



## The index revision party

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### Abstract

This paper examines the annual revision of the AEX index in the Netherlands. This particular index is interesting because the revision rules enable investors to anticipate changes in both constituents and index weights long in advance. Our results suggest that attention and temporary price pressure play a role in the observed revision effect. A portfolio containing those stocks expected to benefit from the index revision is showing an outperformance of up to 7% in the weeks before the revision, while losers are unaffected. Around the revision day, we find indications of temporary price pressure for winners as well as losers.

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### 1. Introduction

As the use of benchmarks has increased, so has interest in the effects of stock index revisions. The S&P 500 was the first to attract most attention (e.g., Harris & Gurel, 1986; Jain, 1987; Pruitt & Wei, 1989; Shleifer, 1986). More recently, other indices, such as the Dow Jones (Beneish & Gardner, 1995; Polonchek & Krehbiel, 1994), the Canadian TSE300 (Chung & Kryzanowski, 1998), the Italian MIB30 (Barontini & Rigamonti, 2000), the German DAX100 (Deininger, Kaserer, & Roos, 2000), and the Japanese Nikkei 500 (Liu, 2000), have been examined. To date, six hypotheses have been offered to explain the effect of index revisions on stock prices. These vary from temporary price pressure due to index-related trading to permanent price effects due to a variety of reasons. Despite the

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growing amount of literature documenting several aspects of index revisions, results and conclusions differ widely.

In this study, we examine the annual revision to the AEX index. The AEX index is the leading index of the Dutch stock market. It is a capped market capitalization weighted index of the 25 most actively traded stocks at Euronext Amsterdam and includes many blue chip issues, such as Royal Dutch, Philips, Unilever, and ING. This particular index is interesting because it is revised annually at the same time every year according to publicly available criteria. This enables investors to anticipate not only which stocks will be added or removed, but also adjustments to the index weights of those that remain. Contrary to previous research examining periodic index revisions, we take changes to the index weight of stocks that remain in the index into account. We also test an annual investment strategy, by composing portfolios from the anticipated winners and losers from the index revision. The examination of revisions to the AEX index adds fresh information to research on index revisions because data and methodology are both new.

Our results show that prices do not efficiently adjust to publicly available information. The price pattern surrounding the AEX index revision therefore rejects the efficient market hypothesis in its semistrong form as defined by Fama (1970, 1991). Hence, there is still an opportunity here which can be exploited by investors. The remainder of this article first reviews the literature and discusses the hypotheses that have been put forward. We then give an account of our data and methodology. Besides composing portfolios as mentioned earlier, we use regression analysis to determine the relationship between relative performance and an expected change in index weight. This is followed by a presentation and analysis of our empirical findings. Here, risk is also a subject of discussion. The article ends with a summary and our conclusions.

## 2. Review of literature

Previous studies focus on stocks that enter or leave an index. They have one conclusion in common: Stocks entering an index show an outperformance relative to the market. However, they disagree about the cause of this phenomenon and whether it persists over time. There have been six hypotheses put forward to explain the price and volume patterns observed in the periods around index revisions. To give an overview of the growing amount of international literature on the effects of index revisions, we discuss these hypotheses below.

### 2.1. Price pressure hypothesis

According to the price pressure hypothesis, an index revision causes temporary price pressure. Due to index-related trading, entrants show an outperformance and high trading volume before (if entrance is known in advance) and at the time of the index revision. The reverse price pattern applies to stocks that leave the index. Subsequently, prices and volumes return to their normal level. Traders who provide the liquidity to the market earn a liquidity premium as a reward.

Harris and Gurel (1986) document a full price reversal for additions to the S&P 500 in the period 1976–1983. After the announcement, stocks outperform by 3%. However,

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