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The long-term performance of index additions and deletions: Evidence from the Hang Seng Index☆

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ABSTRACT

We investigate the long-term performance of firms added to or deleted from the Hang Seng Index from 1986 to 2008. The stocks newly deleted from the Hang Seng Index have abnormal returns over a 5-year holding period and the newly added stocks do not. The deleted stocks outperform the added stocks, with the difference resulting from poorly performing state-owned added stocks and better performing family-owned deleted stocks. The operating performance of the deleted stocks improves in the post-event period and that of the added stocks does not. The liquidity and beta of the added stocks decrease and the analyst coverage increases. Meanwhile, the liquidity and analyst coverage of the deleted stocks decrease. Regression analyses show that changes in operating performance are the most important factors explaining the long-term stock performance of added and deleted stocks.

1. Introduction

The objectives of this study are to investigate the long-term performance of stocks added to or deleted from the Hang Seng Index of the Hong Kong market and determine whether stocks added to or deleted from the index outperform the market over the long term. The long-term performance of added and deleted stocks is an important real-world investment issue. Many vehicles such as pension and index funds are long-term investments that prefer to hold stocks for many years. It is worthwhile to explore the profitability of the simple investment strategy of buying and holding stocks that are added to or deleted from an index and to determine the source of any abnormal returns.

The literature related to stock addition and deletion has mainly focused on the short-term performance of added and deleted stocks (e.g., Scholes, 1972; Harris & Gurel, 1986; Wurgler & Zhuravskaya, 2002). Most studies have relied on the price pressure hypothesis to explain short-term price reactions to the announcement of changes in index components. This hypothesis asserts that added stocks generate abnormal positive returns and deleted stocks generate abnormal negative returns due to the buy-and-sell pressures from investors and index funds (Scholes, 1972). No new information is generated by such changes to an index. In contrast, some scholars have argued that changes in index components provide new information about a stock and its related industry. They have found that once a stock is added to the S&P 500 Index, the share prices of the matched firms also increase (Cai, 2007; Gygax & Otchere, 2010). Although the evidence of short-term pricing is striking, interpretations of that evidence differ. Investigating long-term stock price movements and operating performance may provide insights into the information content of index composition changes, as long-term performance is driven by fundamentals rather than by short-term buy-and-sell pressures.

The Hong Kong market is used to address these questions because it has little survivorship bias. As such, it differs from the S&P 500 Index, in which many deleted stocks are delisted from exchanges. Chan, Kot, and Tang (2013) reveal the number of added and deleted stocks on the S&P 500 Index to be 788 and 244, respectively. Chen,

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Noronha, and Singal (2004) also document that about three quarters of S&P 500 deletions occur due to mergers, bankruptcies, or other forms of major restructuring. When investigating long-term performance, it is difficult to deal with the survivorship bias generated by delisting. In the Hong Kong market, most of the stocks deleted from the Hang Seng Index remained listed on the exchange during the sample period, minimizing survivorship bias.

It is also important to focus on the Hong Kong market because Hang Seng Index Services Ltd. (1997 and 2013) takes an aggressive approach to picking constituent stocks that represent the market. This differs from the S&P 500 Index, in which most of the changes in constituent stocks are driven by delisted examples from exchanges and mergers (Chen et al., 2004). Compared with deleted stocks, most of the stocks added to the Hang Seng Index exhibit good operating and stock performance and are winners in the industry. As added and deleted stocks have shown stronger contradictions in their recent performance, they provide an excellent opportunity to investigate whether long-term stock performance after additions and deletions is caused by investor overreaction, operating performance changes, or other reasons.

Based on Hang Seng Index additions and deletions from 1986 to 2008 with stock returns up to 2013, we find that although newly added stocks did not outperform the Hang Seng Index, deleted stocks did so significantly by a 5-year abnormal return of 95%. We also find that the deleted stocks outperformed the added stocks, with the difference resulting from poorly performing state-owned Chinese firms (red chips and H-shares) and better performing family-owned deleted stocks. We propose five hypotheses to investigate the potential sources of the abnormal returns. First, we check the changes in operating performance of the added and deleted stocks 5 years before and after addition or deletion. We then find evidence that the operating performance of the deleted stocks improved while that of the added stocks did not.

We then test the analyst coverage hypothesis by determining the changes in analyst coverage. We find that the analyst coverage of the added stocks increased and that of the deleted stocks decreased significantly in the subsequent 5 years. We also determine whether there were any changes in liquidity after the additions or deletions and find that the liquidity of both the added and deleted stocks decreased. We test for systematic risk changes and find that the beta of the added stocks decreased over a 5-year period, during which the beta of the deleted stocks did not change. Finally, we test the joint effect of our hypotheses via cross-sectional regression analysis. The results show that state and family ownership help explain the long-term stock performance of added and deleted stocks and that changes in operating performance are the most important factors in that explanation.

To the best of our knowledge, this is the first study to provide comprehensive analysis of the long-term performance of index additions and deletions out of the U.S. market. It complements the work of Chan et al. (2013), who focus on the long-term performance of the S&P 500 Index. We overcome and minimize the survivorship bias of deleted stocks frequently seen in S&P 500 Index studies. We also find that in the Hang Seng Index, the operating performance of both added and deleted stocks is above their industry average, and that in the S&P 500 Index, only the operating performance of added stocks is above average. In terms of long-term stock performance, the deleted stocks in both the Hang Seng and S&P 500 Indices show positive abnormal returns, and only the added stocks in the S&P 500 Index show positive abnormal returns. The analyst coverage of added stocks has increased for both the Hang Seng Index and S&P 500 Index, and only the deleted stocks in the Hang Seng Index have shown a decrease in analyst coverage. According to regression analyses, both the Hang Seng and S&P 500 Indices show that changes in operating performance are the most important factors explaining long-term stock performance. The results of this study enhance our understanding of the long-term performance of index additions and deletions because the background and institutional setting of the Hang Seng Index are different from those of the S&P 500 Index. Our findings also contribute to the literature related to controlling shareholders and family firms, which Chan et al. (2013) do not consider.

The remainder of this study is organized as follows. Section 2 describes the background of the Hang Seng Index and its institutional difference in index revisions from the S&P 500 Index. Section 3 develops the hypotheses. Section 4 describes the data collection process. Section 5 details the long-run stock performance of added and deleted stocks. Section 6 investigates four factors that may contribute to long-run abnormal stock returns. Section 7 reports the regression analysis. Section 8 concludes the study.

2. The Hang Seng Index

2.1. The Hang Seng Index

The Hang Seng Index (HSI) is compiled and published by Hang Seng Index Services Limited, a wholly owned subsidiary of Hang Seng Bank. The index was first published on November 24, 1969, and backdated to July 31, 1964. The HSI comprises 33 constituent stocks deemed representative of the market. Their aggregate market capitalization accounts for about 70% of the total market capitalization of the Hong Kong Stock Exchange (HKEx) (Hang Seng Index Services Ltd., 1997). For nearly 50 years, the HSI has been a widely quoted benchmark for the Hong Kong stock market.[3]

HSI Services Limited reviews the constituents quarterly in a two-stage process (Hang Seng Index Services Ltd., 1997). In the first selection stage, a company must fulfill four criteria to be considered an eligible candidate.[4] In the second stage of selection, a stock's eligibility is judged according to the following three additional considerations: the market capitalization and turnover ranking of the company, whether its inclusion will help the subsectors better reflect the composition of the market and the company's financial performance.

On September 11, 2006, HSI Services Limited made some significant changes to how the HSI was constructed. First, they changed the calculation from a full market capitalization weighting to a weighting based on each share's free float. Second, the number of constituent stocks increased from 33 to a maximum of 50. Third, a mainland Chinese enterprise with H-shares listed on the HKEx became eligible for inclusion in the HSI if it meets the criteria.[5] Since September 11, 2006, HSI Services Limited still adopts the same two-stage approach to select the HSI's constituent stocks, with a quarterly review. In October 2013, the HSI had 50 constituent stocks with a total market value of HK$13,858 billion and accounts for 60% market value and 46% market turnover of main board listed stocks (Hang Seng Index Services Ltd., 2013).

2.2. Difference between the Hang Seng and S&P 500 Indices

There are several differences of the index additions and deletions between the Hang Seng and S&P 500 Indices. First, most changes to the S&P 500 Index are initiated by deletions. Chen et al. (2004) and Chan

[3] The HSI is a value-weighted index, and each constituent stock is weighted by its market capitalization, which is calculated by multiplying each stock's price by the number of shares issued (HSI Services Limited, 1997). To better reflect the price movements of major sectors of the market, HSI Services Limited introduced four sub-indices in January 1985, grouping the 33 constituent stocks into finance, utilities, properties, and commerce and industry categories.

[4] First, it must be among the firms constituting the top 90% of the market's total capitalization, computed as an average of every ordinary stock listed on the HKEx over the previous 12 months. Second, it must be among those firms constituting the top 90% of the total turnover on the exchange, computed as an aggregate over the past 24 months. Third, it should have a listing history of at least 24 months. Fourth, it should not be a foreign company as defined by the HKEx.

[5] Criteria including: 1) it has 100% of its ordinary share capital in the form of H-shares, which are listed on the HKEx; 2) it has no unlisted share capital (i.e., has completed the process of share reform); or 3) in the case of new H-share IPOs, the enterprise similarly has no unlisted share capital.