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Information efficiency changes following FTSE 100 index revisions

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ABSTRACT

This study examines the impact of FTSE 100 index revisions on the informational efficiency of the underlying stocks. Our study spans the 1986–2009 period. We estimate the speed of price adjustment and price inefficiency from the partial adjustment with noise model of Amihud and Mendelson (1987). We report a significant improvement (no change) in the informational efficiency of the stocks added to (deleted from) the FTSE 100 index. The asymmetric effect of additions and deletions on informational efficiency can be attributed, at least partly, to certain aspects of liquidity and other fundamental characteristics, which improve following additions but do not diminish after deletions. Cross-sectional analysis also indicates that stocks with low pre-addition market quality benefit more from joining the index.

1. Introduction

This study examines the impact of FTSE 100 index revisions on the informational efficiency of the underlying stocks. It contributes to the literature in three important ways. First, whilst previous studies consistently find that there are price gains, increases in investor awareness, and long-term improvements in stock liquidity following additions, this paper proposes a new approach to consider in detail whether index members also benefit from greater informational efficiency. Second, whilst most studies find that stock prices and liquidity fall following index deletions, others show that the advantages of gaining membership remain unaffected even after removal from the index. We extend this debate by examining whether the informational efficiency of a stock is reduced after removal from the index. Finally, we are able to explain the key determinants of informational efficiency changes around the time of joining and leaving the index.

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The impact of FTSE 100 index revisions on the market quality of the underlying stocks is assessed by comparing two measures of informational efficiency across pre- and post-index revision periods. First, we use Amihud and Mendelson's (1987) technique to estimate the speed at which information is incorporated into the stock price. We then use the price inefficiency index developed by Chelley-Steeley (2008) to capture the degree to which stock prices deviate from their intrinsic values. We adopt a control sample approach to ensure that our results are not driven by factors other than the index revisions. Finally, we conduct cross-sectional analysis to identify the main determinants of the informational efficiency changes.

We find that the informational efficiency of a stock added to the FTSE 100 index is improved. However, deletions do not exhibit any significant changes in the speed of price adjustment or pricing inefficiency. The asymmetric response of market quality to additions and deletions can partly be attributed to certain aspects of liquidity and other fundamental characteristics, which improve following additions, but do not always diminish after deletions. This result is also consistent with Chen et al. (2004) who show that investors' awareness increases when a stock joins the S&P 500, but does not decrease following its deletion from the index. Our cross-sectional analysis indicates that stocks with low pre-addition informational efficiency benefit more from joining the index. This evidence is in line with Roll et al.'s (2009) finding that information production following options listing is larger in stocks where information asymmetries are the greatest. We also show that changes in informational efficiency are significantly related to changes in the information environment, idiosyncratic risk, liquidity and book-to-market value.

The remainder of the paper is organized as follows. Section 2 provides a brief review of the related literature and states the hypotheses to be tested. Section 3 presents the methodology. Section 4 describes our data. Section 5 presents and discusses the empirical findings and Section 6 concludes.

2. Literature review and hypothesis development

Since Dhillion and Johnson (1991) first reported stock price increases following additions to the S&P 500, academic studies consistently find that firms benefit from joining major stock market indexes. Index tracker funds need to rebalance their portfolios, leading to increased demand for the newly included stock. There is also evidence that inclusion, by itself, is perceived by the market as being an intrinsic measure of quality (for example, Denis et al., 2003; Sui, 2003; Chakrabarti, 2002). Cai (2007) claims that S&P 500 index additions may convey new information to the market for two reasons. First, when a firm is added to the index, the Index Membership Committee certifies it as a leading firm. Second, because of the high turnover caused by index fund managers rebalancing their portfolios, certain Index Membership Committees may select firms that are likely to meet the index criteria for longer periods of time.

There are also clear long-term benefits in terms of liquidity and market awareness from inclusion in major stock market indexes. Chen et al. (2004, 2006) find that investors become more aware of a stock upon its addition to the S&P 500 index and that the number of individual shareholders increases when a stock joins the index. Hacibedel (2008) demonstrates that there is a significant increase in analysts' coverage for new members of the MSCI index. Sofianos (1993) argues that index arbitrage may involve small and frequent trading. The enhanced trading frequency may improve liquidity by reducing market markers' inventory risk. Hegde and McDermott (2003) also attribute the price effects associated with S&P 500 revisions to liquidity changes in the post-revision period. Chakrabarti et al. (2005) show that trading volume rises after additions in a large number of major world stock markets, but not the US. In the case of the London stock market, Mazouz and Saadouni (2007) attribute the price patterns following FTSE 100 index revisions to non-information-related liquidity effects.

Because of these rebalancing, informational and liquidity effects, it is accepted that stock prices rise when a company is included in a major index. The main point of concentration has been whether this price rise is permanent or transitory. The informational and liquidity arguments suggest that the effect should be permanent, whilst the rebalancing effect is temporary. Shleifer (1986) and Lynch and Mendenhall (1997) show that stocks experience permanent price increases on the announcement of their inclusion to the S&P 500 index. Deininger et al. (2000) find that stocks added to the German blue-chip index, the DAX, and the mid-cap index, the MDAX, experience permanent