

The Impact Of Index Migrations On Share Prices: Evidence From The Johannesburg Stock Exchange


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ABSTRACT

This article examines the quantum and persistence of abnormal returns (positive and negative) for shares that entered or left the JSE Top 40 Index during quarterly index rebalancing between 2002 and 2013. Using an event study methodology based on the market model, we find evidence of anticipatory trading for both deletions and additions, which is, however, significant only for the former. These abnormal returns are reversed over our window period, which supports international studies indicating downward sloping share demand curves. Our findings imply informational inefficiencies that investors could use to trade profitably in anticipation of index additions or deletions.

Keywords: Index Migration; Johannesburg Stock Exchange; Quarterly Reviews

1. INTRODUCTION

 equity indices on the JSE are adjusted quarterly on the basis of relative changes in market capitalization. This process usually results in a small number of shares migrating between the Small Cap, Mid-Cap and Top 40 indices at each quarter-end. This paper sets out to determine whether the addition (deletion) of shares from specifically the Top 40 Index lead to abnormal positive (negative) returns, and whether investors can therefore benefit from these events through the appropriate long (short) strategies¹. As will be explained in subsequent sections, this research also contributes to the academic literature on the market efficiency of the JSE, as well as to evidence on the shape of the share demand curves operating within this market.

The three main questions that we address with respect to the JSE are:

- 1) Are cumulative abnormal returns (CARs) observed around the events of share index migrations in and out of the JSE Top 40 Index?
- 2) If so, what are the time-dependent profiles of such CARs (in other words, to what extent does the market discount the probability of an index change in advance)?
- 3) If CARs are observed, are they permanent, or is this a process that reverses itself within a relatively short period of time post-index additions or deletions?

Because its indices are maintained by the FTSE Group, which is a subsidiary of the London Stock Exchange Group plc, the JSE follows exactly the same quarterly index review process as the London Stock Exchange (LSE). The mechanics of this review process are as follows (JSE, 2013). On the Wednesday after the first Friday of March, June, September and December, a quarterly review meeting is held, which amongst other things determines which companies' shares are to be deleted or added to specific indices. These decisions are usually disseminated through the Stock Exchange News Service (SENS) after close of trade on the same day. The actual constituent changes are, however, only implemented on the first trading day that follows the third Friday of the

¹ Due to data and liquidity constraints we have chosen to investigate only migrations to and from the Top 40 Index, and not also shares transitioning between the Mid Cap and Small Cap Indices.

relevant months. This means that there is usually (assuming no public holidays) seven trading days between announcement and implementation. The reaction of the relevant share prices over this period is therefore one of the key parameters of interest to this study.

The addition/deletion decision is based on a share's full market capitalisation, and not on its free-float equivalent. Contrary to general belief, the Top 40 Index does not necessarily contain the 40 largest shares on the JSE by market capitalisation, the Mid Cap Index the next 60 and so forth. In order to limit excessive index volatility, only once a share has reached position 35 or above in the case of the Top 40, or 85 or above in the case of the Mid Cap Index, will it be added to that specific index, with the commensurate deletion of the appropriate lowest ranked share. Similarly, shares need to drop to position 46 or below on the JSE in the case of the Top 40, and 116 or below in the case of the Mid Cap Index, in order to be deleted from that particular index and replaced by the largest share from the index below. Effectively this means that some of the five lowest ranked shares in the Top 40 Index may be smaller than some of the highest ranked Mid Cap shares, while some of the fifteen lowest ranked shares in the Mid Cap Index may be smaller than some of the top Small Cap shares.

In terms of the present study, the question is therefore to what extent the market is able (or tries) to predict and react to the outcome of this rather complex index migration process. Given that index migrations within the FTSE-indexing system are based on objective criteria and publically available information (market capitalizations), this question therefore in part becomes one of market efficiency.

The remainder of this paper is structured as follows. Section 2 examines relevant prior literature and some of the theory on which this paper is based. Section 3 discusses our data and methodology, and in Section 4 we report our results and analysis. Section 5 concludes.

2. PRIOR LITERATURE

A number of hypotheses have been advanced as to why the index migration of a share could have a bearing on its price and hence returns. The Information Content Hypothesis suggests that the inclusion of a share in a specific index may be interpreted by investors as a favourable signal with regards to its future prospects, leading to a greater demand and hence an increased price level. The constituents of the Standard and Poor's (S&P) 500 Index in the US, for example, are determined by a committee, based on criteria which include financial viability. Although S&P specifically states that its decisions do not constitute a judgement with regards to the prospect of companies entering or leaving this index, Kaul, Mehrotra & Morck (2000), amongst others, question this claim and suspect that the decisions of this committee may influence the views of investors.² Whereas some evidence supporting this theory has been found for the S&P500 (see Jain, 1987 and Dhillon & Johnson, 1991), this argument is less plausible for indices constructed according to the FTSE system (including those of the JSE), where index changes are determined through an objective rules-based process which therefore should not have any information content (Mase, 2007).

A number of authors explain migration price-effects (mostly based on US studies) in terms of a change in a company's public profile upon entering a well-known index. Thus, for example, Chen, Noronha & Singal (2004) explain their finding that a permanent price increase exists for shares entering the S&P500, but not a corresponding decrease for those leaving the index, to increased and irreversible investor awareness of a company resulting from its index promotion. Denis *et al* (2003) advance a related theory, namely that as companies for the first time enter the S&P500 (or, in a more general sense, presumably any higher profile index), they become subject to a higher level of scrutiny from investors and the investment industry, resulting in increased monitoring and better management performance that then leads to improved profitability, and ultimately to a higher share price. These authors find support for their theory by showing that, relative to similar companies that do not enter the S&P500, the earnings of companies after inclusion in the S&P500 outperform prior analyst earnings forecasts. Similarly, Beneish & Gardner (1995) attribute their finding that the share migration price effect on the Dow Jones Industrial Average (DJIA) only affects shares that are deleted, and not shares added, to investors requiring a premium (*i.e.* a lower share

² All the more so considering that the S&P500 is linked to a credit rating agency, which presumably has expert knowledge in this regard.

price) when less information on a share is available, or if it has higher trading costs (the latter due to lower liquidity). Interestingly, this finding for the DJIA contradicts the abovementioned earlier finding by Chen *et al* (2004) for the S&P500. In contrast to larger indices such as the S&P500, the JSE's Top 40 Index is constructed within a relatively concentrated market, and the pool of candidate companies for this index is fairly small, implying that they should already be well monitored regardless of whether they are in or out of the index.³

Shleifer (1986) suggests that sudden increases in demand caused by index fund buying is responsible for observed abnormal returns earned by shares promoted to the S&P500, and Beneish & Gardner (1995) attribute their finding of a lack of a similar effect for the Dow Jones Industrial Average (DJIA) to the latter not generally being tracked by index funds. Under this hypothesis, demand curves for shares are downward sloping, and the change in demand causes a shift in the demand curve that leads to a permanent price increase⁴.

Harris & Gurel's (1986) price-pressure hypothesis agrees that index tracking funds increase demand for newly promoted shares, but does not assume a permanent shift in the equilibrium. Instead, it states that passive sellers are encouraged by the higher prices resulting from the shifted demand curve to sell their shares at this higher price, but that once this process is complete, the price returns to prior equilibrium level⁵. This theory, however, assumes that shares upon entering the index are not close substitutes of each other, and that index migrations are information-free events. Authors such as Denis *et al* (2003), for example, find evidence (at least for the S&P500) that index additions may not be information-free, and may in fact provide the market with new information regarding such companies' probable future performance. On the other hand, Biktimirov, Cowan & Jordan (2004) find that for the Russell 2000 Index, share price increases are temporary for both additions and deletions, implying that in this case migrations do not introduce new information to the market.

Outside of the US, Mase (2007) considers the increased use of index tracking strategies in the UK over his research period (1992 – 2005) to be a major factor affecting the price of a share upon inclusion in the FTSE100⁶. A recent estimate puts the amount invested in passive investment products that specifically track South African equities (*i.e.*, the JSE) as at the end of December 2012 at R150 billion (Brown, 2013), equating to about 3% of the market capitalization of the All Share Index at that point. These statistics indicate that tracker funds by themselves are unlikely to have a major effect on share prices on the JSE, despite their increasing popularity with investors⁷.

However, it is not only direct index tracking that is of relevance to index migrations, but also indirect tracking as a result of funds being benchmarked against specific indices. The JSE is a concentrated market with the top 5 shares accounting for almost 40% of the total capitalization of the exchange and the top 40 shares accounting for almost 85%. Kruger and van Rensburg (2008) demonstrate that this concentration, when combined with the thin trading prevalent amongst the smaller shares on the exchange, limits the flexibility of managers in deviating from holding significant weights of these concentrated shares in their own portfolios. Even the SWIX All Share, the current preferred equity benchmark amongst asset managers, adjusts for concentration by removing the foreign exposure of dual-listed shares but the top 40 shares still account for roughly 80% of the capitalization of the index. It is therefore reasonable to assume that in order to limit the risk of an excessive tracking error, institutional investors on the JSE cannot, regardless of their underlying views on a share, afford to ignore its addition to, or deletion from, the index to which their funds are benchmarked. This consideration should be especially relevant to relatively concentrated indices such as the JSE Top 40 and the SWIX 40.

³ Mase (2007) makes a similar argument for the FTSE100, and confirms this by demonstrating that for the FTSE100 the index migration price effects are similar for first-time and returning index constituents. Unfortunately there are not yet enough instances of index re-entries on the JSE to make a similar analysis meaningful.

⁴ For other research supporting the downward sloping demand curve hypothesis see, amongst others, Shleifer (1986), Kaul, Mehrotra & Morck (2000) and Biktimirov (2004).

⁵ These authors find that the price effect is reversed within 2 weeks on the S&P500.

⁶ In fact, this author cites a Financial Times estimate that in 1999 70% of UK pension fund were explicitly or implicitly managed by index trackers.

⁷ For example, the amount invested in the fund most relevant to the present study, the Satrix40, increased by 82% between end-2008 and end-2012 (EFTSA, 2012).

As indicated above, there exists a wealth of literature on index migrations in the US, and to a much lesser extent in Canada, Europe and Japan⁸. In contrast, these concepts have received little attention in developing markets. One of the few exceptions is an article by Chakrabarti, Huang, Jayaraman & Lee (2005), in which the authors examined 29 MSCI indices over the period 1998 to 2005. These authors found that shares moving into these indices experienced a large price increase on announcement, followed by a further increase up to the actual inclusion date, but that these increases were partially reversed thereafter. For South Africa specifically, a sample consisting of seven additions and four deletions was used, but no South Africa-specific results were reported.

In addition to adding to the literature on market efficiency within the South African context, our study is therefore also an attempt to add to the limited literature on index migration effects within developing markets in general.

3. DATA AND METHODOLOGY

A data sample of additions to, and deletions from, the Top 40⁹ index was gathered from the quarterly review committee papers obtained from the JSE. At the time this study was conducted, this information was provided for the period March 2002 to March 2013. Only revisions up to and including September 2012 were usable in the analysis due to the need for data subsequent to the events in order to apply the market model in the analysis. There were a total of 27 additions and an equal number of deletions over the period considered¹⁰. Daily share price and volume traded data over the period were collected for each of the shares in the sample as well as for the All Share Index (ALSI), which was employed as a proxy for the market index.

We conducted an event study methodology using the market model¹¹ approach estimated over 150 days starting 10 days after the event (days +10 to +160) using the following specification:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}, \tag{1}$$

where R_{it} and R_{mt} are the daily price returns of the share and the ALSI at time t, respectively, α_i and β_i are the alpha and beta for share i, respectively and ε_{it} is the share-specific return of share i.

We elected to estimate the model after the event as this ensures that the parameter estimates are independent of the event (Mase, 2007), but we note that estimating the model prior to the event does not meaningfully alter the results. The date of the index revision announcement is specified as day -7, while the date of the implementation (the effective date) is day 0. Cumulative abnormal returns (CARs) are calculated from 10 days prior to the announcement (day -17) until 10 days after effective date (day +10).

In order to assess the significance of the CARs we employ the method suggested by Thompson (1985). There are five quarters in the sample at which there were multiple additions or deletions within the index. This makes it impossible to employ the distribution of the individual firm CARs about the mean to determine the statistical significance of the CARs (Mase, 2007). We therefore created an equally-weighted portfolio of the share returns for each such quarter and treated each of these portfolios as an independent event. This yielded a total of 22 such portfolios for analysis for both the additions and deletions.

We then apply the dummy variable technique employed in Karafiath (1998) to estimate the market model parameters and CARs for the event windows in a multivariate regression as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \sum_{j=1}^4 \gamma_{ijt} D_{ijt} \varepsilon_{it} \tag{2}$$

⁸ For a study on index effects for the Nikkei 500, see Liu (2000).

⁹ An analysis of movements of shares between the Small and Mid-cap indices was not possible due to the significant degree of thin trading found when examining the data for these shares.

¹⁰ Note that this sample is substantially bigger than Chakbarti *et al's* (2005) analysis of the MSCI South Africa index.

¹¹ Although it has been found that a two-factor APT model is superior to the CAPM model for pricing assets on the JSE, there was no meaningful difference in the results for the two approaches and only the market model approach is therefore discussed for purposes of brevity.

where:

D_{i1t} is a dummy variable with the value 1/10 for the event days -17 to -8

D_{i2t} is a dummy variable with the value 1/7 for the event days -7 to -1

D_{i3t} is a dummy variable with the value 1/6 for the event days 0 to 5

D_{i4t} is a dummy variable with the value 1/5 for the event days 6 to 10

The four dummy variables capture the abnormal returns over the specific event windows specified earlier: the pre-announcement window, the post-announcement window prior to the change, and the post-change window, the latter being split into two parts based on the results of a graphical examination of the CAR results (as discussed in Section 4). In addition, we estimated the significance of the CARs over the entire pre-event window (PEW) from days -17 to -1, the post-announcement window (PAW) from days -7 to +10 and the complete event window (CEW) from days -17 to +10. The mean CAR for these windows is calculated using the average of γ_{i1} and γ_{i2} for the PAW, γ_{i2} , γ_{i3} and γ_{i4} for the PAW and γ_{i1} , γ_{i2} , γ_{i3} and γ_{i4} for the CEW.

Equation 2 was estimated for each independent event over the period encompassing day -17 to day +168 (i.e. the combined event and market estimate period for the sample at each quarter). The mean dummy coefficient across all portfolios in the sample for each event window was then tested for significance using the following t-statistic:

$$t = \frac{M\gamma_j}{SE(\gamma_j)} \tag{3}$$

Finally, we investigated the degree of liquidity of shares in the sample around the event windows. For this purpose we employed the volume measure v_{it} , which we define in a similar manner to Ajinkya and Jain (1989):

$$v_{it} = \log(VAL_{it}) / \log(MV_{it}) \tag{4}$$

where:

VAL_{it} is the rand volume traded for share i at time t

MV_{it} is the market capitalization of share i at time t

Consistent with Biktimirov, Cowan and Jordan (2004) and Mase (2007), we then conducted an investigation of the abnormal volumes traded over the event window using a market model in volume specified as:

$$V_{it} = \alpha_i + \beta_i V_{mt} + \varepsilon_{it}, \tag{5}$$

where V_{it} and V_{mt} are the daily volume of the share and the ALSI at time t, respectively.

Whereas the market capitalization of the shares in the sample had an influence on the subsequent quarterly events and it was therefore necessary to conduct the market model regressions post-event in order to ensure independence, no such considerations need be made for the trading volumes. Indeed, given that the addition of a share to the Top 40 index may result in greater visibility, we may expect its liquidity to be positively influenced by the event, which may therefore bias the analysis. As such we estimate equation 5 for each share in the sample prior to the event window from day -167 to -18.

4. RESULTS

The CARs for the analysis of the additions and deletions are presented graphically in Figures 1 and 2, respectively. CARs for the additions during the pre-announcement period (days -17 to -7) are 0.33% for the additions and -4.74% for the deletions. The CARs for the remainder of the pre-event window (days -6 to -1) are 3.3% for the additions and 2.49% for the deletions. This would seem to indicate significant gains in price for additions following the announcement day, while the negative trend prior to the announcement day for the deletions

appears to reverse itself following the announcement itself. Subsequent to the effective date of the index changes we observe a reversal in the gains for the additions while the deletions continue to demonstrate gains until both the additions and deletions reach a CAR near 0 around day +5.

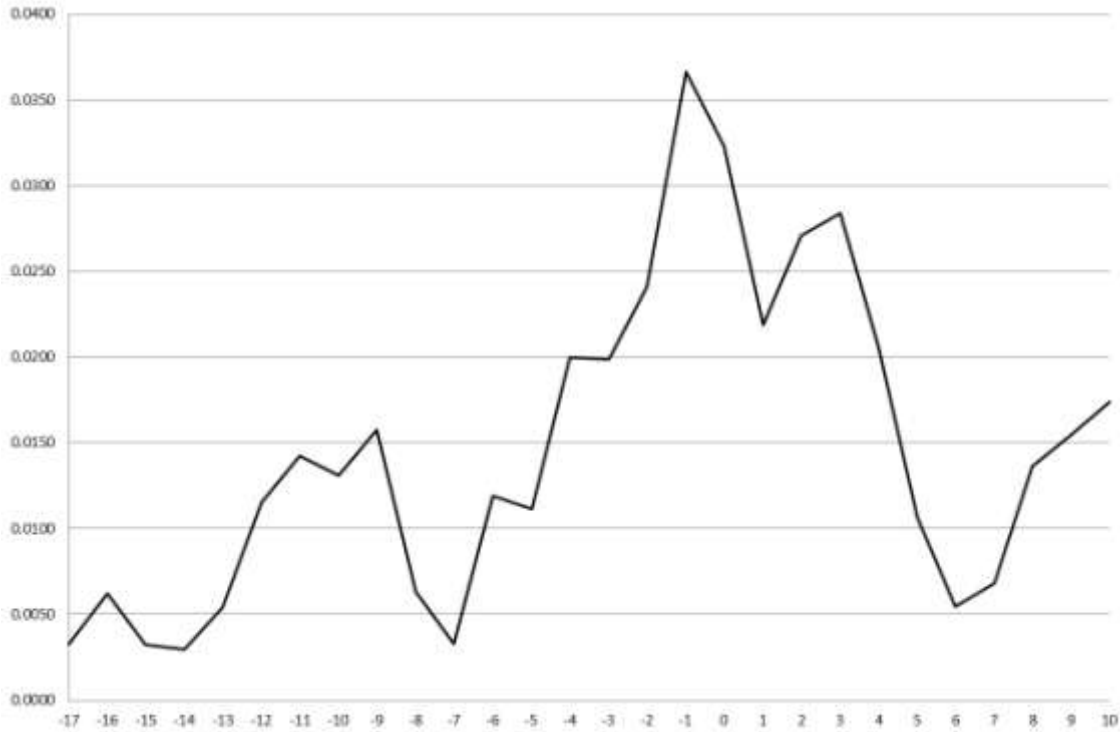


Figure 1: CARs over the Event Window for Additions to the TOP 40 Index

Mean daily CARs are calculated for quarterly additions to the Top 40 Index over the period March 2002 to September 2012 using the market model, $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$. The market model is estimated over a 150-day period starting 10 days after the effective date of the index changes. The announcement date is designated day -7 while the effective date is day 0. The analysis examines a period of 10 days on either side of the announcement and event dates (days -10 and +10) in order to examine the CARs for evidence of anticipatory trading and/or reversals in observed patterns.

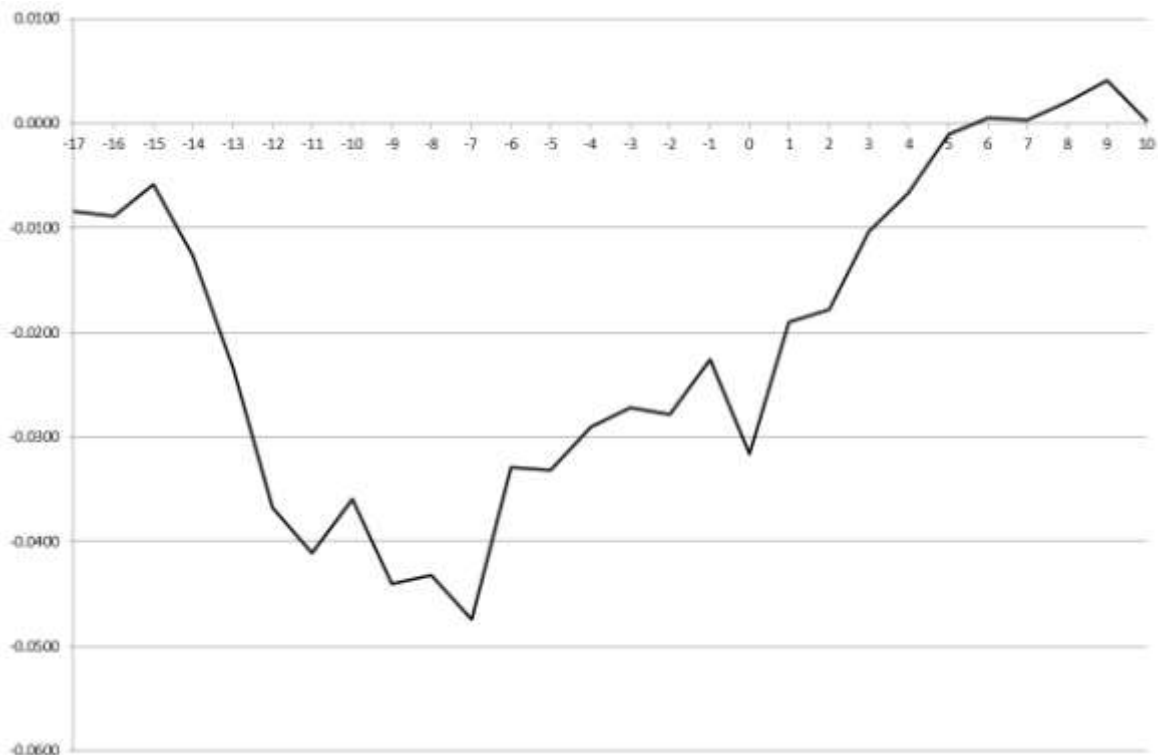


Figure 2: CARs over the Event Window for Deletions from the TOP 40 Index

Mean daily CARs are calculated for quarterly deletions from the Top 40 Index over the period March 2002 to September 2012 using the market model, $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$. The market model is estimated over a 150-day period starting 10 days after the effective date of the index changes. The announcement date is designated day -7 while the effective date is day 0. The analysis examines a period of 10 days on either side of the announcement and event dates (days -10 and +10) in order to examine the CARs for evidence of anticipatory trading and/or reversals in observed patterns.

Overall, there appears to be evidence of anticipatory trading for both additions and deletions which are more prominent for the deletions. These gains (losses) for the additions (deletions) are reversed over the full event window and this adjustment is faster for the additions (spanning days -7 to +5) than the deletions (spanning days -17 to +5).

The results for the significance testing are presented in Table 1. It should be noted that the post-event window was split into two periods due to the earlier findings that the reversal effects for both additions and deletions seem to end at day +5.

Table 1: Significance Tests of Abnormal Returns for Additions to and Deletions from the Top 40 Index

Portfolios of share returns are calculated at each quarter to create independent samples for testing. 22 portfolios for each of the additions and deletions are created over the period March 2002 to September 2012. The regression $R_{it} = \alpha_i + \beta_i R_{mt} + \sum_{j=1}^4 \gamma_{ijt} D_{ijt} \varepsilon_{it}$ is used to obtain dummy coefficients measuring the abnormal returns over specific sub-periods of the event window as specified in the table. PEW represents the pre-event window, PA is the post-announcement window and CEW is the complete event window. The coefficients are tested for significance using $t = \frac{My_j}{SE(\gamma_j)}$. Test statistics which are significant at the 5% level are presented in bold.

Variable	Additions		Deletions	
	Mean	T-Stat	Mean	T-Stat
α	-0.002	-3.79	-0.003	-3.392
β	0.716	11.08	0.654	7.119
γ_{i1} (-17 to -8)	0.006	0.38	-0.038	-2.393
γ_{i2} (-7 to -1)	0.034	2.53	0.014	1.245
γ_{i3} (0 to +5)	-0.032	-2.77	0.028	2.481
γ_{i4} (+6 to +10)	0.001	0.15	0.005	0.644
PEW (-17 to -1)	0.040	2.07	-0.025	-1.612
PA (-7 to +10)	0.003	0.18	0.046	3.330
CEW (-17 to +10)	0.009	0.36	0.008	0.384

For the additions, the pre-announcement CARs are found to be insignificant, while the increases in CARs between the announcement and effective dates and subsequent reversal from the effective date until day +5 are found to be significant. For the deletions, the initial decrease in CAR over the pre-announcement window was found to be significant as was the reversal following the effective date. The reversal between the announcement and effective dates, however, was found to be insignificant.

These results largely support the findings from the analysis of the CARs and are consistent with the analysis conducted by Mase (2007) on the UK's FTSE 100. The primary difference in the results between these two studies is that Mase (2007) found that the anticipatory trading for the additions in the UK sample began well in advance of the announcement date and persisted until the effective date while the findings of this study indicate that the anticipatory trading prior to the announcement date was brief and reversed before the announcement date. The reversals for both markets appear to have begun around the effective date.

In contrast the anticipatory trading for the deletions begins around day -17 for both markets but the reversals for the JSE sample appear to begin around the announcement date rather than the effective date as was the case for the UK sample examined by Mase (2007). This contrasts with the findings of a similar study on the S&P500 by Lynch and Mendenhall (1997) which finds the reverse – negative pre-announcement CARs for added firms and positive pre-announcement CARs for deleted firms. Mase (2007) suggests that this may be a result either of the difference in rebalancing methodologies for the US and UK indices or of anticipatory trading before the announcement.

An examination of the trading volumes for the additions and deletions over the event window are presented in Figures 3 and 4, respectively. There is evidence of positive abnormal volumes for the additions over the entire window (excepting days -17 and -13), with the largest of these clustering around the effective date, particularly around days 0 to +2. In contrast, the evidence of abnormal volumes for the deletions is mixed outside of the effective date where again the largest abnormal volumes are clustered around days -1 to +1.

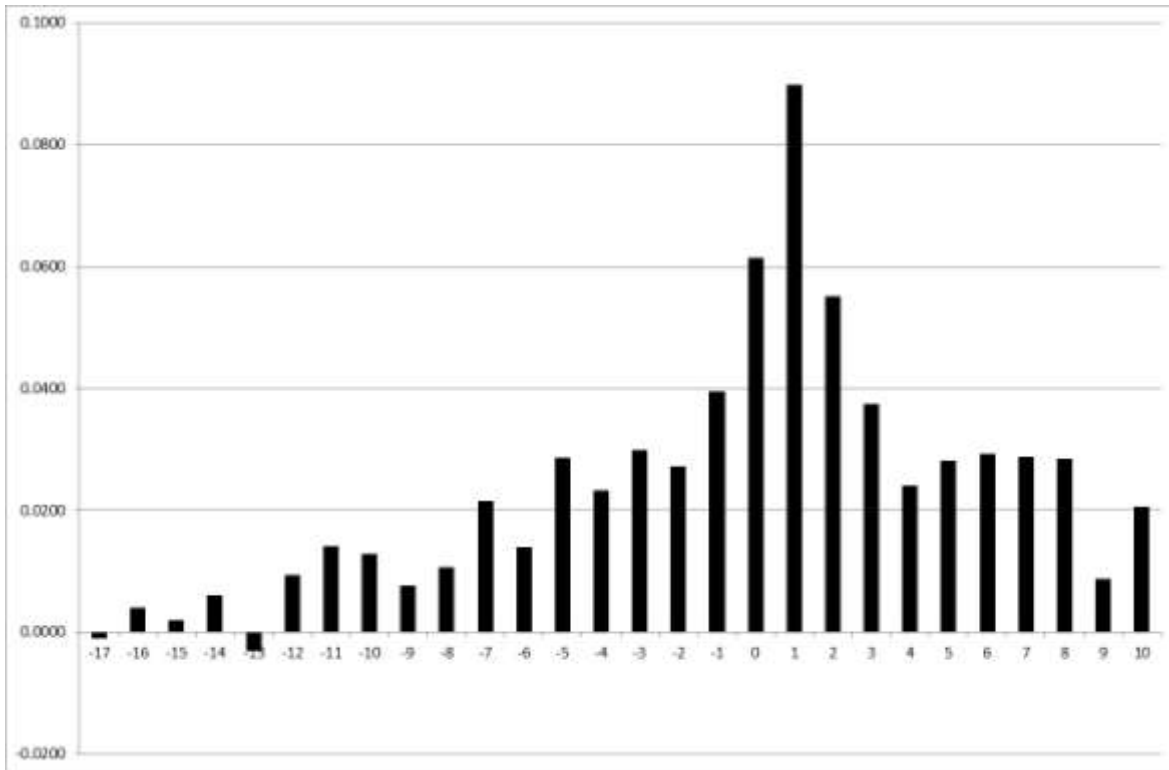


Figure 3: Abnormal Trading Volumes over the Event Window for Additions to the TOP 40 Index

Mean daily abnormal volumes are calculated for quarterly additions to the Top 40 Index over the period March 2002 to September 2012 using the market model, $V_{it} = \alpha_i + \beta_i V_{mt} + \varepsilon_{it}$. The market model is estimated over a 150-day period ending 10 days before the announcement date of the index changes. The announcement date is designated day -7 while the effective date is day 0. The analysis examines a period of 10 days on either side of the announcement and event dates (days -10 and +10) in order to examine the CARs for evidence of anticipatory trading and/or reversals in observed patterns.

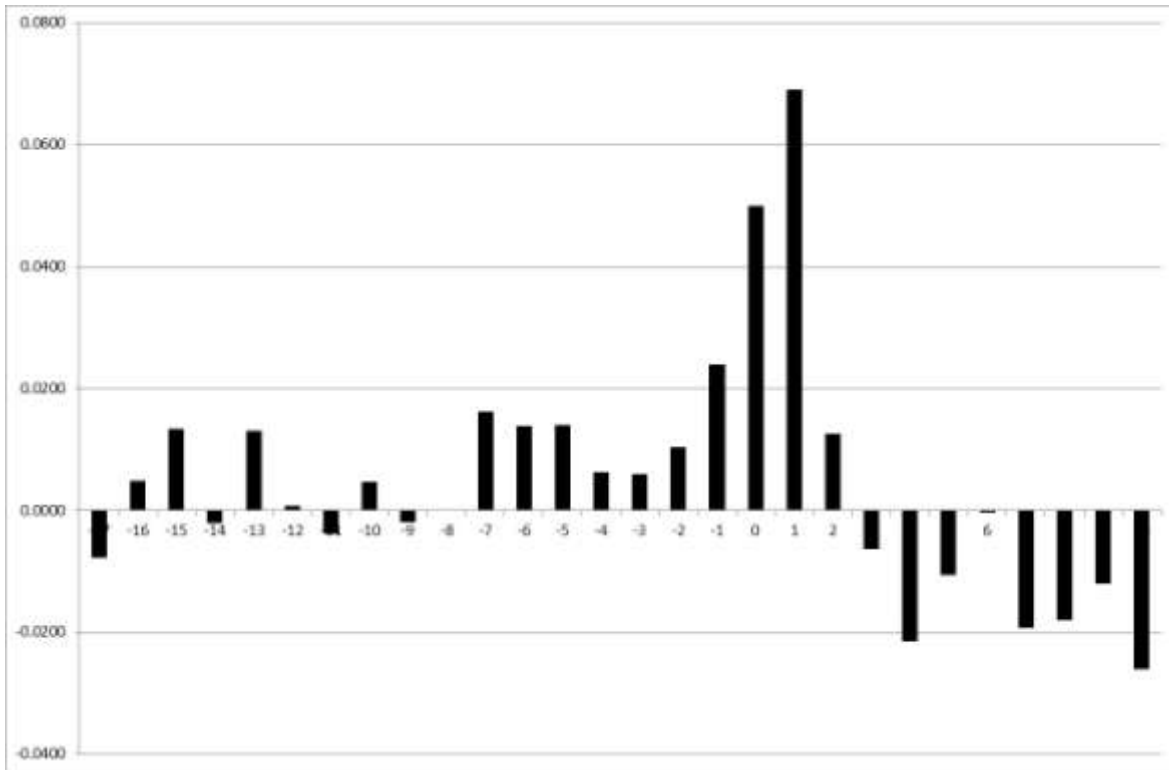


Figure 4: Abnormal Trading Volumes over the Event Window for Deletions from the TOP 40 Index

Mean daily abnormal volumes are calculated for quarterly additions to the Top 40 Index over the period March 2002 to September 2012 using the market model, $V_{it} = \alpha_i + \beta_i V_{mt} + \varepsilon_{it}$. The market model is estimated over a 150-day period ending 10 days before the announcement date of the index changes. The announcement date is designated day -7 while the effective date is day 0. The analysis examines a period of 10 days on either side of the announcement and event dates (days -10 and +10) in order to examine the CARs for evidence of anticipatory trading and/or reversals in observed patterns.

We test for significance of these abnormal volumes by applying a multivariate regression model similar to equation 2 in order to isolate sub-periods within the event window.

$$V_{it} = \alpha_i + V_i R_{mt} + \sum_{j=1}^4 \gamma_{ijt} D_{ijt} \varepsilon_{it} \tag{6}$$

The model is estimated over the period -167 to +10 and the results are provided in Table 2. The results clearly indicate the significance of the abnormal trading volumes for the additions for all sub-periods excepting the pre-announcement window, consistent with the findings for the CARs. This would suggest that the abnormal returns experienced following the announcement date for additions is accompanied by increased trading volumes and this increased liquidity persists through the reversal that follows the effective date. In contrast, the abnormal trading volumes for the deletions are significant only during the post-announcement window, specifically days -7 to +5. This again supports the earlier findings regarding the CARs for deletions, but is incongruous for the pre-announcement period which demonstrates decreasing CARs and was found to be significant in the earlier tests.

Table 2: Significance Tests of Abnormal Trading Volumes for Additions to and Deletions from the Top 40 Index

Portfolios of share returns are calculated at each quarter to create independent samples for testing. 22 portfolios for each of the additions and deletions are created over the period March 2002 to September 2012. The regression $R_{it} = \alpha_i + \beta_i R_{mt} + \sum_{j=1}^4 \gamma_{ijt} D_{ijt} \varepsilon_{it}$ is used to obtain dummy coefficients measuring the abnormal returns over specific sub-periods of the event window as specified in the table. PEW represents the pre-event window, PA is the post-announcement window and CEW is the complete event window. The coefficients are tested for significance using $t = \frac{My_j}{SE(\gamma_j)}$. Test statistics which are significant at the 5% level are presented in bold.

Variable	Additions		Deletions	
	Mean	T-Stat	Mean	T-Stat
α	0.101	1.531	0.121	2.625
β	0.810	9.234	0.805	12.375
γ_{i1} (-17 to -8)	0.035	0.568	0.022	0.298
γ_{i2} (-7 to -1)	0.175	4.047	0.113	2.560
γ_{i3} (0 to +5)	0.290	8.018	0.122	3.351
γ_{i4} (+6 to +10)	0.105	2.926	-0.042	-1.194
PEW (-17 to -1)	0.211	2.475	0.135	1.234
PA (-7 to +10)	0.570	6.076	0.194	2.290
CEW (-17 to +10)	0.606	4.398	0.216	1.467

5. CONCLUSIONS

Our results indicate evidence of anticipatory trading for quarterly index changes for the Top 40 index. While this is similar to findings for the FTSE 100 in the UK which found that anticipatory trading for both additions and deletions began well in advance of the announcement day, we find that this holds for deletions from the Top 40 index but is not strongly significant for the additions to the index prior to the announcement day. It therefore appears that the market trades on anticipated deletions but has only sporadic trade or waits for the announcement before adjusting their portfolios for additions. It should be noted that this anticipatory trading is possible due to the rules which mandate the requirements for index changes on both the JSE and FTSE and therefore ensure transparency as to the expected changes. It is therefore possible to form an opinion on the expected index changes in advance of the announcement although there is still an element of uncertainty given that the market capitalizations of the shares in question may change up until the announcement date. The asymmetry in the timing of the gains and losses for additions and deletions may therefore be due to informational inefficiencies in shares traded on the Top 40 index which have greater exposure and coverage than those traded on the Mid Cap index. Regardless of the reason for these asymmetries, the extended periods of informational inefficiency over which gains and losses are realised prior to the effective date would suggest potentially profitable periods for investors to long or short additions and deletions in anticipation of these coming index changes.

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