$$\sigma_{N,pre-event} = \sqrt{\frac{\sum_{i=1}^N \sigma_{i,pre-event}^2}{N}} \quad (9)$$

Where N is the number of funds in the sample.

Using these standard deviations, we calculate T-test for ARs and CARs as:

$$\overline{AR}_{T-test} = \frac{\overline{AR}_t}{\sigma_{N,pre-event}} \quad (10)$$

and

$$\overline{CAR}_{T-test} = \frac{\overline{CAR}_t}{\sigma_{N,pre-event} \sqrt{t_2 - t_1 + 1}} \quad (11)$$

Where  $t_1$  is the first day and  $t_2$  is the last day in the period over which we calculate cumulative returns.

#### 4. Empirical Results

Analysis that follows shows that three alternative methods of measuring abnormal performance generate to some extent similar results. We report the results both for the overall sample of funds and by fund categories.

##### 4.1. All Funds

According to the benchmark adjusted and peer adjusted method, twenty-four months prior to the event date, the average abnormal returns are at their lowest and are more volatile during the pre-event period. Subsequently, the average abnormal returns for all the funds increase and continue to do so after the event date. Appendix 1 shows the average abnormal returns and the cumulative abnormal returns over the event period for the full sample of 258 funds. Additionally, the sum of the benchmark adjusted average abnormal returns before the event date (-0.0531) is lower than the sum of the average abnormal returns after the event date (-0.0042) as shown in Table 1.

-Insert Table 1 -

The benchmark adjusted cumulative abnormal returns shown in Figure 1 show a decrease in value during the pre-event period and from period  $t-12$  to  $t+12$  they are statistically significant. However, from the event date until  $t+10$ , the cumulative average abnormal returns continue to decrease in value, but at a substantially lower rate. After month  $t+10$  the average abnormal returns show a large increase in value which has a positive impact on cumulative average abnormal. The values of benchmark adjusted abnormal returns and cumulative abnormal returns are reported in Appendix 1.

- Insert Figure 1 –

Very similar pattern of cumulative abnormal returns is observed in the peer group adjusted performance, as seen in Figure 2.

- Insert Figure 2-

The sum of the peer group adjusted average abnormal returns before the event date (-0.0828) is lower than the sum of the average abnormal returns after the event date (-

0.0177), and it can be seen in Appendix 2 that peer-adjusted average abnormal returns becoming positive after about a year of post-event performance.

Overall, the funds in our sample are exhibiting a persistent decrease in returns before the change in manager. Once a manager has been replaced, the returns and the overall performance of the funds improve after a number of months. This can lead us to conclude that the performance of the fund managers from our sample was unsatisfactory leading to a replacement, but the replacement manager has around 10 months of the 'adjustment period' before the performance starts to improve.

The mean adjusted average abnormal returns, reported in Appendix 3, are statistically significant at periods  $t-34$ ,  $t-23$ ,  $t-18$ ,  $t=0$  and  $t+1$ , and have a less mean-reverting trend as a comparison to the benchmark- or peer group -adjusted average abnormal returns. Nevertheless, the results are leading to the same conclusion as for benchmark adjusted returns. In particular, funds exhibit positive average abnormal returns sixteen months before the event date and continue to do so until the event, with only a few negative values in between. However, during the event date and two months after the fund manager leaves, the average abnormal returns decrease to negative values before they start increasing again. This implies that a new fund manager will take up to a few months before adjusting to a new position of running the fund. Mean adjusted cumulative average abnormal returns shown in Figure 3 exhibit similar pattern as the benchmark-adjusted ones: returns are at their lowest one year before the event while eight months after the change in fund manager the funds exhibit increase in cumulative abnormal returns which continues in the succeeding months.

- Insert Figure 3 -

To conclude, according to mean-adjusted method of performance, a change in fund manager does improve the funds' performance based on average abnormal returns after the event date, but cumulative abnormal returns still remain negative.

Finally, we would expect to draw similar conclusions from the analysis of information ratios and benchmark adjusted method, as they are both benchmark-based performance measures. Table 1 provides the results of the average tracking error, average abnormal returns, sum of the average benchmark adjusted abnormal returns and information ratios both for pre-event date and post-event for the total sample of funds and each of the

categories of funds. For the total sample of funds, the information ratio is lower for the post-event period (-0.0853) in comparison to the pre-event period (-0.0655). This implies that given the decrease in tracking error post event, the funds overall do not exhibit higher average abnormal returns relative to their corresponding benchmarks in the post-event period as a comparison to the pre-event period. Once a new fund manager takes over the fund, s/he is more cautious which may explain the fall in the average standard deviation and decline in the risk preference taken.

Information ratios by fund category from Table 1 will be discussed in the sections that follow.

#### **4.2. Male vs. Female Managed Funds**

Two thirds of funds in our data sample are male managed. The sum of benchmark-adjusted average abnormal returns for the male managed funds is lower for the pre-event period (-0.0476) than for the post-event period (-0.0053). The sum of the benchmark adjusted average abnormal a return for the female managed funds during the pre-event period is -0.0805, whereas the post-event period entails a positive return sum of 0.0013<sup>4</sup>. This indicates that both male and female managed funds improve performance after the manager change but female managed funds improve more. Looking at benchmark-adjusted, peer group-adjusted and mean-adjusted cumulative abnormal returns in Figure 4, Figure 5 and Figure 6 respectively, one can conclude that i) the performance of those funds managed by women is more volatile during the pre-event period ii) the returns of both male and female managed funds are following a decreasing trend pre-event, and iii) after the event that the performance of funds actually improves after a period of time.

- Insert Figure 4-

- Insert Figure 5-

- Insert Figure 6-

In particular, according to benchmark-adjusted and peer adjusted return criteria, once the male fund manager is replaced, the cumulative average abnormal returns continue to decline until  $t+10$ , followed by an advance in performance until  $t+12$ . Indeed, during these last two months of our estimation, the previously male managed funds are generating abnormal returns above their benchmarks. For female managed funds the benchmark-adjusted (peer-adjusted) cumulative abnormal returns show an improvement in months  $t+7$

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<sup>4</sup> The full set of results for AARs and CAARs for all individual groups of funds is available from the authors.

to  $t+9$  ( $t+5$  to  $t+12$  for peer adjusted) after the replacement of female fund manager. Mean adjusted cumulative average abnormal returns in Figure 6 show somewhat different picture: although the male and female fund performance trend is similar prior to manager change, we see that replacement of female managers leads to positive mean-adjusted cumulative returns.

According to all estimation methods, the average abnormal returns increase after the change in fund manager, generating abnormal returns. However, the improvement in performance is higher for the previously female managed funds, particularly according to mean adjusted estimation method.

In terms of information ratios, information ratio for male managed funds is slightly lower in the post-event (-0.0789) compared to the pre-event (-0.0576) period. Similarly, female managed funds' average abnormal return, tracking error and information ratio all slightly improve in the post-event period. These information ratios are based on the benchmarks set and determined by funds' objectives and the findings are consistent with the ones we obtain using the benchmark adjusted method.

#### **4.3. Emerging Markets vs. Developed Markets Funds**

Although the majority of the funds in our data sample are developed markets funds, we identify 17 emerging markets funds which predominantly invest in the Asian markets. Analysing benchmark adjusted cumulative average abnormal returns from Figure 7 we find that emerging markets outperform their respective benchmarks generating positive cumulative average abnormal in the whole period, with the exception of months  $t-33$  and  $t-32$ . Emerging market funds are more volatile and more risky than the developed funds and the managers that are in charge of them take greater risk exposures. Nevertheless, although they are positive, the downward trend in emerging market benchmark adjusted abnormal returns is obvious from  $t-14$  to the event date. After the fund manager change, the emerging market funds continue to outperform, showing greater improvement in performance and an upward trend from  $t+7$  onwards. Developed markets funds on the other hand continue to underperform their benchmarks before and after manager change. This indicates that both of these groups of funds exhibit some level of persistence in performance before and after manager change.

- Insert Figure 7 -

Out of all different categories of funds we analyse, the results of the emerging market funds for the peer group-adjusted method show the most noticeable difference to the results of the benchmark-adjusted method, while developed market funds show similar performance pattern based on both benchmark adjusted and peer adjusted methods, as seen in Figure 8. There is an obvious downward trend in peer-adjusted performance for both group of funds. One should note that, although the trend continues to be negative after the event date, there is a slight improvement in performance for both emerging and developed markets funds in that they both generate less negative peer adjusted cumulative average abnormal returns after the management change. This is particularly pronounced among emerging market funds.

- Insert Figure 8-

When we take into account the mean-adjusted performance we see a somewhat different picture. Figure 9 indicates that although emerging market funds outperform their benchmarks, they do not manage to persistently outperform their mean, although they do exhibit periods of outperformance around ten months before and after management change for a period of few months. In addition it can clearly be seen that mean adjusted performance of emerging market funds is decreasing just before the manager change and increasing soon after, indicating a positive effect that a change has had on the performance. Developed market funds on the other hand, do not outperform their mean or their benchmarks before or after the management change. Some improvement in mean-adjusted performance of developed funds occurs in months  $t+5$  to  $t+12$  funds but it is not sufficient to generate cumulative outperformance.

-Insert Figure 9-

The information ratio analysis suggests that after the event, the information ratio for emerging markets funds changes from negative (-0.0052) to the positive value (0.0205), while it remains negative for developed market funds, leading us to conclude once again that improvement in performance is more prominent after the change of a fund manager in an emerging market fund.

#### **4.4. Growth Funds, Value Funds and Small Capitalization Funds**

We divide the equity funds into style categories, specifically growth funds, value funds and small capitalization funds. Out of the entire sample of funds, 76 of them are equity growth, 27 are small cap and five funds follow value style. From Table 1 one can see that the value

funds display positive benchmark-adjusted average abnormal returns before and after the event date, growth funds have positive average benchmark adjusted abnormal returns after the event date and small cap funds are underperforming the benchmark on the average before and after the manager change. In addition, the sum of the average abnormal returns for value funds and growth funds is positive after the event period, while small cap funds show negative but improved value for sum of average abnormal returns in the post-event period. These findings are confirmed in Figure 10, which demonstrates the benchmark adjusted cumulative average abnormal returns for the growth, value and small capitalization funds.

-Insert Figure 10-

Benchmark-adjusted cumulative average abnormal returns before the event date are statistically significant for the growth funds ( $t-17$  to  $t-1$ ), value funds ( $t-33$  to  $t-1$ ) and small capitalization funds ( $t-15$  to  $t-1$ ), while on and after the event date they are significant for all the funds until the end of the sample period  $t+12$ . Value funds are the only ones that outperform throughout the period based on their cumulative average abnormal returns. It can be noted that all three group of funds show a decline in performance before the manager change, which is consistent to the conclusions related to other group of funds analysed. After the manager change there is no extreme improvement in benchmark adjusted performance for any of the three groups of funds. Looking at the sum of benchmark adjusted average abnormal returns in the pre-event and post-event period, one can see that although value and growth funds have positive sum of average abnormal return, the funds that show increase in that sum from pre event period to post event period are actually growth and small cap funds. Although the sum of average abnormal returns remains positive for value funds, it has decreased in value after the event date. From these results, we can conclude that the change in fund manager has been in favour for the growth funds and small capitalization funds, while although value funds outperform, they do not improve the level of outperformance after the manager change.

Peer group adjusted performance of all three styles of equity funds improves in the post-event period, with the growth funds showing the highest improvement starting right after the manager change, as seen in Figure 11. Furthermore, all three styles of equity funds yield positive average returns above their peer benchmarks at the end of the post-event period, from month 10 onwards.

- Insert Figure 11-

The first glance of mean adjusted cumulative abnormal returns suggests different findings to benchmark-adjusted and peer-adjusted methods. Particularly, value funds which according to the benchmark and peer-adjusted methods of performance showed clear downward trend in performance preceding the manager change, they show increasing trend in performance from month  $t-20$  onwards. In general, as seen in Figure 12, in the months leading to manager change all three groups of funds perform below their means. After the manager change, their performance converges towards their respective means, showing a degree of improvement for all three groups of funds.

- Insert Figure 12 -

In terms of information ratios, all three fund categories exhibit increase in the information ratio after the event from 0.06 to 0.11 for value funds, -0.06 to 0.03 for growth funds and -0.12 to -0.08 for small cap funds. The three groups of funds generate lower average tracking error in the post-event period, which may explain the increase in their corresponding information ratios after the event date. From this, one can conclude that the new fund manager is more vigilant with lower deviations from the benchmark's return.

#### **4.5. Best Ten Percent vs. Worst Ten Percent Performing Funds: Is there Persistence in Performance?**

In this section we assess whether the performance of the funds in our sample persists. In particular, we examine whether the top performing funds, or the 'winners', continue to outperform, and whether the bottom performing funds, or the 'losers', persist on underperforming after the change in fund manager. In order to rank the performance of the funds, we use the pre-event information ratio for individual funds and select top 10% and bottom 10% of funds before the event. We examine the performance of those two groups of funds after the event to assess if there is any persistence in performance among the top or the bottom performers. Since the funds' information ratios are calculated using benchmark adjusted excess returns and tracking error based on those returns, we report in this section only benchmark adjusted cumulative average abnormal returns for top 10% and bottom 10% of the funds. This benchmark adjusted cumulative performance for top 10% of funds is presented in Figure 13.

-Insert Figure 13-

The rise in the cumulative average abnormal returns can be observed almost from the start of our analysis, from  $t-34$ , up to the event date,  $t=0$ . However, after the event date the cumulative average abnormal returns gradually start to decline until the end of our sample

period,  $t+12$ . From these results, we can conclude that the prior, or pre-event, winner funds do not exhibit the same performance in the post-event period. Their average abnormal returns are relatively lower in the post-event period. On observing individual funds within the 10% of top performers, we find that some of the funds after the change in fund manager continue to outperform, but only for a very short period (a month or two to three months) until performance starts to decline. This indicates that the manager's portfolio decisions continue to have a positive impact after they have left, but eventually this positive influence wanes and is generally not replicated by the new management. This leads us to conclude that the performance of the past winners does not persist and the impact of the fund manager being replaced played a significant role in the deterioration.

Cumulative abnormal returns of bottom 10% of the funds according to pre-event information ratio have a different pattern which can be seen in Figure 14. In particular, as these are the pre-event 'loser' funds, their returns naturally decline prior to the event date. However, as the fund a manager is replaced, they persist to decline but at a lower diminishing rate.

-Insert Figure 14-

Therefore, the performance of the 'loser' funds does continue to persist in the post-event period as in the pre-event period, even if a new fund manager has taken over the funds. Consequently, the poor performance of the fund managers of the bottom ten percent performing funds may have led to their replacement. In other words, investors in these funds should not pin their hopes on a rapid turnaround in performance when their poorly performing manager leaves.

## **5. Conclusion**

The study examines how is the performance of UK funds affected when a fund manager leaves. In particular, we assess whether there is an impact of a manager change and whether this impact varies depending upon whether the fund manager is male or female; whether the fund is a developed or emerging markets fund; and depending upon the fund's style, that is, growth, value or small cap. In addition, we examine if there is persistence in performance across top and bottom performing funds after the manager change.

We construct a unique database for UK manager changes in the period April 2002 to December 2005 and use an event study methodology to assess performance before and after

management change. Specifically, we measure the performance using 1) benchmark adjusted returns, both in terms of i) benchmarks set by the objectives of a fund and ii) peer-group benchmarks; 2) mean-adjusted returns and 3) information ratios. Performance is measured three years prior to the change in fund manager and one year after that change.

Our findings suggest that the performance of the funds in our sample broadly improve following a change in manager regardless of which method for assessing performance is used. Two years prior to the manager change the average abnormal returns are at their lowest and are generally more volatile during the pre-event period compared with the post-event period. We document evidence that suggests that the performance of those funds managed by women is more volatile during the pre-event period, and that the performance of the fund actually improves on average after the female fund manager has been replaced. We find greater persistence in out-performance across emerging market funds. Further, small cap and growth equity funds improve their performance after the manager change. Last, but not least, focussing on the prior performance of the funds in our sample, our results indicate that the ten percent of top performing funds before the change in fund manager continue to outperform, but only for a very short period until performance declines. This implies that there is no persistence in performance in funds classified as 'winners' before the event date. We find however that the bottom ten percent of performers prior to the manager change makes little difference to their subsequent performance, so that underperformance persists at least for the following 12 months. This paper presents the first evidence of such phenomena in the UK's fund management industry.

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**APPENDIX 1: Benchmark-Adjusted AARs and CAARs (\*indicates significant at 5% level)**

<b>Event Time</b>	<b>Average Abnormal Returns</b>	<b>T-test</b>	<b>Cumulative Average Abnormal Returns</b>	<b>T-test</b>
t-36	0.004314302	1.62	0.004314302	0.228
t-35	0.00053391	0.20	0.004848212	0.256
t-34	-0.001483869	-0.56	0.003364344	0.178
t-33	-0.006397176	-2.40*	-0.003032833	-0.160
t-32	0.003498183	1.31	0.000465351	0.025
t-31	-0.000740737	-0.28	-0.000275387	-0.015
t-30	-0.001028939	-0.39	-0.001304326	-0.069
t-29	-0.000729925	-0.27	-0.002034251	-0.108
t-28	0.000804434	0.30	-0.001229817	-0.065
t-27	-0.003782734	-1.42	-0.005012551	-0.265
t-26	0.001612215	0.61	-0.003400336	-0.180
t-25	0.000307357	0.12	-0.003092979	-0.164
t-24	-0.003227322	-1.21	-0.006320301	-0.334
t-23	-0.00940271	-3.53*	-0.015723012	-0.832
t-22	0.000872481	0.33	-0.014850531	-0.785
t-21	-0.001113567	-0.42	-0.015964098	-0.844
t-20	-0.006184065	-2.32*	-0.022148163	-1.171
t-19	-0.001508671	-0.57	-0.023656834	-1.251
t-18	-0.000617128	-0.23	-0.024273962	-1.284
t-17	-0.001059697	-0.40	-0.025333659	-1.340
t-16	-0.000662308	-0.25	-0.025995967	-1.375
t-15	0.000226	0.08	-0.025769966	-1.363
t-14	-0.004162014	-1.56	-0.02993198	-1.583
t-13	0.00058912	0.22	-0.02934286	-1.552
t-12	-0.002976535	-1.12	-0.032319395	-1.709*
t-11	-0.000976182	-0.37	-0.033295577	-1.761*
t-10	-0.001596914	-0.60	-0.034892491	-1.846*
t-9	-0.003816025	-1.43	-0.038708516	-2.047*
t-8	-0.004110115	-1.54	-0.042818631	-2.265*
t-7	-0.002069901	-0.78	-0.044888532	-2.374*
t-6	-0.00184448	-0.69	-0.046733012	-2.472*
t-5	-0.000287807	-0.11	-0.047020819	-2.487*
t-4	-0.002677181	-1.01	-0.049698	-2.629*
t-3	0.000226273	0.09	-0.049471727	-2.617*
t-2	-0.003541863	-1.33	-0.05301359	-2.804*
t-1	-0.000133914	-0.05	-0.053147504	-2.811*
t=0	0.000331215	0.12	-0.052816	-2.793*
t+1	-0.002278706	-0.86	-0.055095	-2.914*
t+2	0.000361195	0.14	-0.054734	-2.895*
t+3	-0.001062844	-0.40	-0.055797	-2.951*
t+4	0.00032502	0.12	-0.055472	-2.934*
t+5	-0.002018345	-0.76	-0.05749	-3.040*
t+6	0.0006675	0.25	-0.056822	-3.005*
t+7	-0.00087749	-0.33	-0.0577	-3.051*
t+8	0.00066233	0.25	-0.057038	-3.016*
t+9	-0.001452885	-0.55	-0.058491	-3.093*
t+10	-0.002025754	-0.76	-0.060516	-3.200*
t+11	0.000237361	0.09	-0.060279	-3.188*
t+12	0.002889389	1.09	-0.05739	-3.035*

\*significant at 5% level



APPENDIX 2: Peer Group-Adjusted Total Sample AARs and CAARs

Event Time	Average Abnormal Returns	T-test	Cumulative Average Abnormal Returns	T-test
t-36	0.0024982	0.97	0.0024982	0.08
t-35	0.0033135	1.29	0.0058117	0.19
t-34	0.0011478	0.45	0.0069596	0.23
t-33	-0.0007302	-0.28	0.0062294	0.21
t-32	-0.0012309	-0.48	0.0049985	0.17
t-31	0.0006551	0.25	0.0056535	0.19
t-30	0.0001156	0.04	0.0057691	0.19
t-29	4.747E-05	0.02	0.0058166	0.19
t-28	-0.0018646	-0.73	0.0039519	0.13
t-27	-0.0047779	-1.86*	-0.0008259	-0.03
t-26	-0.0015129	-0.59	-0.0023388	-0.08
t-25	-0.0013643	-0.53	-0.0037032	-0.12
t-24	-0.0040011	-1.56	-0.0077043	-0.26
t-23	-0.0087974	-3.42*	-0.0165016	-0.55
t-22	-0.0018048	-0.70	-0.0183065	-0.61
t-21	0.0001759	0.07	-0.0181306	-0.61
t-20	-0.0066853	-2.60*	-0.0248159	-0.83
t-19	-0.0013391	-0.52	-0.026155	-0.88
t-18	-0.0053819	-2.09*	-0.0315369	-1.06
t-17	-0.0033707	-1.31	-0.0349076	-1.17
t-16	-0.0018705	-0.73	-0.0367781	-1.23
t-15	-0.0013032	-0.51	-0.0380813	-1.28
t-14	-0.0024492	-0.95	-0.0405305	-1.36
t-13	-9.976E-05	-0.04	-0.0406302	-1.36
t-12	-0.0049157	-1.91	-0.0455459	-1.53
t-11	-0.0023913	-0.93	-0.0479372	-1.61
t-10	-0.0023697	-0.92	-0.0503069	-1.69*
t-9	-0.0064435	-2.51	-0.0567505	-1.90*
t-8	-0.0033275	-1.30	-0.060078	-2.01*
t-7	-0.0037072	-1.44	-0.0637852	-2.14*
t-6	-0.0051587	-2.01	-0.0689439	-2.31*
t-5	-0.0011815	-0.46	-0.0701254	-2.35*
t-4	-0.0045155	-1.76	-0.0746408	-2.50*
t-3	-0.0015018	-0.58	-0.0761427	-2.55*
t-2	-0.0038788	-1.51	-0.0800215	-2.68*
t-1	-0.0027911	-1.09	-0.0828126	-2.77*
t=0	-0.0030751	-1.20	-0.0858877	-2.88*
t+1	-0.001915	-0.75	-0.0878027	-2.94*
t+2	-0.0021721	-0.85	-0.0899748	-3.01*
t+3	-0.0022684	-0.88	-0.0922432	-3.09*
t+4	-0.002442	-0.95	-0.0946852	-3.17*
t+5	0.0002121	0.08	-0.0944731	-3.17*
t+6	-0.0005209	-0.20	-0.094994	-3.18*
t+7	-0.001269	-0.49	-0.096263	-3.23*
t+8	-0.002148	-0.84	-0.098411	-3.30*
t+9	-0.000384	-0.15	-0.098795	-3.31*
t+10	-0.0017559	-0.68	-0.1005509	-3.37*
t+11	-0.0002982	-0.12	-0.1008492	-3.38*
t+12	0.0003781	0.15	-0.100471	-3.37*

\*significant at 5% level

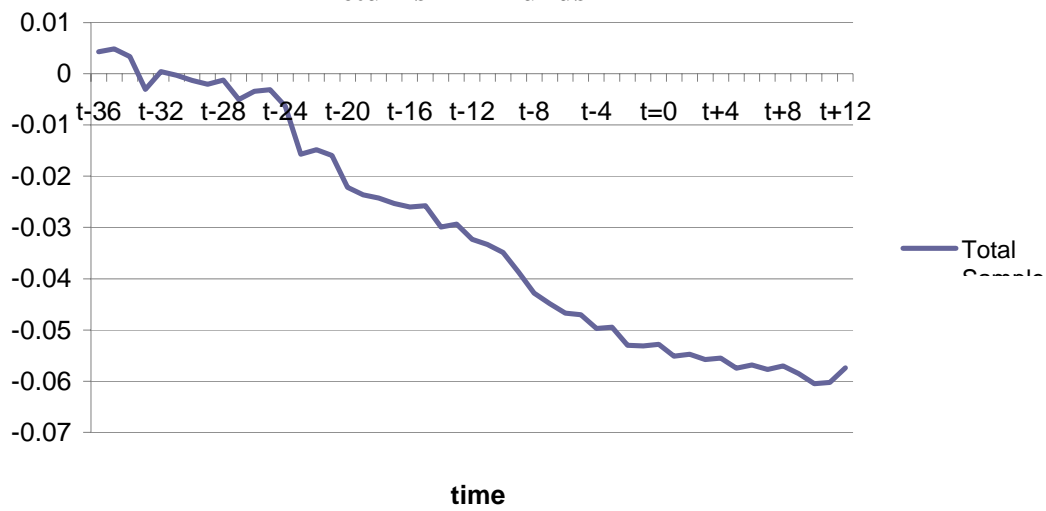
**APPENDIX 3: Mean-Adjusted AARs and CAARs (\*indicates significant at 5% level)**

Event Time	Average Abnormal Returns	<i>T-test</i>	Cumulative Returns	Average Abnormal	<i>T-test</i>
t-36	0.004686	0.82		0.004686	0.30
t-35	0.006861	1.20		0.011547	0.74
t-34	-0.00964	-1.68*		0.001904	0.12
t-33	-0.00327	-0.57		-0.00137	-0.08
t-32	0.001942	0.34		0.000571	0.03
t-31	0.002585	0.45		0.003156	0.20
t-30	0.005031	0.88		0.008188	0.53
t-29	-0.00048	-0.08		0.007708	0.49
t-28	-0.0036	-0.63		0.004105	0.26
t-27	-0.00191	-0.33		0.002192	0.14
t-26	-0.00279	-0.48		-0.00059	-0.03
t-25	0.002349	0.41		0.001754	0.11
t-24	-0.00912	-1.59		-0.00736	-0.47
t-23	-0.01701	-2.98*		-0.02438	-1.58
t-22	0.000517	0.09		-0.02386	-1.54
t-21	-0.00048	-0.08		-0.02434	-1.57
t-20	-0.00514	-0.89		-0.02947	-1.91*
t-19	0.00615	1.07		-0.02333	-1.51
t-18	-0.01099	-1.92*		-0.03432	-2.22*
t-17	-0.00448	-0.78		-0.0388	-2.51*
t-16	0.00269	0.47		-0.03611	-2.34*
t-15	0.000879	0.15		-0.03523	-2.28*
t-14	0.000947	0.16		-0.03428	-2.22*
t-13	0.008218	1.43		-0.02606	-1.68*
t-12	-0.00691	-1.21		-0.03297	-2.13*
t-11	0.006241	1.09		-0.02673	-1.73*
t-10	0.005398	0.94		-0.02133	-1.38
t-9	-0.00178	-0.31		-0.02312	-1.49
t-8	-0.00093	-0.16		-0.02405	-1.55
t-7	-0.00057	-0.09		-0.02461	-1.59
t-6	0.000954	0.167		-0.02366	-1.53
t-5	0.0038	0.66		-0.01986	-1.28
t-4	0.000885	0.15		-0.01897	-1.22
t-3	0.008811	1.54		-0.01016	-0.65
t-2	0.003632	0.63		-0.00653	-0.42
t-1	0.004424	0.77		-0.00211	-0.13
t=0	-0.01137	-1.99*		-0.0134	-0.87
t+1	-0.00955	-1.67*		-0.0230	-1.49
t+2	-0.00196	-0.34		-0.024977	-1.61
t+3	-0.00035	-0.06		-0.025331	-1.64
t+4	-0.00319	-0.55		-0.028519	-1.84*
t+5	0.005523	0.96		-0.022996	-1.49
t+6	0.003489	0.61		-0.019507	-1.26
t+7	-0.00318	-0.55		-0.022684	-1.47
t+8	0.002692	0.47		-0.019992	-1.29
t+9	0.001031	0.18		-0.018961	-1.22
t+10	0.002806	0.49		-0.016154	-1.04
t+11	0.008224	1.44		-0.00793	-0.51
t+12	0.005226	0.91		-0.002704	-0.17

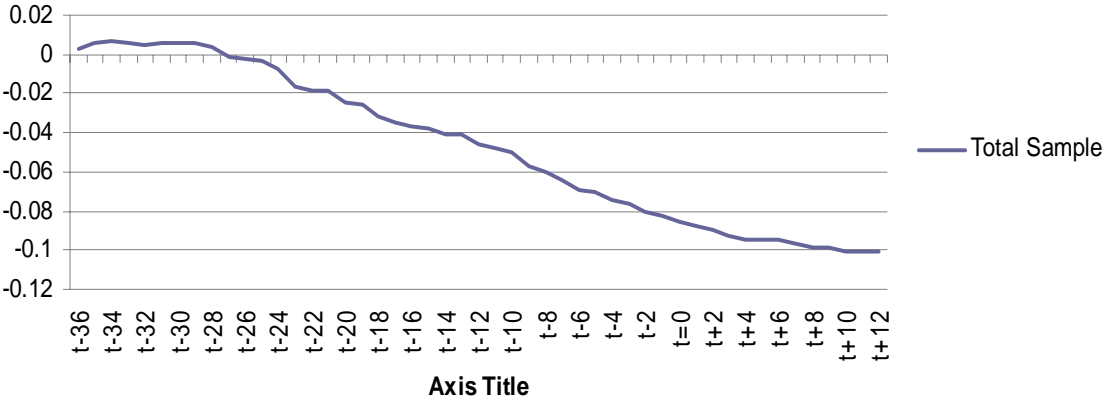
**Table 1: Information Ratio Summary**

	Average Tracking Error		Average Abnormal Return		Information Ratio		Sum Average Abnormal Return	
	Pre-event	Post-event	Pre-event	Post-event	Pre-event	Post-event	Pre-event	Post-event
<b>Total Sample</b>	0.0248	0.0175	-0.0016	-0.0004	-0.0655	-0.0853	-0.0531	-0.0042
<b>Male</b>	0.0243	0.0176	-0.0015	-0.0004	-0.0576	-0.0789	-0.0476	-0.0054
<b>Female</b>	0.0279	0.0171	-0.0025	-0.0001	-0.1269	-0.1239	-0.0805	0.0013
<b>Emerging Markets</b>	0.0271	0.0177	0.0001	0.0005	-0.0052	0.0205	0.0032	0.0114
<b>Developed Markets</b>	0.0247	0.0175	-0.0017	-0.0004	-0.0699	-0.0927	-0.0579	-0.0054
<b>Value</b>	0.0313	0.0158	0.0033	0.0009	0.0622	0.1134	0.1782	0.0254
<b>Growth</b>	0.0275	0.0189	-0.0023	0.0013	-0.0582	0.0337	-0.0848	0.0192
<b>Small</b>	0.0355	0.0239	-0.0067	-0.0013	-0.1239	-0.0789	-0.2105	-0.0181

**Figure 1: Benchmark-adjusted Cumulative Average Abnormal Returns - All Funds**



**Figure 2: Peer Group-Adjusted Cumulative Average Abnormal Returns - All Funds**



**Figure 3: Mean-Adjusted Cumulative Average Abnormal Returns - All Funds**

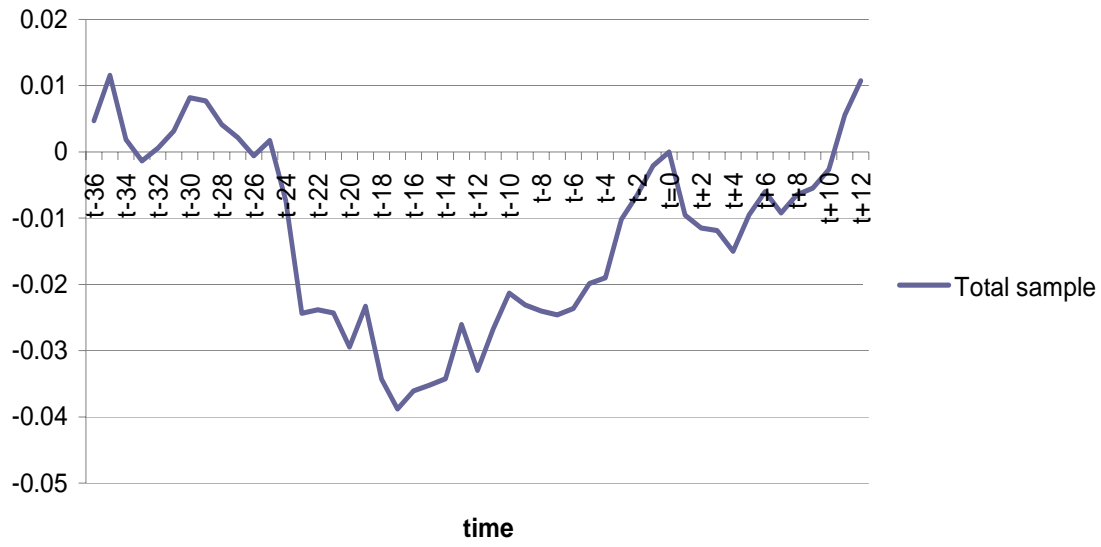


Figure 4: Male vs. Female Managed Funds - Benchmark Adjusted Cumulative Average Abnormal Returns

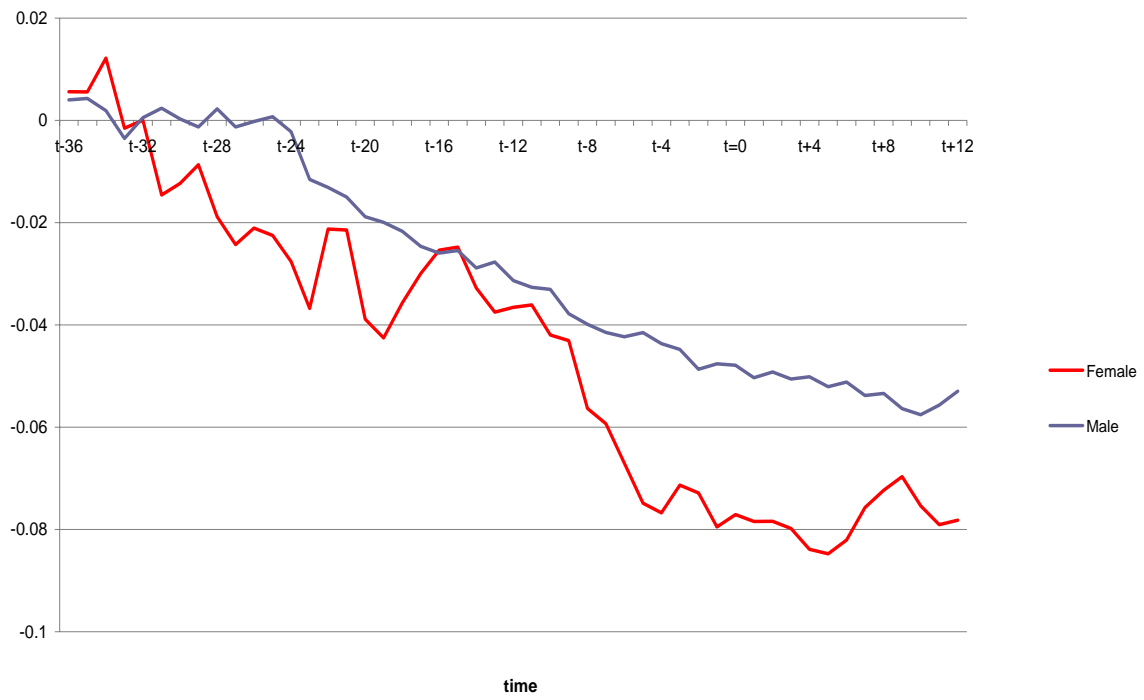


Figure 5: Male vs Female Managed Funds - Peer Group-Adjusted Cumulative Average Abnormal Returns

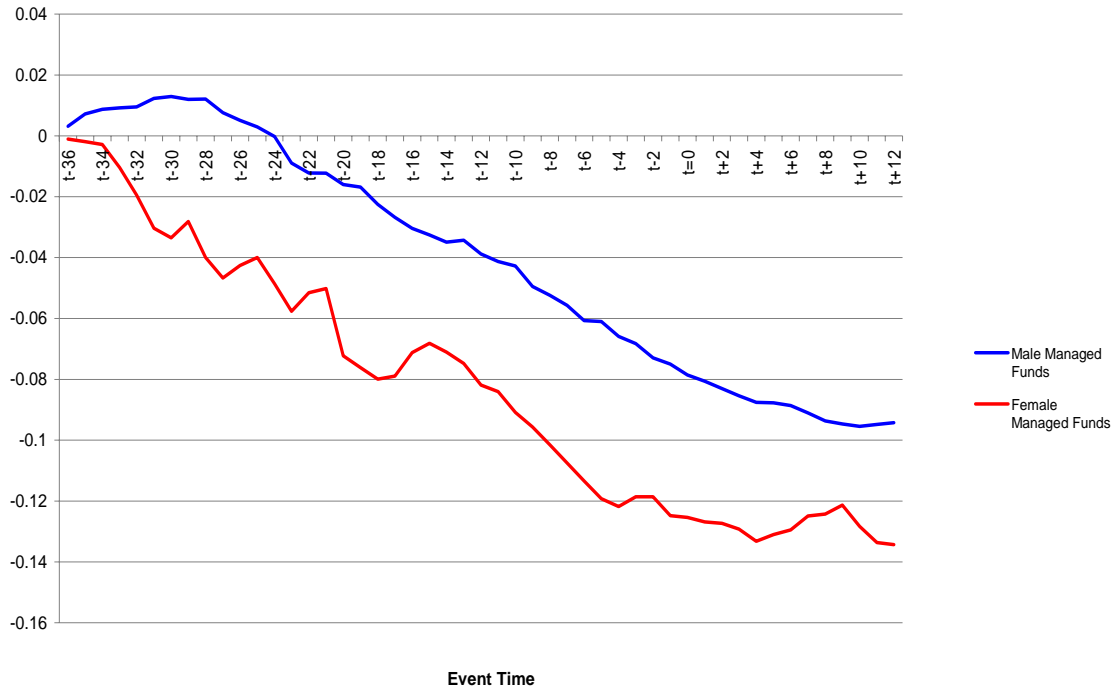
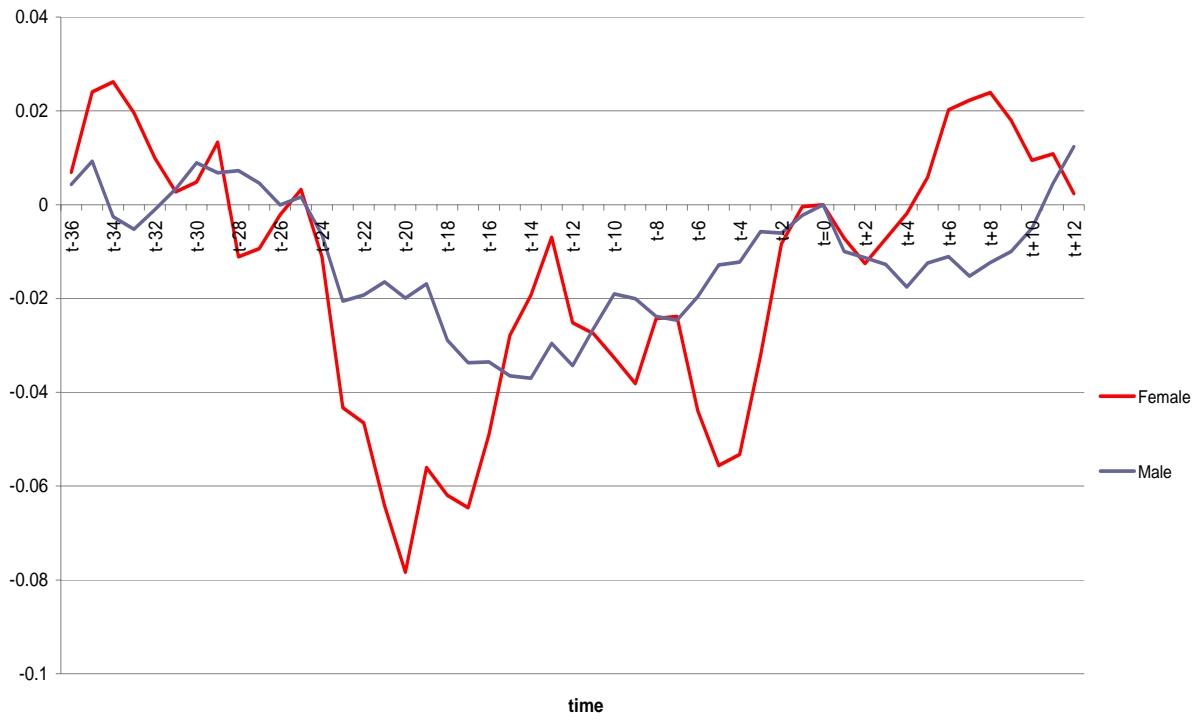
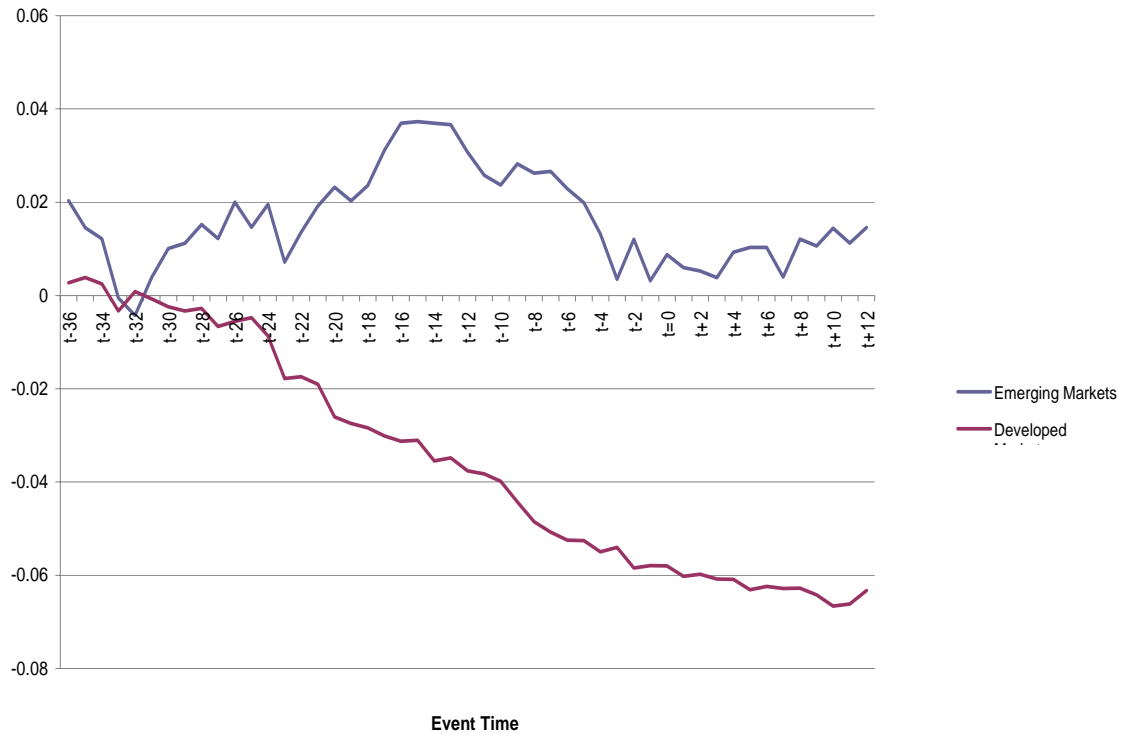


Figure 6: Male vs. Female Managed Funds - Mean Adjusted Cumulative Returns



**Figure 7: Emerging vs. Developed Markets Funds -Benchmark-Adjusted Cumulative Average Abnormal Returns**



**Figure 8: Peer Group-Adjusted Emerging Market vs. Developed Market Funds Cumulative Average Abnormal Returns**

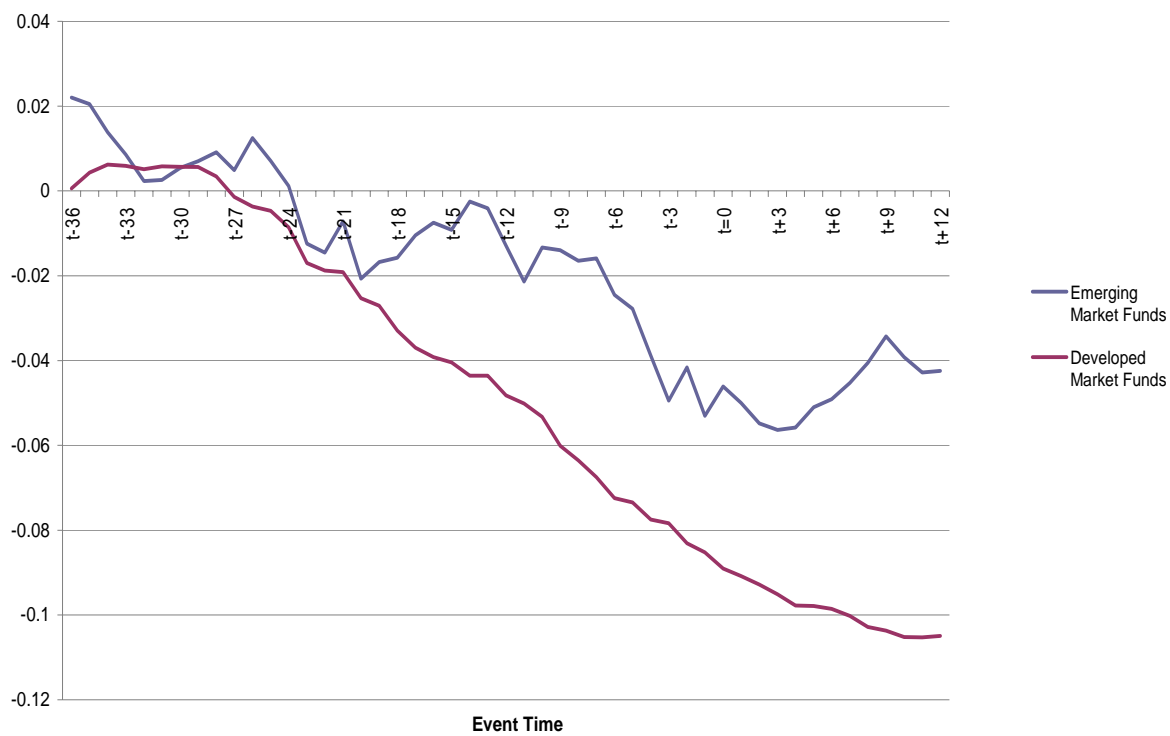
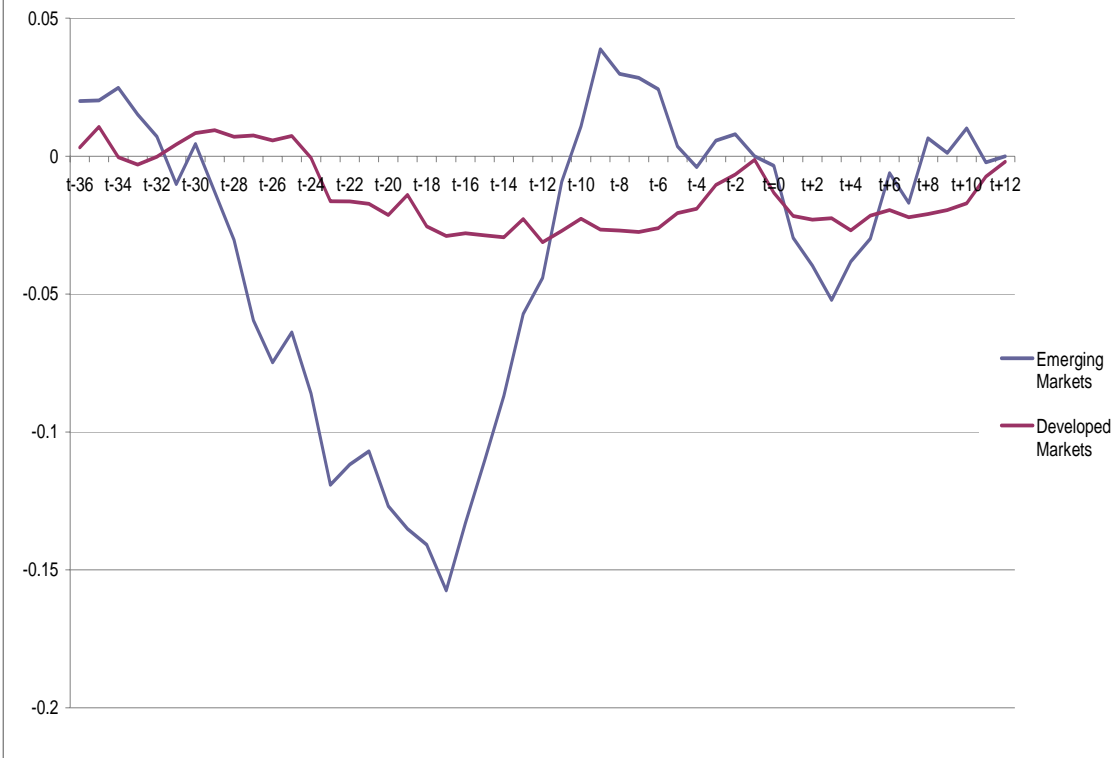
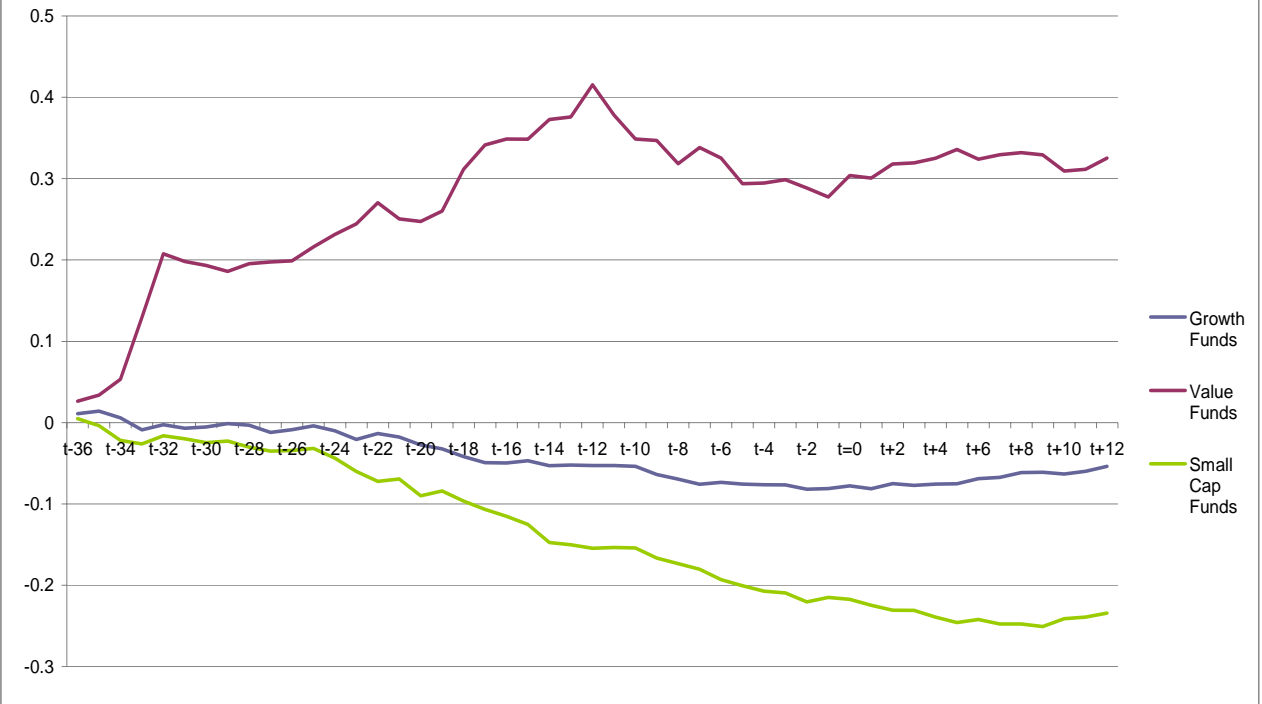


Figure 9: Emerging vs. Developed Markets Funds - Mean Adjusted Cumulative Average Abnormal Returns



**Figure 10: Value, Growth and Small Cap Funds - Benchmark  
Adjusted Cumulative Average Abnormal returns**



**Figure 11: Value, Growth and Small-Cap Funds - Peer Group-Adjusted Cumulative Average Abnormal Returns**

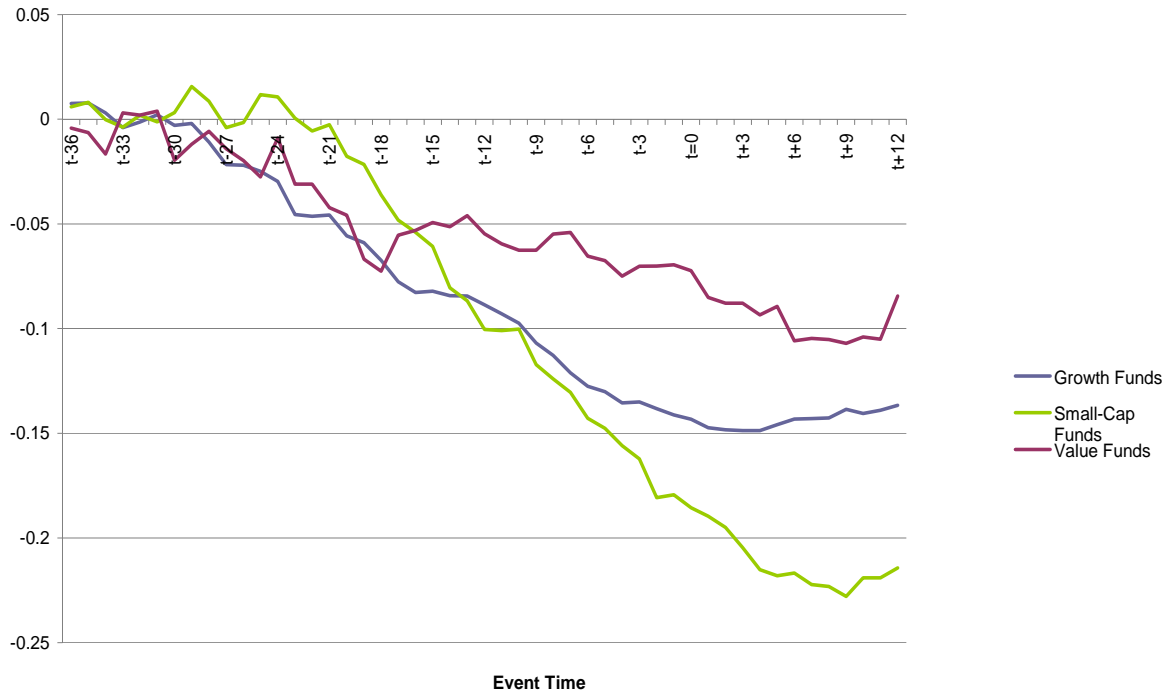
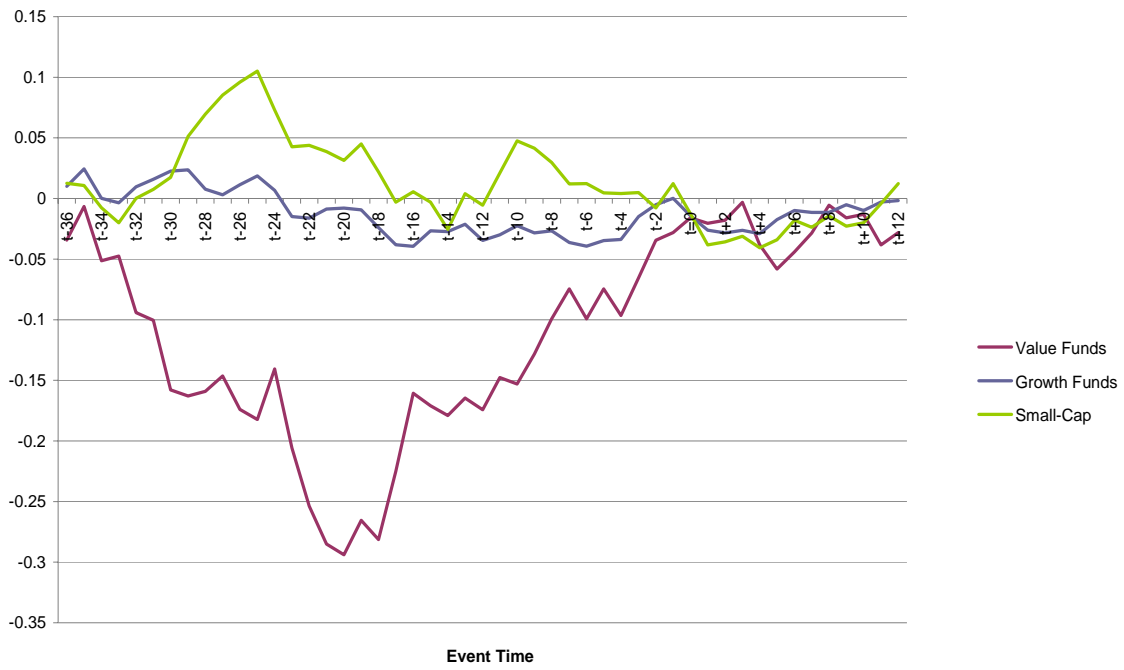
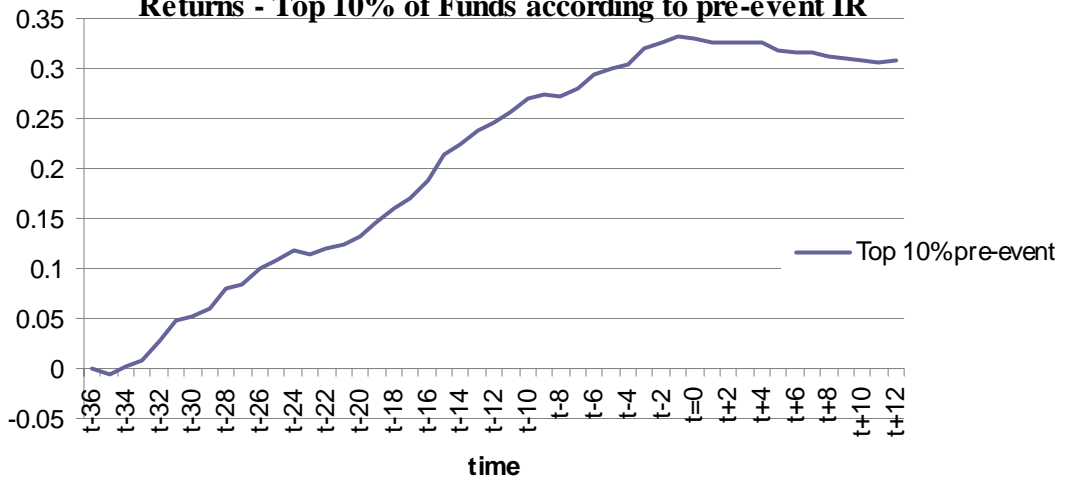


Figure 12: Value, Growth and Small-Cap Funds - Mean Adjusted Cumulative Average Abnormal Returns



**Figure 13: Benchmark Adjusted Cumulative Average Abnormal Returns - Top 10% of Funds according to pre-event IR**



**Figure 14: Benchmark Adjusted Cumulative Average Abnormal Returns .**

