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The effect on price, liquidity and risk when stocks are added to and deleted from a sustainability index: Evidence from the Asia Pacific context

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ABSTRACT

We examine the impact on returns, risk and liquidity of stocks in the Asia Pacific markets when included into and deleted from the Dow Jones Sustainability World Index over the period 2002–2010. Using an event study methodology, we test five existing hypotheses and two new ones, called the "sustainability taste hypothesis" and "sustainability redundancy hypothesis", which we developed. Consistent with the "sustainability redundancy hypothesis", we find that both index addition and index deletion stocks experience a significant decline in returns, an increase in trading volume, no change in systematic risk and an increase in idiosyncratic risk. This indicates that sustainability matters to Asia Pacific investors, although in a somewhat negative manner.

1. Introduction

The existing literature on index additions and deletions documents strong empirical evidence of positive (negative) permanent (temporary) price impacts upon index addition (deletion) of a firm. At least five different hypotheses have been formulated in the literature to explain the significant price impacts. These are the downward sloping demand curve hypothesis (Shleifer, 1986), price pressure hypothesis (Harris & Eitan, 1986), information cost hypothesis (Merton, 1987), signaling hypothesis (Denis, McConnell, Ovtchinnikov, & Yu, 2003; Dhillon & Johnson, 1991; Jain, 1987), and liquidity hypothesis (see Beneish et al., 2002; Hegde & McDermott, 2003).

The first two hypotheses assume that these index addition and index deletion events do not contain information and therefore cannot affect share price. The significant price impacts are due to changes in demand arising from non-information-based portfolio allocation. The downward sloping demand curve hypothesis posits that the increase in demand is permanent and thus the price and volume impacts so induced are also permanent, while the price pressure hypothesis

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assumes that the increase in demand can be temporary and likewise the price and volume impacts. Both hypotheses predict that index addition (deletion) stocks experience increase (decrease) in stock returns with higher (lower) liquidity. The other three hypotheses assume that the events carry information and affect the fundamental value of the security through various channels. In particular, the information cost hypothesis argues that index addition events can increase investor awareness and decrease information search costs because they make more information available to investors and reduce information asymmetry problems. As a result, investor awareness contributes to the existence of asymmetric price responses where a permanent change in the stock price of added firms is expected after the events but no permanent decline for deleted firms (Chen, Noronha, & Singal, 2004). The signaling hypothesis argues that the events are interpreted by investors as signals regarding the future value of the security because private information possessed by the index company can be revealed by these events. Other things being equal, an expected increase in the future value of the security leads to an increase in security prices. According to the liquidity hypothesis, index addition reduces stock volatility by enhancing the liquidity (as measured by the bid–ask spread) of the market for the underlying stock. Market makers in the stock reduce the bid–ask spread due to the flow of information-based trading to the stock market, and greater trading activities by hedgers and arbitragers. In other words, the liquidity hypothesis argues that the significant price impacts are due to change in discount rate resulting from change in liquidity risk.

These explanations, however, do not cater to the situation where the stock addition or deletion is in relation to a sustainability index. In contrast to other indices, a sustainability index is one that selects companies based not solely on economic or financial but also on extra-financial considerations such as those that relate to environmental or social performance. It is claimed that, financially, investors will be better rewarded investing in "sustainable or socially responsible" companies as these firms will have better financial performance since they represent well-managed firms and are less risky (Renneboog, Horst, & Zhang, 2008a). These firms also connect better with their different stakeholders, which can translate into more revenues, lower expenses and less risk (Renneboog, Horst, & Zhang, 2008b). It is also claimed that investors obtain additional utility or satisfaction arising from the additional extra-financial performance by these firms (see, for example, Fama & French, 2007). On the other hand, it is simultaneously argued that investors will be less financially compensated with these "sustainable" firms because these firms can get distracted by the additional goals that they adopt which can then lead to a negative impact on their profitability (Aupperle, Carroll, & Hatfield, 1985). Whatever the arguments are, what is obvious is that this type of firm is perceived to be different from traditional firms. Hence, this can affect the way investors react to them when they are listed or delisted from their relevant index.

What happens then if the index involved is one that is a sustainability index? What would be the expected effects on returns, risk, and liquidity when stocks are deleted from and included into a sustainability index? We develop two new hypotheses called the "sustainability taste hypothesis" and "sustainability redundancy hypothesis". The former hypothesis stipulates that investors with tastes or preferences for sustainable firms can derive additional utility from their holdings of the shares of these firms, on top of the utility that they can get from the payoffs (or returns) on these shares. The latter hypothesis posits that stock selection based on corporate sustainability is equivalent to imposing "additional or redundant" constraint on portfolio optimistion, other than risk minimization and return maximization, resulting in suboptimal portfolios. We test these two hypotheses as well as the existing five hypotheses in the context of the Asia Pacific region. We undertake our investigation with respect to the stock markets of Australia, Hong Kong (China), India, Japan, Malaysia, Singapore, South Korea, Taiwan and Thailand over the period 2002–2010. We use an event study methodology and the internationally recognized Dow Jones Sustainability World Index (DJSWI).

The paper is organized as follows. Section 2 discusses the significance and contribution of the paper while Section 3 makes an exposition on the hypotheses being tested in the paper. A discussion of the methodology and data is made in Section 4 and the empirical results are presented in Section 5. Section 6 discusses the results of the study and also concludes the paper.

2. Significance and contribution of the research

The question of how investors react to addition and deletion of stocks from a sustainability index is important and interesting as there is now a heightened interest in sustainability among investors or in the so-called socially responsible investing. At present, there is a worldwide movement toward socially responsible investing, orchestrated by such international organizations as the United Nations Principles for Responsible Investment (UN PRI), United Nations Environment Program for Financial Institutions (UNEP FI), Carbon Disclosure Project, among others. Furthermore, there is now a very significant amount of investment in sustainable firms. The so called "socially responsible investment" (SRI) has grown very substantially over the last 10 years. SRI assets are worth at least US$2.71 trillion in the United States, as reported by the Social Investment Forum (2007), and C$503 billion (US$471 billion)[2] in Canada based on information from the Canadian Social Investment Organization (2006). In Europe, the UK is the leading SRI market with assets valued at €781 billion (US$1.17 trillion) based on data from the European Social Investment Forum (2006). In Asia, the leading SRI market is Japan with up to ¥840 billion (US$7.3 billion)[2] worth of SRI assets (SIF-J, 2007).

However, in spite of this worldwide surge in investor interest on sustainability, there is a dearth of studies which have investigated the issue of index additions and deletions in relation to a sustainability index. As far as we know, there are only

[2] DJSSI is a variant of DJSWI with a focus on European firms.