



The performance effects of composition changes on sector specific stock indices: The case of European listed real estate



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ABSTRACT

This paper examines the impact of changes in the composition of real estate stock indices, considering companies both joining and leaving the indices. Stocks that are newly included not only see a short-term increase in their share price, but trading volumes increase in a permanent fashion following the event. This highlights the importance of indices in not only a benchmarking context but also in enhancing investor awareness and aiding liquidity. By contrast, as anticipated, the share prices of firms removed from indices fall around the time of the index change. The fact that the changes in share prices, either upwards for index inclusions or downwards for deletions, are generally not reversed, would indicate that the movements are not purely due to price pressure, but rather are more consistent with the information content hypothesis. There is no evidence, however, that index changes significantly affect the volatility of price changes or their operating performances as measured by their earnings per share.

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1. Introduction

The index effect has become an increasingly widely known phenomenon over the last 25 years, primarily due to an increase in both the numbers and assets under management of passive index funds. This has made index composition of importance not only in the context of the investment strategies of passive funds but also because of the broader impact that the inclusion or exclusion of a stock from an index has upon its share price. The index effect can be defined as the impact that index re-composition changes have on the prices of the underlying stocks. The existence of “passive” funds that aim to track the performance of an index will ensure that demand for the stocks of firms entering the index will rise but it will fall for any stocks deleted from the index. Noting this repeated pattern of behaviour, arbitrageurs have found ways to earn profits by buying (selling) the stocks of added (deleted) firms before index funds make their trades and then selling them (buying them back) when index funds have completed their transactions.¹

Whilst a large literature has developed to consider the effect in the terms of mainstream indices, and especially the S&P 500, there has been very little to have considered more specialist benchmarks. Given that a reduced number of passive funds may track more specialist indices, it provides an interesting research question as to

whether the index effect is reduced in such a context and thereby effectively limited to being of relevance in the context of the main benchmark indices only. It is this issue that this paper aims to consider using the example of European real estate securities.² Over the course of the last decade, the European listed real estate sector has grown considerably, by June 2011 totalling 830 real estate stocks with an aggregate market capitalisation of €321.1 bn, equating to 24% of the global listed property market. This growth has been driven by a number of key elements, none more so than the performance of the sector during the first half of the last decade. In comparison to mainstream equities, listed real estate, in both their REIT (Real Estate Investment Trust) and corporate forms, delivered substantial outperformance. This, inevitably, led to increased investor awareness during a period of relatively poor stock market performance. The fact that this strong performance was not only observed in Europe but globally, added to the increased interest in the sector. In addition, particularly within a European context, the introduction of REIT regimes in the majority of the major European markets further increased investor awareness.³ These factors have had a wide range of

² The nature of the underlying real estate market, in terms of its indivisible nature, makes a comparable analysis with indices such as those produced by IPD (Investment Property Databank) unviable. In addition, the data is based upon valuations of properties owned by institutional investors.

³ REITs are tax transparent entities. Whilst the detailed regulatory structure varies across markets, in the majority of cases REITs have to comply with a number of restrictions in order for their dividend payments to be exempt from corporate tax. In most countries these restrictions revolve around a minimum dividend payout ratio and the imposition of constraints concerning the proportion of the firm's assets and income derived from real estate activity. Some countries also impose limitations in areas such as gearing, development activity and international operations.

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¹ The size of the index effect, and consequently the amount of money to be made from its existence, may also depend upon the value of funds tracking a particular benchmark.

impacts, including increased trading volumes and, key in the context of this study, an increase in dedicated funds. Enhanced awareness of allocations held to real estate securities have therefore also led to an increase in the visibility and importance of dedicated real estate security indices. Whilst obviously the primary purpose of such indices is their use in a benchmarking context, other factors also come into play. For example, in October 2007 NYSE-LIFFE-Euronext introduced two index futures contracts based upon the FTSE EPRA/NAREIT Europe and FTSE EPRA/NAREIT Eurozone indices (Lee, Stevenson, & Lee, forthcoming).

This paper therefore expands upon the limited literature to have considered the index effect in the context of sector specific indices. Even in the context of listed real estate there is a marked lack of existing empirical evidence, and in addition, these papers have solely considered the US REIT market. Ambrose, Lee, and Peek (2006) considered the impact of the change in policy in 2001 that facilitated the inclusion of REITs into mainstream S&P indices. However, the primary focus of the study was the longer term impact on REITs and specifically their relationship with the overall market. The study provided evidence that the beta of those REITs included in the S&P 500 saw a significant upward movement, indicating increased co-movement with the overall market. Furthermore, the beta of indexed REITs with reference to a portfolio of non-indexed REITs showed virtually no change. Additional examination showed that the beta of non-index REITs also increased significantly with respect to the S&P 500. This would imply a sector-wide impact and not one limited to those specific firms included in the S&P indices. The study of Feng, Ghosh, and Sirmans (2006) is of more direct relevance and broadly follows the methodological framework adopted in the mainstream finance literature. The paper considers the price impact of additions and deletions of REITs into the dedicated S&P REIT Index. The results reveal a small yet significant price response to index inclusions. This is of interest given that the index considered is sector specific. However, whilst a significant price response is observed, no such findings are reported with respect to trading volume or institutional investment.

This paper considers a number of key research issues, focusing on the EPRA (European Public Real Estate) family of indices.⁴ Firstly, we examine the impact of index composition changes in the short-run. This analysis considers the impact of changes in the constituents on not only the stock prices of the affected firms but also their trading volume and volatility. A key element in this analysis is testing for any asymmetrical impacts with respect to any possible differential response for index inclusions and deletions. The paper also considers whether there is evidence of a size effect, the impact on operating performance and if the response differs across markets. Finally, we consider the long-run impact of index changes. The remainder of the paper is organised as follows. Section 2 briefly reviews the theory and hypotheses that underlie the body of empirical work to have examined the index effect. Section 3 describes the data and methodological framework adopted in the study. Section 4 presents and analyses the results, whilst Section 5 summarises and offers some concluding comments.

2. Hypotheses behind the index effect

This section briefly reviews the theoretical literature on the index effect and summarises the expected impacts that additions to or deletions from an index will have on the stocks concerned. The majority of studies to have considered the issue have focused on the S&P 500. This is not only because the level of assets tied to this index is much greater than for any other, but also because it has a more “vague” announcement policy that does not rely only on publicly available and observable measures; thus changes in the composition

of the index cannot be easily predicted. Deletions from the index are usually caused by an event (e.g. merger, takeover or bankruptcy) that subsequently requires the selection of a replacement stock. When index changes are largely unpredictable, as they are for the S&P500, the method of announcement of such changes becomes important. S&P pre-announce the changes a variable number of days (on average around five) before the actual new composition of the index takes place.

In the case where the re-composition criteria are clear, analysts can predict those changes in advance (see the FTSE or MSCI criteria, for example) and the event periods are not so significant, either statistically or economically, for the added or deleted stocks. The announcement and decision policy for the indices of interest for this study are laid out in the document, “Ground Rules for the Management of the FTSE EPRA/NAREIT Global Real Estate Index Series, Version 4.9—September 2011.” The index committee examines data from the last business day of February, May, August and November, and then meets on the Thursday after the first Friday of March, June, September and December to agree any index changes, which then become effective on the third Fridays of those months.

It is clear that the inclusion decision for the EPRA indices is based on size and other objective factors rather than being based on secret judgements behind closed doors as is the case for the S&P indices. As such, we would not expect a big jump in prices, either upwards for additions or downwards for deletions, as the announcements should in the main reflect market expectations. Therefore, there should be gradual movements in prices before the event unless index replicators ignore prior information and still wait until the event date in order to minimise their tracking errors.

Previous literature has suggested five different hypotheses to justify the index effect, depending on whether the price and volume effects are temporary or permanent. The studies below refer to the S&P index effect, which is significant until the present day, with price increases, upon index inclusion, that have ranged between 3% and 8%. The S&P 500 index effect has been more pronounced recently, due in part to the increase of assets held in index funds. The results also vary because of the differing length of event windows chosen, the specific methodology, the level of indexed assets at the time each study was conducted and the different assumptions for what constitutes the short or long run.

2.1. The Price Pressure Hypothesis (PPH)

After the event period, any abnormal return is expected to reverse fully and to reflect the long-term equilibrium price. The effect on trading volumes should closely resemble the price effect. Harris and Gurel (1986), Woolridge and Ghosh (1986), Lamoureux and Wansley (1987), Lynch and Mendenhall (1997), and Malkiel and Radisich (2001) support the concept of temporary price pressures after inclusion.

2.2. The imperfect substitutes and the downward-sloping Demand curve for Stocks Hypothesis (DSH)

Stocks belonging to the index do not have perfect substitutes and have downward-sloping demand curves. Prices will therefore change to eliminate any excess demand in the market and hence no reversal is expected in the long-term. Abnormal trading activity should be temporary, until the new level of price equilibrium is reached. Shleifer (1986) and Wurgler and Zhuravskaya (2002) support the DSH. Morck and Yang (2002) also found that S&P 500 membership was associated with significantly higher valuations of member firms.

2.3. The Liquidity Cost Hypothesis (LCH)

Inclusion should enhance the liquidity of the underlying stock and therefore lead to a permanent increase in the stock's liquidity. Prices

⁴ More specifically, these are known as the FTSE-EPRA NAREIT indices.

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