Index reconstitutions and the role of foreign institutional investors on local corporate governance: Evidence from MSCI Standard Index

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Abstract

Using composition changes in the MSCI Standard Index from 38 countries between January 2000 and December 2015, we explore the role of foreign institutional investors on local governance. Empirical results show an asymmetric price reaction: the positive abnormal return for additions is permanent, while the negative abnormal return for deletions, from announcement to implementation date, is entirely recovered in the 60-day post-implementation period. Moreover, the abnormal returns for additions are higher in countries with weak investor protection than in countries with good protection. The asymmetric long-term price effect and higher abnormal returns in countries with weak investor protection are consistent with the view that foreign investors play a monitoring role, and suggest some substitutability between foreign institutional investors and local corporate governance.

Keywords: Index effects; Corporate governance; MSCI; Investor protection
JEL Codes: G14, G15, G32, G34

1. Introduction

The abnormal returns and excess trading volume associated with changes in index constituents are well documented. Most studies of these phenomena, however, merely focus on a single country, particularly on the US market. The stocks in Asian and European countries that were added to or deleted from the Morgan Stanley Capital International (MSCI) Standard Index, which also experienced a great swing in equity price and received extensive coverage in local newspapers,[1] are less covered in the literature.

In this paper, we extend the existing evidences by examining the abnormal return and excess trading volume of the additions to and deletions from the MSCI Standard Index in 22 developed and 16 emerging markets, which are dispersed across the Asia-Pacific region, Europe, the Middle East, and Africa. Given that the MSCI Standard Index is an important benchmark for cross-border investment, and a large variation in corporate governance practice exists across the 38 countries considered, we provide a new explanation for the abnormal returns associated with the additions and deletions by addressing the role of foreign investors in the improvement of firm-level corporate governance.

MSCI makes four periodic reviews for their Standard Index every year. The announcements of these reviews are regarded as important events by investors, particularly in non-US markets,[2] because local investors would expect that the

[1] For example, the recent decision by MSCI not to add Chinese domestic stocks to its widely tracked emerging markets index caused the equity prices to rise and fall in several emerging stock markets whose weights will be affected by this decision. On June 11, 2015, when the news became public, the Asian Wall Street Journal reported that "The Shanghai Composite Index … pared losses after being down more than 2% in the morning, following MSCI's decision not to add China's A-shares to its influential emerging-markets index because foreigners still have trouble accessing the market.".

[2] In an earlier example, the Asian Wall Street Journal reported on May 13, 2004, that "MSCI, a unit of New

reconstitution of the MSCI Index would affect portfolio holdings of foreign institutional investors. Ferreira and Matos (2008) as well as Leuz, Lins, and Warnock (2009) find that foreign institutional investors tend to include the constituent stocks of the MSCI Index in their investments. Hau, Massa, and Peress (2010) also document the flow of cross-border funds, which are induced by tracking the changes in the composition of the MSCI Index, can influence not only the equity prices of the associated stocks but also the exchange rates of the corresponding currencies. Accordingly, additions (deletions) in our sample are expected to experience a price appreciation (depreciation) and an increase (a decrease) in foreign ownership around the announcement and implementation dates of index changes.

Inclusions in the MSCI Standard Index could induce more cross-border equity investment. With higher ownership, foreign institutional investors would have more power to exert their influence and directly monitor firms to improve corporate governance. Recent studies have confirmed the effective monitoring role of foreign investors on firms in non-US countries. For example, Huang and Shiu (2009) find that firms in Taiwan with high foreign institutional ownership outperform those with low foreign institutional ownership. Ferreira and Matos (2008) study the role of institutional investors in 27 countries and also document that firms with higher foreign ownership have higher firm valuation and better operating performance. Examining portfolio

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York investment bank Morgan Stanley, announced late Tuesday the results of an annual index review that will take effect May 28. Yahoo Japan was one of the largest additions to the MSCI World Index, while South Korea's SK Telecom and Taiwan's Chi Mei Optoelectronics were among the major inclusions in the MSCI Emerging Markets Index. The news drove up shares of the prospective new members of MSCI in Asian trading yesterday. Tokyo stocks led the gains, as MSCI added 31 Japanese stocks to its Standard Index. The Nikkei 225 rose 2.3%. Yahoo Japan gained 4.6%. The Weighted Price Index of the Taiwan Stock Exchange rose 1.2%. Technology-related shares led the way as investors responded positively to MSCI's Taiwan additions. Flat-panel maker Chi Mei Optoelectronics gained 5.5%."

holdings of institutional investors in firms from 23 countries, Aggarwal, Erel, Ferreira, and Matos (2011) find that changes in foreign institutional ownership positively affect subsequent changes in corporate governance of firms in non-US countries. These studies highlight the role that foreign institutional investors play in prompting local corporate governance practices worldwide.

In this paper, we hypothesize that local stocks that are new to the MSCI Standard Index would exhibit permanent price appreciation as a result of higher foreign ownership and better corporate governance. More importantly, the improvement in corporate governance brought by foreign institutional investors is more valuable for firms in countries with weak investor protection than for those in countries with strong investor protection. When stocks are newly deleted from the MSCI Standard Index, however, the improved corporate governance resulting from effective monitoring of foreign institutional investors does not reverse quickly. Around the time of the announcement and the effective dates, the equity price of deletions drops temporarily due to selling pressure from investors who track the MSCI Standard Index. When the market absorbs the selling imbalance, the equity price would revert to the pre-adjustment level. Therefore, we hypothesize that additions and deletions have an asymmetric long-term price reaction to the changes of the composition of the MSCI Standard Index.

Our empirical results support our hypotheses. We find that markets react strongly to the MSCI announcements: additions have significantly positive abnormal returns while deletions have significantly negative returns. The abnormal returns extend further in the period from the announcement of an addition or deletion to the day before the effective date. The positive abnormal returns of additions persist until 60 days after the effective date. In contrast to additions, deletions' negative abnormal returns in the interval from

announcement to implementation are temporary. The equity prices reverse back to pre-adjustment levels within 60 days after the effective date, which is consistent with the *price pressure hypothesis*.

We also find that foreign institutional investors significantly increase their holdings of stocks that are new to the MSCI Standard Index. Although foreign investors tend to sell their holdings in stocks that have been deleted from index, the magnitude of the decrease in foreign ownership of deletions is smaller than the increase in foreign ownership of additions. This evidence confirms that foreign institutional investors tend to hold the constituent stocks of MSCI Standard Index. This finding also provides evidences to explain the phenomena that: (i) additions experience a permanent positive price impact as a result of higher foreign ownership and improved corporate governance; and (ii) deletions experience a price reversal due to the fact that their improved firm-level corporate governance that resulted from increased foreign ownership during their inclusion in the MSCI Index does not degrade quickly when the stock is newly deleted from the Index.

More importantly, our empirical findings show that the positive abnormal returns of additions are higher for stocks in countries with weak investor protection than for those in countries with strong investor protection, suggesting that some substitutability exists between foreign ownership and legal protection for minority shareholders. This finding is consistent with our hypothesis that the monitoring of foreign investors is more valuable for firms in countries with weak investor protection than for those in countries with good investor protection.

To justify the validity of our hypotheses, we conduct additional examinations to test alternative explanations, including the *investor awareness hypothesis* and *earnings*

expectation hypothesis. We calculate the changes in the number of foreign investors and domestic institutional investors, and the changes in financial analysts' earnings forecasts around the MSCI Standard Index reconstitutions. We find that the number of foreign investors in additions to the Index increases and the one in deletions from the Index decreases. This finding is generally consistent with the *investor awareness hypothesis*. We also document that, as comparted to benchmark firms, additions tend to experience upward revisions on their future earnings expectations and deletions tend to suffer from downward revisions, which is consistent with the *earnings expectation hypothesis*. However, when additions are classified according to the level of legal investor protection in the countries where the firms are based—"good" and "weak"—we find that the change in number of foreign investors and the future earnings revisions do not differ significantly between these two groups. This indicates that the outperformance of additions in the weak protection group compared to those in the good protection group is not fully explained by the *investor awareness hypothesis* or the *earnings expectation hypothesis*.

This study contributes to the existing literature on the Index effect by examining an expanded research sample of 1,883 additions and 1,410 deletions made over 16 years across 38 countries. The large sample size and cross-sectional variation in institutions from different countries allows us to investigate the causes behind the differences in the price impact of index changes that exist in various countries. Most studies have focused only on one country or market, with very few studies providing findings and comparing results from different countries. In earlier literature, Chakrabarti, Huang, Jayaraman, and Lee (2005) examine the price and volume effect of constituent changes in the MSCI Standard Index in 12 quarters from 29 countries. Hau et al. (2010) study the issue of downward-sloping demand for currencies by examining changes in the MSCI Index. To

our best understanding, these studies are the only two that provide international evidence of the Index effect. However, neither of these studies addresses the influence of institutions on price effects, nor do they examine the ownership changes that occur around index reconstitutions.

We find that the longer-term impact of compositional changes to the MSCI Standard Index on equity prices is asymmetric: additions have permanent positive abnormal returns, but deletions have a temporary negative market reaction between the announcement and effective dates, and have a pronounced price reversal upon implementation. This result is similar to the findings documented by Chen, Noronha, and Singal (2004), who argue that a stock added to an index can raise the awareness of investors and, when this stock is deleted from an index, investors' awareness does not quickly eliminate. Although our finding is not new, we provide alternative explanations for it and link the asymmetric reaction to the effective monitoring effect and the influence of foreign institutional investors in terms of improving local corporate governance.

In addition to the literature on index changes, we also contribute to the literature on the monitoring role of foreign institutional investors. Ferreira and Matos (2008) and Huang and Shiu (2009) find that foreign institutional investors are involved in monitoring local corporations. Aggarwal et al. (2011) find that foreign institutional investors from countries with good corporate governance can improve local firm-level corporate governance. We contribute to the literature in this area by showing evidence that inclusions in the MSCI Standard Index that are based in countries with weak minority shareholder protection have higher abnormal returns than those in countries with good protection. This evidence suggests some substitutability between foreign ownership and local corporate governance.

The remainder of this paper is organized as follows. The literature review is presented in Section 2. Section 3 describes the data used in this study. The empirical results on market reactions are presented in Section 4. The relationship between abnormal returns and investor protection is examined in Section 5. Section 6 presents the conclusions.

2. Literature Review

The literature on stock returns and trading volumes associated with reconstitution of stock indexes is extensive. Several competing hypotheses are offered to explain various observed phenomena. We review the literature by discussing these hypotheses.

2.1 Downward demand curve versus price pressure

In traditional asset-pricing models in finance, it is assumed that the aggregate demand for financial assets is perfectly elastic and that asset value is not affected by supply in perfect capital markets. The early literature concerning whether demand for stocks is perfectly elastic examines the price movement when large blocks of shares are traded (Scholes, 1972). However, block trades are usually associated with the presence of private information. Since the reconstitution of the S&P 500 index is regarded as an information-free event, several studies examine the price effects associated with the additions to and deletions from the S&P 500 index.

As the leading proponent of the *downward demand curve hypothesis*, Shleifer (1986) examines a sample of additions to the S&P 500 Index from 1966 to 1983. Shleifer finds that since the S&P began to inform subscribers of the changes in the composition of the Index in September 1976, additions display a positive abnormal return of 2.79% and this increase in price does not reverse in the 20 days following the announcement date. This

result demonstrates that the "notification service" helps inform the market about new additions to the index. Most importantly, the permanent increase in the price of additions to the index, indicating that stocks are imperfect substitutes for one another, is consistent with the *downward demand curve hypothesis*. Subsequent studies, including Dhillon and Johnson (1991), Beneish and Whaley (1996), and Kaul, Mehrotra, and Morck (2000), also confirm that the long-term demand curves are not perfectly elastic.

Harris and Gurel (1986) also examine the additions to the S&P 500 Index between 1973 and 1983. Their results demonstrate that the price of the newly-added stocks increases more than 3% at the time of the announcement of their inclusion in the Index. However, the price reverses toward its pre-announcement level after approximately three weeks. This result supports the *price pressure hypothesis*, which advocates that a temporary price increase for stocks that are new to the index is caused by the excess demand resulting from the portfolio rebalancing of index funds, and that the temporary price increase dissipates when the market absorbs the excess demand. Elliott and Warr (2003) also document that the price run-ups of additions on the announcement date quickly reverse to their pre-announcement levels several days after the effective date.

Although the predictions about the price patterns in the post-inclusion period are different for the *downward sloping demand hypothesis* and the *price pressure hypothesis*, they are not mutually exclusive. For example, Lynch and Mendenhall (1997) document a significant price effect on announcement and then a moderate degree of price reversal following implementation. Specifically, they find that some of the equity price changes in response to the changes of constituents in the S&P 500 Index are permanent while a sizeable proportion of equity price changes reverse upon implementation. In a more recent study, Chakrabarti et al. (2005) examine the changes in the MSCI Standard

Indexes for 29 countries between 1998 and 2001, and find evidence to support both hypotheses.

2.2 Liquidity

In liquidity-based asset pricing model, the required return on a stock is lower when it is more liquid (Amihud and Mendelson, 1986). Given that index constituents are better known than non-index firms, the trading volume and liquidity of additions increases, while the bid-ask spread reduces. Increased liquidity results in investors requiring a lower return, which should lead to a price increase following the announcement. Hegde and McDermott (2003) examine the additions to, and deletions from, the S&P 500 Index from 1993 through 1998. They document a significant and sustained increase in liquidity for stocks that are new to the S&P Index. More importantly, the improvement in the liquidity of additions results primarily from a decrease in transaction costs as well as a slight decline in information asymmetry. For stocks that are excluded from the index, their liquidity declines over the three months following deletion. These empirical findings are consistent with the *liquidity hypothesis*.

2.3 Information-related events

Both the *downward sloping demand hypothesis* and *price pressure hypothesis* assume that the changes in index constituents are information-free events, which imply that the changes do not affect the prospects of the additions and deletions, nor do the changes alter the required return of these stocks. However, this view has been challenged by some evidence that index agents may not only access information unavailable to the public but also have a better ability to scrutinize the index composition. For example, Jain (1987) demonstrates that S&P may prefer to include stable firms, and that it has more power than the general public to monitor index constituents. Thus, a stock that is new to

the index makes a signal of confidence in the firm's management to the market and brings about a reduction in the stock's perceived riskiness. Dhillon and Johnson (1991) examine the prices of call options, put options, and bonds that were issued by firms that are new to the S&P 500 Index. Interestingly, bonds and call options simultaneously exhibit price increases on the announcement date, while put options display price declines. Since stocks and bonds are not perfect substitutes for one another, these findings indicate that the market believes the new additions are certified by index agents.

Denis, McConnell, Ovtchinnikov, and Yu (2003) document that new inclusions in the S&P 500 Index experience upward revisions in earnings forecasts. Their results indicate that the addition of a stock to an index conveys its good prospects to the market. Cai (2007) finds that a security's inclusion in the S&P Index not only conveys favorable information about the firm's prospects, but that favorable information spills over to industry peers.

2.4 Investor awareness

More recently, Chen et al. (2004) document a long-term asymmetric price effect for the changes to the S&P 500 constituents, in which additions have permanent positive abnormal returns but deletions do not exhibit long-term negative abnormal returns. Chen et al. (2004) propose the *investor awareness hypothesis*, which is related to the Merton's (1987) investor recognition theory that a larger investor base can result in a lesser extent of information asymmetry, to explain the asymmetric price response to the index changes. Investor recognition theory states that, because investors hold incompletely diversified portfolios in segmented markets, the return required by investors is higher than that it would be in a full-information setting, and the difference between the two returns represents the equities' "shadow cost." When a stock is added to an index, this raises the

awareness of investors, who will hold it to achieve diversification. The shadow cost of the stock thus falls, resulting in an increase in the stock price. On the other hand, when a stock is deleted from an index, this does not quickly eliminate the awareness of investors. Therefore, the stocks do not suffer price depreciation in the long term when they are deleted from an index.

3. Data

To introduce our sample of changes in constituents, we begin by describing the MSCI Standard Index and the philosophy followed by MSCI for making changes to the Index. We then present the summary statistics for our initial and final samples. In the third subsection, we introduce our measure for investor protection at the country level, and present the descriptive statistics for the macroeconomic and stock market variables associated with our sample countries.

3.1 MSCI Standard Index

In 1968, Morgan Stanley Capital International Inc. (MSCI) launched the first set of global equity indexes for non-US markets. MSCI has created and maintained a broad base of indexes (such as World, Regional, and Country Equity Indexes, Value and Growth, Sector, Industry, Small Cap, and Micro Cap) that have become some of the most widely used international equity benchmarks by institutional investors.[3]

Of all the MSCI indexes, the Standard Country Indexes are the most important and popular. MSCI constructs the Standard Index series for 56 countries in developed,

[3] MSCI equity indexes are widely licensed for use as the basis for OTC and exchange listed index-linked financial products. According to the MSCI website (https://www.msci.com/indexes), as of December 2015, US$9.5 trillion in assets are estimated to be benchmarked to MSCI indexes on a worldwide basis, and more than 675 ETFs with an asset value of US$380 billion are based on MSCI indexes globally.

emerging, and frontier markets. These Standard Country Indexes collectively act as an important benchmark for cross-border investment. The Indexes are tracked by exchange-traded funds or *ishares* abroad, and are the fundamental elements of other indexes. The MSCI Standard Index series adjusts the market capitalization of index constituents for free float (the proportion of shares outstanding that are available to investors for purchase in the public equity markets), and targets 85% coverage of free float-adjusted market capitalization in each industry group within each country. All 56 countries are classified into three regions: the Americas; Europe, Middle East, and Africa (EMEA); and the Asia-Pacific (APAC). MSCI creates global and regional indexes, comprising the MSCI Standard Country Indexes, to measure international equity performance as a benchmark for cross-border investors. For example, the MSCI ACWI (All Country World Index) represents large and mid-cap equity performance across 23 developed and 22 emerging markets, covering approximately 85% of the free float-adjusted market capitalization in each country. The MSCI World Index represents large and mid-cap equity performance across 23 developed countries. The MSCI EAFE Index comprises the Global Standard Country Indexes capturing large and mid-cap equities across developed markets in Europe, Australasia and the Far East (Hong Kong, Japan, and Singapore), excluding the US and Canada. The MSCI Emerging Markets Index covers 22 emerging countries.

In order to ensure a broad and fair representation of the diversity of global business activities, stocks that are representative of the economy are included in the MSCI Standard Index. Further, to be accessible to domestic and cross-border investors, stock liquidity, free float, and foreign ownership limit (the proportion of share capital of the security that is available for purchase by foreign investors) are also criteria for inclusion.

Accordingly, a stock is deleted from a country index for a variety of reasons including the following: (i) the firm is no longer representative of its industry, or the industry is no longer important in the economy; (ii) an industry group is over-represented as a result of being out-of-favor, mergers, acquisitions, restructuring, and other major market events; (iii) a security has become very small or illiquid; (iv) a firm has a change in industry classification, or a significant decrease in the free float as a result of corporate events (mergers, acquisitions, and restructuring); and (v) a listed company goes bankrupt or is delisted from the local stock exchange.

The methodologies that MSCI uses to maintain Standard Indexes are distinct from those used by Standard and Poor's. Given that the number of firms in the S&P 500 index is maintained at 500, an addition to the index is always accompanied by a deletion from the index. Therefore, changes in index composition are generally initiated by deletions, and the adjustment of constituents of the S&P 500 index occurs on an irregular basis. In contrast, MSCI does not target a specific number of securities for inclusion in its indexes. Thus, a deletion does not automatically lead to an addition.

MSCI maintains Standard Indexes on both regular and irregular bases. In response to corporate events, bankruptcies, or delistings, MSCI immediately announces the adjustment of an index when needed. Naturally, such adjustments are irregular. Meanwhile, to pursue their objective of efficiently adapting to the evolution of underlying equity markets, MSCI makes four periodic index reviews per annum, including two semi-annual full country index reviews in May and November, and two quarterly index reviews in February and August. In general, the results of the semi-annual and quarterly index reviews are announced at least two weeks in advance of their effective implementation dates. For example, on May 12, 2015, MSCI announced the results of the

May 2015 Semi-Annual Index Review for the equity indexes; the changes were implemented at the close of trading on May 29, 2015. MSCI announces and delivers the changes in indexes to clients from its office in Geneva at 8:30 PM GMT, when the markets have closed in European countries and the next day's markets have not yet opened in Asian countries. These changes are also posted on the Index Review page on MSCI's website.

3.2 Full and Final Samples

We obtain the detailed data regarding the changes in the constituents of the MSCI Standard Indexes from MSCI. The data include the list of additions to and deletions from the MSCI Standard Indexes in 56 countries that made changes between January 2000 and December 2015, and their announcement date and effective dates. Daily stock and market returns and trading volume data are retrieved from the Datastream database. We match our MSCI sample with Datastream database using the identifiers of Stock Exchange Daily Official List (SEDOL), International Securities Identification Number (ISIN), and the names of additions and deletions. Institutional ownership data are from Factset Equity Ownership database. Our sample is filtered by the following selection criteria:

(1) Only the additions to and deletions from the MSCI Standard Indexes' regular reviews are included in our analysis. As introduced earlier, the changes in the MSCI Standard Index constituents that occur on an irregular basis are likely to be caused by corporate events, such as mergers, acquisitions, or bankruptcies. Therefore, we exclude these irregular changes in order to avoid the survivorship bias and being contaminated by other studies.[4]

[4] In order to create their samples of clean S&P 500 index deletions, Lynch and Mendenhall (1997) and Chen et al. (2004) employ several criteria to exclude firms that go bankrupt or are delisted by stock exchanges. In contrast, after excluding irregular changes, our final sample of deletions is free of

(2) The additions to and deletions from the MSCI Standard Indexes in the Americas regions (including two developed and five developing countries) are excluded from our analysis because, when MSCI announces index changes, some of these markets are open while the others are closed. This situation could prevent us from clearly analyzing the information effect of the announcement of the changes in the constituents of the MSCI Standard Indexes.[5] The changes of the constituents in 11 frontier markets are also excluded because of stock illiquidity and lack of daily stock returns data. Therefore, there are 2,074 additions and 1,517 deletions from 38 countries in the APAC and EMEA regions in our initial sample.

(3) Firms must have at least 30 days of daily data in the 60-day period before the announcement date, and at least 30 days' data in the 60-day period beginning on the effective date. This criterion leaves us with a final sample of 1,883 additions and 1,410 deletions from 38 countries. The APAC region includes five developed markets (Australia, Hong Kong, Japan, New Zealand, and Singapore) and eight emerging markets (China, India, Indonesia, Korea, Malaysia, Philippines, Taiwan, and Thailand). The EMEA region covers 17 developed markets (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom) and eight emerging markets (the Czech Republic, Egypt, Hungary, Morocco, Poland, Russia, South Africa, and Turkey).

Table 1 represents the frequency distribution of initial and final samples. Panel A reports the distribution by year. As shown, MSCI changes the constituents of Standard Indexes more frequently in 2001 and 2007, and less frequently in 2002. Interestingly, in

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survivorship bias.

[5] Another reason for excluding the Americas is that two countries with the largest number of constituent changes—the US and Canada—are well documented in the literature.

2004 and 2005, MSCI adds a total of 161 and 184 firms to its Standard Indexes for our sample countries, but only deletes 22 and 26 firms, respectively.

<Table 1 is inserted about here>

Panel B reports the frequency distribution by country. Among 38 sample countries, Japan has the largest number of changes in its MSCI Standard Index: 268 additions and 163 deletions in the sample period. China (with 226 additions and 109 deletions), Taiwan (164 additions and 124 deletions), Korea (135 additions and 98 deletions), India (116 additions and 88 deletions), and the United Kingdom (128 additions and 64 deletions) follow. It is worth noting that the number of constituent changes is larger in the countries in the APAC region than in those of the EMEA region.

3.3 Country-level investor protection

Earlier literature on corporate governance focuses on problems in the agency relationship between managers and shareholders in a corporation with separation of ownership and control (Jensen and Meckling, 1976). More recent studies emphasize instead the ability of controlling shareholders to divert corporate resources to themselves (Grossman and Hart, 1988; Johnson, La Porta, Lopez-de-Silanes, and Shleifer, 2000; Claessens, Djankov, Fan, and Lang, 2002; Durnev and Kim, 2005). Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008) construct their anti-self-dealing index as a measure of investor protection for 72 countries. The new index specifically addresses the legal protection of minority shareholders against expropriation by corporate insiders in self-dealing transactions. Djankov et al. (2008) assert that the anti-self-dealing index is better grounded in theory than the index of anti-director rights constructed by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997, 1998).

In this study, we use the anti-self-dealing index as a measure of investor protection.

A higher value of this index for a country indicates better protection of investors. In our analytical framework, if there exists substitutability between foreign ownership and local corporate governance, then we should expect that additions in countries with low values of anti-self-dealing index will experience higher announcement returns than additions in countries with high values of the index. On the contrary, if foreign institutional investors can exert a stronger influence only in the presence of a legal environment that better protects investors, then we should expect a contrasting relationship. We collect the value of anti-self-dealing index for each sample country.[6] The median country-level index, 0.46, is used as a cut-off point to split our sample countries into "good protection" and "weak protection" groups. Based on this classification, there are 19 countries in the "good investor protection" group and the remaining 19 countries are in the "weak protection" group.[7] Panel A of Table 2 reports the value of anti-self-dealing index for the good protection and weak protection countries. As shown in the first column of Panel A, the average anti-self-dealing index for the good investor protection countries is 0.73 while the average for the weak protection countries is 0.32.

<Table 2 is inserted about here>

In this paper, we are interested in understanding whether the Index effect is associated with local corporate governance, which is classified into two groups. However, it is essential to control for other macroeconomic and stock market variables that could potentially affect the relationship with the valuation of index reconstitutions. The

[6] The index can be downloaded from the website maintained by Professor Andrei Shleifer: http://scholar.harvard.edu/shleifer/publications?page=1.

[7] Countries in the "good protection" group include Australia, Belgium, China, Denmark, Hong Kong, India, Indonesia, Ireland, Israel, Japan, Korea, Malaysia, Morocco, New Zealand, Singapore, South Africa, Taiwan, Thailand, and the United Kingdom. Countries in the "weak protection" group are Austria, Czech Republic, Egypt, Finland, France, Germany, Greece, Hungary, Italy, Netherlands, Norway, Philippines, Poland, Portugal, Russia, Spain, Sweden, Switzerland, and Turkey.

omission is especially problematic given the possible interdependence among investor protection and macroeconomic and stock market variables found in studies by La Porta et al. (1998, 2002) and Djankov et al. (2008).

We select five important macroeconomic and stock market variables in our analysis. The first is the *market turnover* ratio, which is computed as the annual value of domestic shares traded divided by their year-end market capitalization. Stocks should be more liquid in countries with better protection of minority shareholders because outside investors are more willing to hold and trade shares when they are better protected. The second variable is *GDP per capita*. Since strong investor protection can benefit financial markets and economic development, countries with better minority shareholder protection would be expected to have higher per capita GDP. The third indicator is *market capitalization to GDP*, which is the ratio of the market capitalization of listed domestic firms to GDP. Djankov et al. (2008) show that stock markets are larger in countries with good protection than in countries with weak protection. The fourth is *market openness*. Following Bekaert, Harvey, and Lundblad (2011), the *market openness* measure is calculated as the ratio of the market capitalization of the constituent firms comprising the S&P/IFC Investable index to those in that market that are included in the S&P/IFC Global index.[8] The IFC Investable index in a country is a portfolio of domestic securities that are available for foreign investors, whereas the IFC Global index is the universal market portfolio in that country. A *market openness* ratio of one means that the market is fully open to foreign investors and that restriction on foreign ownership does not exist.[9]

[8] Since the S&P/IFC Investable index has been discontinued from 2008, the values of market openness measured for each country are available from 1999 to 2007 only. We average these nine values as a proxy for financial openness for each of our 38 sample countries.

[9] In spirit, the market openness measure is similar to the foreign ownership limit which MSCI considers as a criterion for inclusion in its indexes.

The fifth variable is the country's weight in the MSCI AC World Index. The *MSCI country weight* reflects the relative importance of the country's financial market.

We acquire the market turnover ratio, GDP per capita, and the market capitalization of listed domestic firms to GDP variables from World Development Indicators by the World Bank. The data source for the S&P/IFC Investable index and Global index is Datastream. We obtain the country's weight in the MSCI AC World Index from the Factset database. Panel A of Table 2 reports the values of these variables for 38 countries, while Panel B presents the correlation matrix.

As shown in Panel A, Korea, Taiwan, and Italy are the countries with the highest mean market turnover (177%, 165%, and 156%, respectively), while Hong Kong has the highest ratio of market capitalization to GDP (780%), followed by Switzerland (215%), South Africa (210%), and Singapore (209%), indicating these countries have experienced greater stock market development than other countries included in the sample. For the market openness, the developed countries always have a ratio of one; whereas China (0.50) and India (0.54) have the lowest ratios, implying that more equity investment barriers for foreigners are encountered in these two countries. The United Kingdom has the highest MSCI weights (9.27%), followed by Japan (9.03%) and France (4.10%). Not surprisingly, these three countries' economic entities and stock markets are globally important. Comparing "good" and "weak" protection countries, these macroeconomic and stock market variables are not significantly different between these two groups. The only exception is market capitalization to GDP, where the average ratio in good protection countries is 127%, which is significantly higher than the figure of 62% observed in weak protection countries. The better stock market development in countries with better legal protection for minority shareholders is consistent with the findings in

Djankov et al. (2008).

The correlation matrix in Panel B of Table 2 also suggests a significantly positive association between anti-self-dealing index and market capitalization to GDP. This finding confirms the summary statistics in Panel A. For other variables, GDP per capita is positively associated with market openness and MSCI weight. Since developed countries tend to have high GDP per capita, it suggests that developed countries have more important financial markets and fewer investment barriers for foreigners than developing countries.

4. Market Reactions

4.1 Excess Trading Volume

If the addition (deletion) of stocks to (from) the Index does indeed change the demand for these stocks by different types of investors, the excess trading volume would be high due to the rebalancing of portfolio holdings by these investors around the announcement and implementation dates. On the other hand, if the changes of constituents in the MSCI Standard Index are irrelevant to investors, then trading volume would not deviate from its normal levels on these occasions. We start the empirical works by examining excess trading volume for additions and deletions around the announcement and effective dates of the MSCI Standard Index constituent changes.

To do so, we must first define what constitutes “normal” trading volume. Similar to the approach used by Harris and Gurel (1986), Elliott and Warr (2003), and Chen et al. (2004), which controls for the effect of market trading volume and removes the effect of unusually high volume in a few large stocks, we measure normal trading volume by the average market-adjusted daily turnover in the estimation period [-60, -11] (from 60 days

before the announcement to 11 days before the announcement):

$$NV_i = \frac{1}{50}\sum_{t=-60}^{AD-11}\frac{T_{i,t}}{T_{m,t}}, \quad (1)$$

where NV_i is the normal daily volume turnover for the stock i in the event; $T_{i,t}$ is the volume turnover (trading volume divided by shares outstanding) for firm i at day t; and $T_{m,t}$ is the market volume turnover, which is measured by the turnover of Datastream market index for each sample country. *AD* represents the announcement date.

We then calculate the excess volume turnover for additions and deletions. The excess volume turnover is computed as the ratio of average daily turnover estimate in the event window to normal turnover, minus 1:

$$EXVOL_i = \frac{\frac{1}{N}\sum_{t=1}^{N}\frac{T_{i,t}}{T_{m,t}}}{NV_i} - 1, \quad (2)$$

where $EXVOL_i$ is the excess volume turnover in the event window. Here, an event window can be a specific day around the announcement or effective date (N=1 in this case), or a period between the announcement and effective date or after the effective date. A positive (negative) excess volume turnover represents that the trading volume in the event window is higher (lower) than its normal trading volume.

The results for excess volume turnover are reported in Table 3. In Panel A, the average excess volume turnover on the announcement date is 13% for additions and 23% for deletions, indicating that the additions and deletions experience trading volume turnover 13% and 23% higher than the normal level, respectively, after controlling for market effects. On the day following announcement, the mean excess volume turnover is 84% (with a t-statistic of 21.47) for additions and 94% (with a t-statistic of 16.24) for deletions; both are highly economically and statistically significant. Note that the day

following announcement is the first trading day after the list of additions and deletions is released. The noticeable increases in the trading volume turnover are evidence that the changes of the constituents in the MSCI Standard Indexes are considered as significant events by market participants.

<Table 3 is inserted about here>

Next, the excess volume turnover around the effective date is reported in Panel B. Surprisingly, the average excess volume turnover reaches its peak at 381% for additions and 502% for deletions on the day before the effective date. The extremely high excess volume turnover figures suggest that many index-tracking investors, in order to minimize tracking error, tend to implement their portfolio rebalancing on the day before the effective date, which is consistent with the finding that many investors (including index funds and *ishares* managers) target MSCI Standard Indexes (Ferreira and Matos, 2008; Leuz, Lins, and Warnock, 2009).

Panel C of Table 3 presents the average daily excess volume turnover in the post-change period. For additions, we find that the excess volume turnover quickly declines over time. For example, in the period [ED+3 – ED+10] (the period from 3 days after the effective date to 10 days after the effective date) the mean daily excess volume turnover declines to 15%. The average daily excess volume turnover further declines to 7% in the period [ED+41 – ED+60], almost reversing back to pre-adjustment levels. In contrast to additions, the average daily excess volume turnover of deleted stocks in the post-change period remains significantly higher than normal. For example, the average daily volume turnover in the period [ED+41 – ED+60] increases by 32% compared to the normal level. The finding that excess trading volume dissipates very quickly for additions but remains consistently high over the period following deletions is qualitatively

consistent with the result documented in Chakrabarti et al. (2005), which examines the changes in the MSCI Standard Index for 29 countries between 1998 and 2001.

4.2 Abnormal Stock Returns

We present the mean and median abnormal stock returns around the announcement and effective dates for stocks that are new to the MSCI Standard Index in Table 4. The abnormal returns are computed as the market-adjusted returns, which are calculated as the stock's raw return minus the market return. We use the Datastream market index as a market proxy for each of the 38 sample countries.[10]

In Panel A, we document a strong, positive information effect in reaction to announcements. The mean (median) abnormal return is 0.32% (0.15%) on the announcement date and is 1.63% (1.48%) on the day following announcement; both are statistically and economically significant. In Panel B, we also find significantly positive abnormal returns on both of the two days immediately prior to the effective date but moderately negative abnormal returns upon implementation and the day after implementation, thereby partially offsetting the initial gains. The evidence of a slight price pressure effect is consistent with the findings documented in Beneish and Whaley (1996) and Lynch and Mendenhall (1997), whose sample comprised S&P 500 Index additions occurring after 1990, when S&P started announcing index changes.

<Table 4 is inserted about here>

Panel C of Table 4 presents the cumulative abnormal returns from the announcement date to one day before the effective date (i.e., CAR[AD to ED-1]), and to 20 days (CAR[AD to ED+20]), 40 days (CAR[AD to ED+40]), and 60 days (CAR[AD to ED+60]) after implementation. The average (median) CAR[AD to ED-1] is 4.97%

[10] We also use the MSCI Standard Index as a market proxy; the main results are unchanged.

(4.56%), suggesting that the market positively reacts to the firms that are new to the MSCI Standard Index. Although there is evidence of a slight reversal after implementation, the cumulative abnormal returns over longer periods are still significantly positive. For example, the mean CAR[AD to ED+60] is 2.29% (with a t-statistic of 5.02) and the median is 2.68%, suggesting that the price impact of additions is permanent.

We present the mean and median abnormal stock returns of deletions in Table 5. In contrast to additions, the mean (median) abnormal return for the stocks deleted from the MSCI Standard Index is -0.48% (-0.41%) on the announcement date and is -1.60% (-1.39%) on the day after announcement.[11] These figures are significant at the 1% level. On the day before the effective date, the mean abnormal return is -1.59% (with a t-statistic of 12.45) and the median is -1.31%, which is statistically and economically significant.

<Table 5 is inserted about here>

The most striking result, as shown in Panel C of Table 5, is that deletions display a strong price reversal. The mean (median) CAR[AD to ED-1] is -6.25% (-5.87%), which is significantly different from zero. Rather than having a permanent negative price effect, deletions have positive abnormal returns in the post-effective period. The mean CAR[AD to ED+60] even turns out to be significantly positive, showing a pattern of strong price reversal for deletions.

4.3 Test the *price pressure hypothesis* for deletions

[11] It is interesting to note that, as shown in the Panel A of Tables 4 and 5, a moderate price run-up for additions on the announcement day and a significant price drop for deletions on the days immediately prior to and on the announcement day may suggest that the information of the MSCI reconstitution list is probably conjectured by market.

Results reported in Table 5 indicate that deletions experience temporary price depreciation in the period from the announcement to the effective date and then gradually reverse to their pre-adjustment price level after the effective date. The price drop could be attributed to the selling of shares by index-tracking investors, and the temporary price depreciation should dissipate when markets absorb the excess supply. In this section, we directly test the *price pressure hypothesis* for deletions.

We decompose the CAR[AD to ED+60] of all deletions into two components: CAR[AD to ED-1] and CAR[ED to ED+60]. We regress the CAR[ED to ED+60] on CAR[AD to ED-1]. If the price reversal is caused by price pressure, then the coefficient of CAR[AD to ED-1] should be negative, indicating that stocks dropping more in the period [AD to ED-1] should have higher abnormal returns after the effective date. To control for the effects of firm and market characteristics on stock returns, we also include *Good_protection*, *Beta*, *Idiosyncratic risk*, *Turnover_mkt*, *Market capitalization/GDP*, *Market openness*, *Ln_GDP*, and *MSCI_weight* in the right-hand side of the regression model. *Good_protection* is an indicator variable that is equal to 1 if the addition or deletion is based in a country with "good" investor protection (i.e. the anti-self-dealing index is above its median value). *Beta* is calculated from the market model in the 90-day period beginning 100 days prior to the announcement and *Idiosyncratic risk* is calculated as the standard deviation of the residuals from the market model. *Turnover_mkt* is the market annual turnover, *Market capitalization/GDP* is the ratio of total market capitalization of listed domestic companies to GDP, *Market openness* is a measure of market openness to foreign investors, *Ln_GDP* is the logarithm of GDP per capita, and *MSCI weight* is the country's year-end weight in the MSCI AC World Index.[12] As shown

[12] All the macroeconomic and stock market characteristic variables that are quoted on an annual or

in Panel B of Table 2, given that high correlation exists among the *Market openness*, *Ln_GDP*, and *MSCI weight*, only one of three variables is selected in one regression model. The regression results are reported in Table 6.

<Table 6 is inserted about here>

As reported, the coefficient of CAR[AD to ED-1] is significantly negative, which is consistent with the *price pressure hypothesis*. The results are also similar to the findings documented in Chakrabarti et al. (2005), who study the changes in the MSCI Standard Indexes for 29 countries between 1998 and 2001. For the control variables, it is interesting that the idiosyncratic risk is positively correlated with the deletions' abnormal returns in the period [ED to ED+60]. This finding seems to support the positive relationship between idiosyncratic risk and return proposed by Ang, Hodrick, Xing, and Zhang (2006, 2009). The coefficients of *Market capitalization/GDP* and *Ln_GDP* are significantly positive, indicating that deletions in countries with better stock market development or higher GDP tend to have stronger price reversals after they are deleted from the MSCI Standard Index.

5. Foreign ownership and corporate governance

There is a growing body of literature confirming that firms with better corporate governance have higher valuation (La Porta et al., 2002; Durnev and Kim, 2005). Our sample covers additions and deletions from 38 countries, within which there exists a variety of different institutions and corporate governance practices. This provides us with a natural experiment to investigate whether the abnormal returns of additions and deletions are related to the local corporate governance in the countries where these firms

year-end basis are calculated by data available immediately preceding the announcement date of events.

are based. Moreover, given the literature findings that foreign investors make important contributions to local governance, we examine the changes of institutional ownership around the MSCI Index reconstitutions, which provides direct evidences to examine our hypothesis. We also conduct some robustness checks to justify our hypothesis.

5.1 Abnormal returns in good and weak protection countries

First, we explore the issue whether the abnormal returns of additions and deletions are associated with the country-level corporate governance where the firms are based. All additions and deletions are classified in two groups: one contains firms based in good governance countries and the other contains firms based in weak governance countries.[13] We then calculate their abnormal returns. The univariate statistics on abnormal returns are reported in Table 7.

<Table 7 is inserted about here>

Panel A reports the results of stocks that are new to the MSCI Standard Index. As shown in the table, the cumulative abnormal returns of additions in countries with weak investor protection are higher than those in countries with better protection. For example, in the two-day announcement window (i.e., CAR[AD to AD +1]), the mean (median) abnormal return in weak investor protection countries is 2.40% (2.07%), which is significantly higher than the 1.82% (1.73%) found in good protection countries. The stronger information effect in weak investor protection countries is consistent with our prediction that the improvement in corporate governance is more valuable to firms based in weak governance countries than it is to firms in good governance countries. Moreover, we find that the outperformance of additions in the weak protection group persists in the

[13] Among 1,883 additions (1,410 deletions), 1,395 additions (965 deletions) are from good protection countries and 488 additions (445 deletions) are from weak protection countries.

period to 60 days after the effective date.

Panel B of Table 7 presents the results for deletions. In contrast to additions, the negative market reactions to deletions in five different intervals do not strongly differ between weak and good investor protection groups. More importantly, the strong price reversal effect is found for deletions in both groups. For example, the mean CAR[AD to ED-1] is -6.90% for deletions in weak protection countries and is -5.95% for ones in good protection countries, whereas the mean CAR[AD to ED+60] turns out to be positive at 0.81% for weak protection countries and 1.79% for good protection countries. Neither of these differences between the two investor protection groups is significant at the 10% level.

While the negative relations between investor protection and announcement returns that we observe in Panel A of Table 7 are consistent with our hypothesis, they do not allow us to make a reliable conclusion, since the univariate analysis does not take into account the correlations between investor protection and other determinants of abnormal returns. For example, the fact that differences in abnormal returns of additions exist between good and weak investor protection countries could be an artifact of the two groups having different firm characteristics, such as systematic and idiosyncratic risks, or having different macroeconomic and stock market characteristics.

In order to control for firm, macroeconomic, and market characteristics, we conduct multiple regressions of abnormal returns on several independent variables. The dependent variable of the regression is CAR[AD to ED-1]. In the independent variables, firm characteristics include *Addition, Good_protection, Beta, Idiosyncratic risk,* and two interactive variables: *Addition* and *Good_protection,* and *Deletion* and *Good_protection*. *Addition* (*Deletion*) is a dummy variable that is equal to 1 if the stock is an addition (a

deletion). *Good_protection* is an indicator variable that is equal to 1 if the addition or deletion is based in a country with "good" investor protection (i.e. the anti-self-dealing index is above its median value). *Beta* is calculated from the market model in the 90-day period beginning 100 days prior to the announcement and *Idiosyncratic risk* is calculated as the standard deviation of the residuals from the market model.

For the macroeconomic and stock market variables, we include *Turnover_mkt*, *Market capitalization/GDP*, *Market openness*, *Ln_GDP*, and *MSCI weight* in the controlling variables. *Turnover_mkt* is the market annual turnover, *Market capitalization/GDP* is the ratio of total market capitalization of listed domestic companies to GDP, *Market openness* is a measure of market openness to foreign investors, *Ln_GDP* is the logarithm of GDP per capita, and *MSCI weight* is the country's year-end weight in the MSCI AC World Index. As discussed in subsection 4.3, given that high correlation exists among the *Market openness*, *Ln_GDP*, and *MSCI weight*, only one of three variables is selected in one regression model. The regression results are reported in Table 8.

<Table 8 is inserted about here>

The first three equations are the regressions for both additions and deletions. Not surprisingly, the coefficient of *Addition* is significantly positive, implying additions have approximately 12.7% higher cumulative abnormal returns than deletions, after controlling for other factors. The coefficients for the interactive variables of *Addition* and *Good_protection* are significantly negative but the coefficients for the interactive variables of *Deletion* and *Good_protection* are not significantly different from zero, suggesting that the abnormal returns of additions in the weak protection group are higher than those in the good protection group, but the abnormal returns of deletions are not

significantly different between the two groups. In general, these findings are similar to earlier results from univariate analysis.

The second group of three equations in Table 8 lists the regressions for additions, and the third group of three lists those for deletions. The coefficients for *Good_protection* are significantly negative for additions while the coefficients are insignificant for deletions, showing that the effect of corporate governance on abnormal returns is revealed only on additions. For the other controlling variables, both *Beta* and *idiosyncratic risk* have a positive effect on the abnormal returns for additions but the coefficients are insignificant for deletions. For the macroeconomic and stock market characteristics, all the coefficients for *Market openness* and *Ln_GDP* are negative and are significantly different from zero for all samples and additions. Since these two variables are highly correlated with market development, this finding suggests that both additions and deletions in emerging markets have higher abnormal returns than those in developed markets. Coefficients for *Market capitalization/GDP* are significantly positive for additions but are insignificantly negative for deletions, indicating that additions in countries with relatively large stock markets have a stronger Index effect than additions in countries with smaller stock markets, while the Index effect is significant for deletions. Finally, the coefficients for *Turnover_mkt* are insignificant, implying that market reactions are uncorrelated to market-level liquidity.

In summary, the results from Tables 7 and 8 are consistent with our hypothesis. The positive abnormal returns of additions are permanent, and the abnormal returns are higher for additions in countries in which the legal system does not impose a high cost on expropriation by corporate insiders than in countries that have good investor protection. In contrast, the negative abnormal returns of deletions are not permanent, and there are no

significant differences between these two groups, suggesting that improvements in corporate governance do not vanish immediately after the deletion of a firm's stock from the Index.

5.2 Ownership changes around the reconstitutions

MSCI Standard Index is an important benchmark for cross-border investment. Earlier literature shows that cross-border investors tend to hold shares of MSCI constituents. In this subsection, we will examine whether foreign institutional investors increase their ownership in the new additions to the MSCI Standard Index and decrease their holdings in the deletions. Meanwhile, it is also interesting to investigate the changes of local institutional investors' holdings around the MSCI Index reconstitutions.

To examine this issue, we compare the institutional ownership before and after MSCI Index reconstitutions. Foreign and domestic institutional holdings data are from the Factset Equity Ownership database.[14] We match our MSCI sample with the Factset database using the identifiers of SEDOL.

First, to deal with the issue of domestic and foreign ownership, we consider the nationality of the institutional investors. Domestic institutional investors are defined as institutional investors in the country where a stock is listed, whereas foreign institutional investors as institutions domiciled in a country other than the one in which the stock is listed. Second, foreign (domestic) institutional ownership is computed as the sum of the holdings of all foreign (domestic) institutions divided by a firm's total shares outstanding. Finally, we examine the pre-announcement and post-announcement ownership of the

[14] Factset claims that Equity Ownership covers the holdings of more than 7,300 global institutions in 120 countries. The institutions covered in the database are professional money managers such as mutual funds, investment advisers, pension funds, bank trusts, hedge funds, sovereign wealth funds, insurance companies, and others, as described in Ferreira and Matos (2008). Also refer to the Factset website: https://www.factset.com/data/company_data/ownership.

additions and deletions. The pre-announcement ownership is recorded at the quarter-end preceding the announcement of the index reconstitutions, and the post-announcement is the quarter-end ownership following the announcement quarter.[15] Therefore, the span between pre- and post-announcement date is exactly six months. We are interested in the changes of ownership from pre-announcement to post-announcement. The pre- and post-announcement foreign and domestic institutional ownership for additions and deletions is reported in Table 9.

Due to the limitation that some additions and deletions are not covered in the Factset database, the number of observations in the ownership analysis decreases to 1,796 additions and 1,297 deletions. Panel A of Table 9 presents the pre- and post-announcement ownership figures and their paired changes for additions and Panel B presents the results of deletions. At first glance, for the pre- and post-announcement institutional ownership reported in Table 9, two interesting findings are worth noting. First, foreign ownership is generally higher than domestic institutional ownership. For example, the mean (median) foreign ownership of additions at pre-announcement is 13.29% (6.89%), which is higher than the corresponding mean (median) domestic institutional ownership of 7.41% (1.75%). The foreign ownership is also higher than domestic institutional ownership in the case of deletions. Second, foreign ownership of stocks in weak protection countries is higher than foreign ownership of stocks in the good protection group, while domestic institutional ownership is not materially different between these two groups (for deletions) or has the opposite results compared to foreign ownership (for additions). Existing literature has confirmed that large shareholders might

[15] For example, the announcement day for the first 2015 Semi-Annual Index Review is May 12, 2015 and the effective day is May 29, 2015. Pre-announcement ownership is recorded on March 31, 2015, and post-announcement ownership is recorded on September 30, 2015.

monitor managers (Shleifer and Vishny, 1986), and that foreign institutions are often credited with actively monitoring while domestic institutional investors are not because they may have less resources (Huang and Shiu, 2009) or may intend to maintain business relations with local corporations (Ferreira and Matos, 2008). Consistent with these views, our preliminary result suggests that foreign investors play a more important role than domestic institutional investors do in our sample to improve corporate governance.

<Table 9 is inserted about here>

Next we focus on the change of institutional ownership around the Index reconstitutions. As shown in Panel A of Table 9, both foreign investors and domestic institutions increase their holdings of additions. The mean (median) foreign ownership increases from 13.29% (6.89%) at pre-announcement to 14.72% (8.51%) at post-announcement. The paired change is 1.43% (0.99%), which is significantly different from zero at the 1% level. When additions are classified according to good protection countries and weak protection countries, the paired changes are 1.36% (1.04%) and 1.57% (0.84%), respectively, which are also significantly positive in both groups. Similarly, the mean (median) domestic institutional ownership also significantly increases from 7.41% (1.75%) at pre-announcement to 7.68% (2.25%) at post-announcement, and these paired changes are significantly positive. It is interesting to note that, although both foreign and domestic institutional ownership in the sample of additions increase around the MSCI Index reconstitutions, the increase in foreign ownership is greater than the increase in domestic institutional ownership. The result is generally consistent with the earlier finding that the MSCI Standard Index is an important benchmark for cross-border investment.

Our earlier finding shows that abnormal returns of additions in weak protection

countries are higher than those of additions in good protection countries. However, in Panel A of Table 9, we do not find evidence that the increase of foreign ownership in weak protection countries is greater than that in good protection countries. This indicates that the higher abnormal return of additions in weak protection countries is not merely a manifestation of a greater increase in foreign ownership in the weak protection group compared to the good protection group. Instead, it reflects a phenomenon in which the effective monitoring of foreign investors is more valuable in countries with weak legal protection of minority shareholders than in countries that already have good legal protection systems.

Panel B of Table 9 reports the ownership changes of deletions. As shown, foreign investors tend to sell their shares and domestic institutional investors purchase shares around the Index reconstitutions. The mean (median) foreign ownership decreases from 12.40% (6.71%) at pre-announcement to 11.07% (5.50%) at post-announcement. By contrast, the mean (median) domestic institutional ownership increases from 7.43% (0.93%) to 7.99% (1.25%). Both of the paired changes are significantly different from zero. The decrease in foreign ownership and the increase in domestic institutional ownership are also displayed in both groups.

In summary, we find that foreign investors tend to increase their holdings of additions and decrease holdings of deletions. Domestic institutional investors also increase their holdings of additions, although not as much as foreign investors do. Domestic institutional investors do not significantly sell the shares of deletions. Given the evidence documented in Ferreira and Matos (2008) and Huang and Shiu (2009), foreign institutional investors are better than domestic institutional investors at monitoring local corporations and improving corporate governance. Our results found in this subsection

provide evidence to support our hypothesis that local firms that are new to the MSCI Standard Index experience permanent price appreciation as a result of higher foreign ownership and better corporate governance, and that stocks of deletions do not suffer permanent price depreciation because the improved corporate governance resulting from the effective monitoring of foreign institutional investors does not vanish quickly.

The empirical finding that there are higher abnormal returns for additions in the weak protection group than for additions in the good protection group is also consistent with the view that high foreign ownership becomes a substitute for legal protection in those weak protection countries. Other competing hypotheses, however, could also explain our empirical results. For example, it is possible that local firms are less known to investors from other countries before they are added to the MSCI Standard Index. The additions could benefit more from the increased awareness by the investors, especially foreign investors. It is also possible that additions to the Index could lead to increased monitoring and result in better earnings expectations. In the following subsections, we investigate the changes in the number of institutional investors and changes in earnings expectations around Index reconstitutions, to examine the validity of our hypothesis *versus* competing hypotheses, including *investor awareness hypothesis* (Chen et al., 2004) and *earnings expectation hypothesis* (Denis et al., 2003)

5.3 Changes in number of institutional investors around index reconstitutions

In the *investor base hypothesis* (Merton, 1987) and the *investor awareness hypothesis* (Chen et al., 2004), change in number of shareholders is used as a proxy for investor awareness. Following the analysis of institutional ownership changes around the Index reconstitutions, in this subsection we investigate the changes in number of

institutional investors from pre-announcement to post-announcement.[16] The data on the number of foreign and domestic institutional investors is also collected from Factset. The results regarding the changes in number of institutional investors are reported in Table 10.

<Table 10 is inserted about here>

Panel A reports the number of institutional investors for additions. Consistent with the increases in ownership, both the number of foreign investors and the number of domestic institutions increase for additions. The mean (median) number of foreign investors increases from 71.07 (53.00) at pre-announcement to 103.47 (86.00) at post-announcement, and the paired change is 32.39 (28.00), which is significantly different from zero at the 1% level. The number of domestic institutional investors also significantly increases around the index reconstitutions, but the mean (median) paired change is 2.25 (1.00), which is smaller than the paired change for foreign investors.

Panel B of Table 10 presents the results for deletions. Not surprisingly, the mean (median) number of foreign investors significantly decreases from 83.75 (70.00) at pre-announcement to 61.68 (46.00) at post-announcement. The paired changes in mean (-22.07) and median (-18.0) are both significantly negative. However, the number of domestic institutional investors slightly decrease (in mean) or does not decrease (in median) around Index reconstitutions, suggesting that the majority of domestic institutions that hold stocks of deletions in their portfolios do not sell these shares after the firms are deleted from the MSCI Standard Index.

To further analyze the changes of institutional investors in two investor protection

[16] Since the total number of shareholders in sample of additions and deletions from 38 countries is not available to us, it is unlikely to directly test the *investor awareness hypothesis*. Instead, we investigate the changes in number of foreign investors and domestic institutional investors around the MSCI Index reconstitutions.

groups, we find that the paired change in number of foreign investors on additions is not significantly different between good investor protection countries and weak protection countries. This result suggests that the higher abnormal return of additions in weak protection countries is unlikely to be due to a greater increase in awareness of foreign institutional investors in the weak protection group. Given the findings in literature that foreign institutional investors, rather than domestic institutional investors, are the main forces to effectively monitor the management team of local firms (Ferreira and Matos, 2008; Huang and Shiu, 2009), the increase in awareness of additions in domestic institutional investors does not explain the higher abnormal return of additions in weak protection countries compared to that in good protection countries.

5.4 Financial analysts' forecasts

Denis et al. (2003) find that firms that are new to the S&P 500 Index experience an increase in financial analysts' EPS forecasts as well as improved realized earnings. Although MSCI also claims that its additions to and deletions from the Index do not contain information regarding future earnings and performance, it is interesting to examine whether financial analysts would keep their earnings estimates unchanged or revise them up or down in the case of additions and deletions. To examine this issue, we compare the financial analysts' EPS forecasts before and after index reconstitutions. Financial analysts' EPS forecasts are obtained from Institutional Brokers' Estimates System International Inc. (I/E/B/S). We match our MSCI sample with I/E/B/S database using the identifiers of SEDOL.

In examining earnings forecasts and changes of additions and deletions, it is essential to define the current-year EPS forecast and one-year-ahead forecasts, as well as to select an appropriate benchmark. In the current study, we follow the methodologies in

Denis et al. (2003). First, the current year's forecast is considered as a current-year EPS forecast if an index reconstitution announcement for a company occurs at least three months prior to the end of current fiscal year. On the other hand, if an announcement for a company takes place on or after three months immediately prior to the end of the fiscal year, the forecast is treated as a one-year-ahead forecast.

Second, for a given company, we record each financial analyst's EPS forecasts made closest in time but no earlier than four months prior to the announcement month. From these financial analysts' EPS forecasts, we calculate the median as the pre-announcement median forecast. We delete the company from analysis if there is only one forecast at pre-announcement. For each financial analyst, we also collect the first post-announcement EPS forecast that was made no later than four months following the announcement month. We exclude the forecasts by new analysts who only appeared at post-announcement. From the remaining forecasts, we calculate the median as the post-announcement median forecast. The changes in current-year EPS forecasts and in one-year-ahead forecasts from pre-announcement to post-announcement are calculated, respectively, and classified according to three categories: positive, zero, and negative.

Third, firms in the same country and in the same Fama-French 48 industry portfolios as the addition or deletion are used as a benchmark. The benchmarks' changes in current-year EPS forecasts and one-year-ahead forecasts are also calculated and classified according to the same three categories.

Figure 1 presents the proportions of positive, zero, and negative changes in current-year EPS forecasts for additions and deletions and their industry peers. Since the limitation of the I/B/E/S coverage, there are 899 additions and 532 deletions, and 10,332 and 7,402 industry peers, correspondingly, in the analysis of current-year EPS forecasts.

<Figure 1 is inserted about here>

As depicted in Figure 1 (a), 57.5% of the current-year earnings forecasts for additions in good protection countries and 57.1% of the forecasts for additions in weak protection countries are revised upward following MSCI Index inclusion, compared to 47.6% and 52.3% being revised upwards for industry peers, respectively. This finding indicates that the earnings expectations of additions are more likely to be revised upward than their benchmarks. This phenomenon is evident in both good and weak protection countries. On the other hand, as shown in Figure 1 (b), 61.0% of the current-year earnings forecasts for deletions in good protection countries and 67.4% of the forecasts for deletions in weak protection countries are revised downward following Index exclusion, compared to 59.0% and 65.2% being revised downward for industry peers, respectively. This finding shows that, in contrast to additions, the earnings expectations of deletions in both groups are more likely to be revised downward than their industry peers.

<Figure 2 is inserted about here>

Figure 2 depicts the proportions of positive, zero, and negative changes in one-year-ahead forecasts for additions, deletions, and industry peers. The number of sample firms in the analysis of one-year-ahead forecasts further reduces to 892 additions and 523 deletions, and the number of industry peers is 9,056 and 6,523, respectively. In general, the results shown in Figure 2 are similar to those in Figure 1: the earnings expectations of additions are more likely to be revised upward than their benchmarks while the earnings expectations of deletions are more likely to be revised downward than their industry peers.

Given the patterns portrayed in Figures 1 and 2, the upward revisions on additions (downward revisions on deletions) are probably either attributed to good news (bad news)

associated with additions (deletions) or caused by the fact that financial analysts might factor the results of MSCI Index reconstitutions into their decisions of earnings forecast revisions. No matter which is true, additions in weak protection countries do not have a higher proportion of earnings forecast upward revisions than additions in good protection countries, and this finding suggests that the *earnings expectation hypothesis* does not successfully explain why the abnormal return of additions in weak protection countries is higher than the abnormal return of additions in good protection countries.

5.5 Discussion of results

Our results show that addition and deletion have an asymmetric long-term price reaction to the changes of the constituents: additions have permanent positive abnormal returns, but deletions have a temporary negative market reaction between the announcement and effective dates, and have a pronounced price reversal upon implementation. We provide a new explanation for these effects and link the asymmetric reaction to the effective monitoring of foreign institutional investors to improve local corporate governance.

Our findings also show that the abnormal return of additions in weak protection countries is higher than the abnormal return of additions in good protection countries. We do not find evidences that the increase of foreign ownership of additions in the weak protection group is higher than that in the good protection group. This result means that the outperformance of additions in the weak protection group is not merely a manifestation of an increase of foreign ownership.

We further analyze the change in number of institutional investors and financial analysts' earnings expectations around the MSCI Index reconstitutions. We find that the number of foreign investors holding additions increases and that the number of foreign

investors holding deletions decreases, which is consistent with the *investor awareness hypothesis*. We also find that, relative to benchmarks, additions to the Index are accompanied by improvements in expectations about future earnings, while deletions from the Index are associated with deterioration in expectations, which is consistent with the *earnings expectation hypothesis*. However, additions in weak protection countries do not have a greater increase in number of foreign investors than additions in good protection countries; nor do financial analysts tend to revise upward the former's future earnings more than the latter's future earnings. These findings suggest that the outperformance of the additions in weak protection countries compared to the additions in good protection countries is not a consequence of greater increase in number of foreign investors or better improvements in future earnings expectation. These findings cannot be fully explained by the *investor awareness hypothesis* nor by the *earnings expectation hypothesis*.

We argue that the effective monitoring of foreign investors is more valuable in weak protection countries. Ferreira and Matos (2008) study the role of institutional investors in 27 countries and document that firms with higher foreign ownership have higher firm valuation and better operating performance. Examining portfolio holdings of institutional investors in firms from 23 countries, Aggarwal et al. (2011) find that foreign institutional investors from countries with good corporate governance can improve local firm-level corporate governance. Huang and Shiu (2009) also find that foreign institutional investors have better ability than local institutional investors do to monitor the management team in Taiwanese firms. Our hypothesis and evidences of the outperformance of additions in weak protection countries are consistent with the view of these studies, and suggest some substitutability between foreign ownership and local corporate governance.

6. Conclusion

Most studies examining the abnormal returns and excess trading volume associated with changes in index constituents focus either on one market or on several developed countries. The general findings confirm that additions have positive abnormal returns and that deletions have negative abnormal returns on the announcement date. However, the literature has a divergent view on whether the price effects are temporary (e.g., the *price pressure hypothesis* proposed by Harris and Gurel (1986), among others) or permanent (the *downward demand curve hypothesis* documented by Shleifer (1986) and subsequent studies). More recently, Chen et al. (2004) demonstrate a long-term asymmetric price effect for the changes of the S&P 500 constituents, in which additions have permanent positive abnormal returns but deletions do not exhibit long-term negative abnormal returns. They propose the *investor awareness hypothesis*, which argues that a larger investor base can result in a lesser degree of information asymmetry, to explain the asymmetric price response to the index changes. When a stock is added to an index, this raises the awareness of investors; and when a stock is deleted from an index, it does not quickly eliminate the awareness of investors. Meanwhile, Denis et al. (2003) document that new inclusions in the S&P 500 Index experience upward revisions in earnings forecasts. Their results overturn the assumption in earlier studies that Index reconstitution is an information-free event and suggest that the addition of a stock to an index signals its good prospects to the market.

In this paper, we extend the existing evidence by examining the stock abnormal returns and excess trading volume associated with the constituent changes of the MSCI Standard Index in the 38 countries located in the APAC and EMEA regions. We

hypothesize that the firm-level corporate governance of additions could be improved by increased foreign ownership, which is caused by being added to the MSCI Standard Index. Thus, the improvements in governance are more valuable for stocks added in countries where existing investor protections are weak. More importantly, the improved governance of firms (which is reflected in their stock price) does not vanish quickly when their stocks are deleted from the MSCI. Our empirical results confirm the asymmetric price response to the index changes, which is similar to the finding reported by Chen et al. (2004), and show that the abnormal returns of additions are significantly higher for stocks in countries with weak investor protection than those in countries with good protection. Our empirical findings are consistent with our hypotheses.

We also find that foreign investors increase their holdings of additions and decrease their holdings of deletions. Interestingly, domestic institutional investors increase holdings of additions as well, but they do not immediately sell shares of deletions. Our empirical results also demonstrate that new inclusions in the MSCI Standard Index experience upward revisions in earnings forecasts and have greater numbers of foreign investors, while deletions experience downward revisions in earnings forecasts and have decreased numbers of foreign investors. However, both the increases and decreases are not significantly different between the good protection countries and weak protection countries, suggesting that the stronger Index effect in the weak protection group compared to the strong protection group is not fully explained by the *investor awareness hypothesis* and *earnings expectation hypotheses*. We conclude that the stronger effect in the weak protection countries is consistent with the view that the effective monitoring of foreign investors is more valuable in countries with weak investor protection. The monitoring role of foreign investors partially substitutes for local corporate governance.

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Table 1 Frequency Distribution of Additions and Deletions

This table presents the frequency distribution of additions to and deletions from MSCI Standard Index for 38 countries between January 2000 and December 2015. Panel A presents the frequency distribution of the sample by cohort year. Panel B reports the frequency distribution of the sample by country. Based on the MSCI Standard Index market classification, our sample covers the Asia-Pacific (APAC) and Europe, Middle East, and Africa (EMEA) area. The APAC area includes five developed markets (Australia, Hong Kong, Japan, New Zealand, and Singapore) and eight emerging markets (China, India, Indonesia, Korea, Malaysia, Philippines, Taiwan, and Thailand). The EMEA area includes 17 developed markets (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom) and eight emerging markets (Czech Republic, Egypt, Hungary, Morocco, Poland, Russia, South Africa, and Turkey).

Panel A. Frequency distribution by cohort year

	Additions		Deletions	
Year	Initial sample	Final sample	Initial sample	Final sample
2000	141	116	218	187
2001	329	304	264	239
2002	19	18	38	35
2003	119	110	108	97
2004	161	142	22	19
2005	184	148	26	24
2006	129	115	60	56
2007	239	231	98	97
2008	136	111	98	94
2009	105	102	109	99
2010	99	91	60	58
2011	83	78	105	103
2012	67	65	89	86
2013	84	84	79	75
2014	71	65	69	67
2015	108	103	74	74
Total	2,074	1,883	1,517	1,410

Table 1 (Cont.)

Panel B. Frequency distribution by country

	Additions		Deletions	
Country	Initial sample	Final sample	Initial sample	Final sample
APAC				
Australia	86	77	37	34
Hong Kong	60	57	39	37
Japan	268	257	163	155
New Zealand	13	12	8	6
Singapore	40	33	24	24
China	226	208	109	108
India	116	98	88	80
Indonesia	45	45	48	48
Korea	135	120	98	76
Malaysia	48	45	55	54
Philippines	27	25	30	26
Taiwan	164	160	124	121
Thailand	55	54	59	57
EMEA				
Austria	12	8	16	16
Belgium	9	9	6	6
Denmark	23	19	14	12
Finland	12	9	18	17
France	56	48	26	25
Germany	60	54	39	37
Greece	36	32	51	47
Ireland	14	10	15	12
Israel	34	30	46	43
Italy	37	32	43	40
Netherlands	21	20	13	13
Norway	25	21	23	20
Portugal	5	5	14	14
Spain	31	26	27	24
Sweden	35	33	19	18
Switzerland	40	37	24	25
United Kingdom	128	111	64	56
Czech Republic	6	5	9	9
Egypt	24	19	19	17
Hungary	2	2	10	9
Morocco	8	7	11	11
Poland	36	33	27	27
Russia	51	45	34	25
South Africa	50	43	30	25
Turkey	36	34	37	36
Total	2,074	1,883	1,517	1,410

Table 2 Measure of investor protection and macro-economic variables

This table presents the descriptive statistic of measure of investor protection and macro-economic variables for 38 sample countries from 2000 to 2015. Panel A reports the statistics of the anti-self-dealing index and macro-economic variables. The anti-self-dealing index, which is constructed by Djankov et al. (2008), is a measure of investor protection. For each country, the values of macro-economic variables are measured each year and then average across sample year. Market turnover is the value of domestic shares traded divided by their market capitalization. GDP per capita is gross domestic product divided by midyear population, and is measured in current US dollars. Market capitalization to GDP is the ratio of total market capitalization of listed domestic companies to GDP. Market openness is a measure of market openness and is computed as the ratio of the market capitalization of the constituent firms comprising the S&P/IFC Investable index to those that comprise the S&P/IFC global index. MSCI weight is the year-ended country's weight in the MSCI AC World Index. Panel B presents the correlation matrix among these variables. Superscripts ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Descriptive statistics

Country	Anti-self-dealing index	Market turnover (%)	GDP per capita (US$)	Market capitalization to GDP (%)	Market openness	MSCI weight (%)
Australia	0.76	74.12	40,647	108.89	1.00	2.40
Belgium	0.54	38.94	37,966	64.32	1.00	0.44
China	0.76	146.26	3,217	50.51	0.50	1.27
Denmark	0.46	69.27	49,605	55.75	1.00	0.38
Hong Kong	0.96	53.10	30,017	780.38	1.00	0.91
India	0.58	111.24	946	75.29	0.54	0.59
Indonesia	0.65	35.62	2,003	33.08	0.91	0.17
Ireland	0.79	16.57	46,113	51.97	1.00	0.22
Israel	0.73	38.27	25,843	71.26	1.00	0.23
Japan	0.50	107.71	37,380	75.02	1.00	9.03
Korea	0.47	177.26	18,924	72.10	0.94	1.29
Malaysia	0.95	30.81	7,015	137.38	0.93	0.31
Morocco	0.56	16.36	2,270	56.99	0.89	0.02
New Zealand	0.95	20.67	28,150	33.94	1.00	0.06
Singapore	1.00	53.75	36,729	209.22	1.00	0.48
South Africa	0.81	26.88	5,352	209.96	1.00	0.74
Taiwan	0.56	164.95	17,378	131.56	0.73	1.01
Thailand	0.81	78.97	3,789	65.08	0.59	0.16
United Kingdom	0.95	84.42	37,551	125.83	1.00	9.27
Good protection average	**0.73**	**70.80**	**22,679**	**126.76**	**0.90**	**1.53**
Austria	0.21	39.49	40,210	28.54	1.00	0.13
Czech Republic	0.33	50.95	14,865	20.76	0.96	0.04
Egypt	0.20	38.61	1,982	46.69	0.83	0.04
Finland	0.46	103.19	40,329	134.73	1.00	0.65
France	0.38	80.59	35,526	77.41	1.00	4.10
Germany	0.28	127.23	36,840	45.04	1.00	3.33
Greece	0.22	53.00	21,805	42.57	1.00	0.18

Table 2 (Cont.)

Country	Anti-self-dealing index	Market turnover (%)	GDP per capita (US$)	Market capitalization to GDP (%)	Market openness	MSCI weight (%)
Hungary	0.18	74.84	10,776	21.25	0.98	0.05
Italy	0.42	155.69	31,482	36.89	1.00	1.43
Netherlands	0.20	105.58	42,968	90.07	1.00	1.54
Norway	0.42	79.62	72,290	52.29	1.00	0.28
Philippines	0.22	18.48	1,687	53.45	0.89	0.06
Poland	0.29	37.01	9,542	29.18	0.97	0.13
Portugal	0.44	63.95	18,858	36.62	1.00	0.13
Russian	0.44	46.38	7,594	44.09	0.72	0.51
Spain	0.37	131.43	25,960	82.31	1.00	1.46
Sweden	0.33	105.05	45,526	95.09	1.00	1.06
Switzerland	0.27	65.06	62,026	215.33	1.00	3.09
Turkey	0.43	150.50	7,580	28.88	0.97	0.15
Poor protection average	**0.32**	**80.35**	**27,781**	**62.17**	**0.96**	**0.97**
Diff: Good-Poor	**0.41*****	**-9.55**	**-5,103**	**64.60***	**-0.07**	**0.56**
(t-stat.)	(8.52)	(-0.65)	(-0.85)	(1.82)	(-1.61)	(0.87)

Panel B: Correlations

	Anti-self-dealing index	Market turnover	GDP per capita	Market capitalization to GDP	Market openness
Market turnover	-0.1762				
GDP per capita	-0.0751	0.0885			
Market capitalization to GDP	0.4174***	-0.0721	0.1412		
Market openness	-0.1459	-0.2207	0.5688***	0.1199	
MSCI weight	0.1099	0.2811*	0.3182**	0.0786	0.1656

Table 3 Excess Volume Turnover for the Additions and Deletions

This table presents the mean excess volume turnover for additions and deletions. The sample comprises 1,883 additions to and 1,410 deletions from the MSCI Standard Index for 38 countries between January 2000 and December 2015. The turnover is calculated as the trading dollar volume divided by the market capitalization of shares outstanding. The turnover estimate is adjusted for the market, where the market is taken from the Datastream for each sample country. The normal turnover is the 50-day average daily volume turnover in the estimation period beginning 60 trading days before the announcement. The excess volume is the ratio of daily turnover estimate in the window to normal turnover, minus 1. To reduce the effect of outliers, the top and bottom 1 percentile of excess volume are winsorized. AD and ED represent announcement date and effective date, respectively.

Event day	Excess Volume			
	Additions		Deletions	
	Mean (%)	t-stat.	Mean (%)	t-stat.
Panel A: Announcement day (AD)				
-2	4.45	2.40	11.52	4.29
-1	6.97	3.57	11.89	4.31
AD	12.59	5.79	22.90	6.69
+1	83.79	21.47	93.85	16.24
+2	42.32	14.04	72.74	15.19
Panel B: Effective day (ED)				
-2	80.00	21.50	119.54	19.59
-1	380.56	30.85	501.95	28.15
ED	85.59	20.90	174.75	20.93
+1	35.12	12.88	95.47	18.29
+2	26.98	11.29	79.74	16.50
Panel C: Post-change period				
ED+3 – ED+10	15.32	8.79	60.73	16.86
ED+11 – ED+20	12.87	7.20	52.17	14.36
ED+21 – ED+40	6.98	4.63	33.66	11.96
ED+41 – ED+60	6.65	4.28	32.41	10.88

Table 4 Abnormal Returns for Additions

This table presents the mean abnormal returns around the announcement date (AD), effective date (ED), and the cumulative abnormal returns in the period from the announcement date to the post-change period. The sample comprises 1,883 additions to the MSCI Standard Index for 38 countries between January 2000 and December 2015. The abnormal returns are computed as the market-adjusted returns, which are calculated as the stock's raw return minus market return. We use the Datastream market index as a market proxy for each of the 38 countries. Abnormal returns and cumulative abnormal returns are winsorized at the 1% and 99% level.

	Mean (%)	t-stat.	Median(%)
Panel A: Announcement day			
-2	0.22	3.62	0.10
-1	0.06	1.05	0.04
AD	0.32	5.20	0.15
+1	1.63	21.12	1.48
+2	0.34	5.39	0.12
Panel B: Effective day			
-2	0.31	5.13	0.05
-1	0.82	9.64	0.55
ED	-0.79	-12.23	-0.87
+1	-0.30	-5.58	-0.33
+2	0.06	1.09	0.01
Panel C: Cumulative abnormal return period			
AD to ED -1	4.97	19.64	4.56
AD to ED+20	2.52	7.51	2.73
AD to ED+40	1.93	4.73	2.12
AD to ED+60	2.29	5.02	2.68

Table 5 Abnormal Returns for Deletions

This table presents the mean abnormal returns around the announcement date (AD), effective date (ED), and the cumulative abnormal returns in the period from the announcement date to the post-change period. The sample comprises 1,410 deletions from the MSCI Standard Index for 38 countries between January 2000 and December 2015. The abnormal returns are computed as the market-adjusted returns, which are calculated as the stock's raw return minus market return. We use the Datastream market index as a market proxy for each of 38 countries. Abnormal returns and cumulative abnormal returns are winsorized at the 1% and 99% level.

	Mean (%)	t-stat.	Median(%)
Panel A: Announcement day			
-2	-0.21	-2.41	-0.28
-1	-0.48	-6.14	-0.45
AD	-0.48	-5.46	-0.41
+1	-1.60	-16.41	-1.39
+2	-0.79	-8.81	-0.69
Panel B: Effective day			
-2	-0.58	-6.40	-0.44
-1	-1.59	-12.45	-1.31
ED	1.02	10.30	0.62
+1	0.53	5.56	-0.02
+2	-0.06	-0.70	-0.30
Panel C: Cumulative abnormal return period			
AD to ED -1	-6.25	-15.23	-5.87
AD to ED+20	-2.38	-4.78	-3.25
AD to ED+40	-0.06	-0.11	-1.05
AD to ED+60	1.48	2.17	-0.37

Table 6 Test of Price Pressure for Deletions

This table presents the test of *price pressure hypothesis*. The sample comprises 1,410 deletions from the MSCI Standard Index for 38 countries between January 2000 and December 2015. The dependent variable in the regression model is the cumulative abnormal returns from effective date to 60 days after the effective date, CAR[ED to ED+60]. The abnormal returns are computed as the market-adjusted returns, which are calculated as the stock's raw return minus market return. We use the Datastream market index as a market proxy for each of 38 countries. Abnormal returns are winsorized at the 1% and 99% level. *CAR[AD to ED-1]* is the cumulative abnormal return from the announcement date to one day before effective date. *Good_protection* is an indicator variable that is equal to 1 if the addition or deletion is in a country where the anti-self-dealing index is above its median value. *Beta* is calculated from the market model in the 90-day period beginning 100 days prior to the announcement and *Idiosyncratic risk* is calculated as the standard deviation of the residuals from the market model. *Turnover_mkt* is the market annual turnover, which is the value of domestic shares traded divided by their market capitalization. *Market capitalization/GDP* is the ratio of total market capitalization of listed domestic companies to GDP. *Market openness* is a measure of market openness to foreign investors and is computed as the ratio of the market capitalization of the constituent firms comprising the S&P/IFC Investable index to those that comprise the S&P/IFC global index. *Ln_GDP* is the logarithm of GDP per capita (measured in current U.S. dollars). *MSCI weight* is the year-ended country's weight in the MSCI AC World Index. The numbers in parentheses are White (1980) heteroskedasticity-adjusted t-statistics. Superscripts ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

Independent Variables	Dependent Variable: CAR[ED to ED+60]			
CAR [AD to ED-1]	-0.310 ***	-0.257 ***	-0.255 ***	-0.252 ***
	(-5.96)	(-4.92)	(-4.91)	(-4.82)
Good_protection		-1.597	-0.345	-0.553
		(-1.10)	(-0.25)	(-0.40)
Beta		-1.385	-1.721	-1.403
		(-0.90)	(-1.13)	(-0.92)
Idiosyncratic risk		1.551 ***	1.630 ***	1.535 ***
		(2.76)	(2.89)	(2.74)
Turnover_mkt		0.005	0.007	0.008
		(0.54)	(0.77)	(0.87)
Market capitalization/GDP		0.014 ***	0.010 **	0.012 **
		(2.79)	(2.00)	(2.49)
Market Openness		-4.515		
		(-0.23)		
Ln_GDP			0.914 *	
			(1.86)	
MSCI weight				-0.273
				(-1.42)
Intercept	5.491 ***	10.223 **	-2.308	6.143
	(8.48)	(2.04)	(-0.40)	(2.04) **
Year dummies	No	Yes	Yes	Yes
Adj-R^2	0.040	0.090	0.092	0.091

Table 7 Abnormal Returns and Legal Protection of Minority Shareholders

The table presents the mean and median cumulative abnormal returns around the change of constituents for additions and deletions. The sample comprises 1,883 additions to and 1,410 deletions from the MSCI Standard Index for 38 countries between January 2000 and December 2015. We measure the legal protection of minority shareholders with the anti-self-dealing index of Djankov et al. (2008). All additions and deletions are classified into two groups: "good protection countries" (1,395 additions and 965 deletions) and "weak protection countries" (488 additions and 445 deletions). Countries with good investor protection are countries where the anti-self-dealing index is above its median value. The abnormal returns are computed as the market-adjusted returns, which are calculated as the stock's raw return minus market return. We use the Datastream market index as a market proxy for each of the 38 countries. Abnormal returns and cumulative abnormal returns are winsorized at the 1% and 99% level. AD and ED represent announcement date and effective date, respectively.

Period		Weak protection	Good Protection	Difference
Panel A: Cumulative abnormal returns for additions				
AD to AD+1	Mean (%)	2.40	1.82	0.58 ***
	Median (%)	2.07	1.73	0.34 ***
AD to ED-1	Mean (%)	5.98	4.62	1.36 **
	Median (%)	4.96	4.33	0.62 ***
AD to ED+20	Mean (%)	3.68	2.12	1.56 **
	Median (%)	3.77	2.12	1.65 **
AD to ED+40	Mean (%)	3.25	1.47	1.78 **
	Median (%)	3.15	1.74	1.41 **
AD to ED+60	Mean (%)	3.75	1.79	1.96 **
	Median (%)	3.63	2.28	1.35 **
Panel B: Cumulative abnormal returns for deletions				
AD to AD+1	Mean (%)	-2.16	-2.07	-0.08
	Median (%)	-1.87	-1.73	-0.14
AD to ED-1	Mean (%)	-6.90	-5.95	-0.95
	Median (%)	-6.18	-5.77	-0.41
AD to ED+20	Mean (%)	-3.41	-1.91	-1.50
	Median (%)	-3.83	-2.62	-1.22
AD to ED+40	Mean (%)	-1.47	0.58	-2.05
	Median (%)	-1.62	-0.82	-0.80
AD to ED+60	Mean (%)	0.81	1.79	-0.98
	Median (%)	-0.36	-0.39	0.03

Table 8 Regression Analysis of Abnormal Returns

This table reports the regression analysis of the cumulative abnormal returns around the changes of constituents. The sample comprises 1,883 additions to and 1,410 deletions from the MSCI Standard Index for 38 countries between January 2000 and December 2015. The dependent variable in the regression model is cumulative abnormal return from the announcement date to one day before effective date: CAR[AD to ED-1]. The abnormal returns are computed as the market-adjusted returns, which are calculated as the stock's raw return minus market return. We use the Datastream market index as a market proxy for each of 38 countries. Abnormal returns are winsorized at the 1% and 99% level. *Addition* (*Deletion*) is an indicator variable that is equal to one if the stock is new to (deleted from) the MSCI Standard Index. *Good_protection* is an indicator variable that is equal to 1 if the addition or deletion is in a country where the anti-self-dealing index is above its median value. *Beta* is calculated from the market model in the 90-day period beginning 100 days prior to the announcement and *Idiosyncratic risk* is calculated as the standard deviation of the residuals from the market model. *Turnover_mkt* is the market annual turnover, which is the value of domestic shares traded divided by their market capitalization. *Market capitalization/GDP* is the ratio of total market capitalization of listed domestic companies to GDP. *Market openness* is a measure of market openness to foreign investors and is computed as the ratio of the market capitalization of the constituent firms comprising the S&P/IFC Investable index to those that comprise the S&P/IFC global index. *Ln_GDP* is the logarithm of GDP per capita (measured in current US dollars). *MSCI weight* is the year-ended country's weight in the MSCI AC World Index. The numbers in parentheses are White (1980) heteroskedasticity-adjusted t-statistics. Superscripts ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

Table 8 (Cont.)

Independent Variables	Dependent variable: CAR[AD to ED-1]								
	All (N=3,293)			Additions (N=1,883)			Deletions (N=1,410)		
Addition	12.672*** (15.27)	12.721*** (15.35)	12.811*** (15.47)						
Good_protection				-2.461*** (-4.07)	-2.363*** (-4.01)	-1.415** (-2.38)	0.837 (0.90)	0.946 (1.03)	0.624 (0.67)
Addition × *Good_protection*	-2.225*** (-3.63)	-2.109*** (-3.53)	-1.386** (-2.20)						
Deletion × *Good_protection*	0.019 (0.02)	0.087 (0.10)	0.926 (1.10)						
Beta	0.491 (0.86)	0.620 (1.09)	0.374 (0.65)	1.867*** (2.77)	1.923*** (2.89)	1.916*** (2.83)	0.250 (0.24)	0.242 (0.28)	0.087 (0.09)
Idiosyncratic risk	-0.043 (-0.14)	-0.105 (-0.34)	-0.009 (-0.03)	0.721** (2.23)	0.686** (2.12)	0.768** (2.41)	-0.388 (-0.83)	-0.396 (-1.45)	-0.359 (-0.77)
Turnover_mkt	0.002 (0.57)	0.008* (1.83)	0.006 (1.42)	0.000 (0.08)	0.007 (1.25)	0.003 (0.59)	0.006 (0.84)	0.006 (1.09)	0.006 (0.92)
Market capitalization/GDP	0.002 (0.80)	0.003 (1.29)	-0.000 (-0.18)	0.004* (1.89)	0.005** (2.36)	0.001 (0.35)	-0.001 (-0.25)	-0.001 (-0.33)	-0.001 (-0.20)
Market openness	-5.954*** (-4.10)			-6.515*** (-4.44)			-1.301 (-0.50)		
Ln_GDP		-1.085*** (-5.28)			-1.190*** (-5.73)			-0.101 (-0.30)	
MSCI weight			-0.174*** (-2.63)			-0.414*** (-5.76)			0.377*** (3.13)
Intercept	-3.135 (-1.44)	0.063 (0.24)	-8.951*** (-6.52)	5.624** (2.54)	9.680*** (3.91)	-0.749 (-0.49)	-5.982* (-1.73)	-6.335 (-1.51)	-7.585*** (-3.96)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj_R2	0.168	0.172	0.165	0.047	0.054	0.053	0.095	0.094	0.100

Table 9 Changes of Ownership for Additions and Deletions

This table presents the mean and median changes of foreign and domestic institutional ownership around the MSCI Index reconstitutions. The sample comprises 1,796 additions to and 1,297 deletions from the MSCI Standard Index for 38 countries between January 2000 and December 2015. Foreign (domestic institutional) ownership is computed as the shares held by foreign institutional investors (domestic institutional investors) scaled by total shares outstanding. We record the ownership at the end of the quarter prior to the announcement of the index reconstitutions (pre-announcement), and the ownership at the end of the quarter following the announcement quarter (post-announcement). We test the changes of ownership between two quarters and the difference between good and weak protection groups using the t-test (t-statistic) for the mean and the Wilcoxon sign rank test (z-statistic) for the median. Superscripts ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Additions

		Ownership (%)		
		Pre-announcement	Post-announcement	Paired change
Foreign institutions	Mean	13.29	14.72	1.43 ***
	Median	6.89	8.51	0.99 ***
Good protection	Mean	11.41	12.77	1.36 ***
	Median	6.12	7.80	1.04 ***
Weak protection	Mean	16.71	18.28	1.57 ***
	Median	8.72	10.40	0.84 ***
Difference:	Mean	-5.30 **	-5.52 **	-0.21
(Good – Weak)	Median	-2.60 ***	-2.60 ***	0.20
Domestic institutions	Mean	7.41	7.68	0.27 ***
	Median	1.75	2.25	0.00 ***
Good protection	Mean	8.39	8.59	0.20 ***
	Median	2.01	2.51	0.00 ***
Weak protection	Mean	5.63	6.03	0.40 ***
	Median	1.34	2.14	0.00 ***
Difference:	Mean	2.77 ***	2.57 ***	-0.20
(Good – Weak)	Median	0.66 ***	0.37 **	0.00

Table 9 (Cont.)

Panel B: Deletions

		Ownership (%)		
		Pre-announcement	Post-announcement	Paired change
Foreign institutions	Mean	12.40	11.07	-1.34 ***
	Median	6.71	5.50	-0.40 ***
Good protection	Mean	10.87	9.98	-0.90 **
	Median	6.68	5.30	-0.34 **
Weak protection	Mean	15.06	12.96	-2.10 *
	Median	6.78	5.81	-0.46 **
Difference:	Mean	-4.18 *	-2.99 *	1.20
(Good – Weak)	Median	-0.10	-0.51 *	0.12
Domestic institutions	Mean	7.43	7.99	0.56 ***
	Median	0.93	1.25	0.00 ***
Good protection	Mean	7.12	7.57	0.45 ***
	Median	0.97	1.27	0.00 ***
Weak protection	Mean	7.97	8.72	0.75 ***
	Median	0.91	1.23	0.00 ***
Difference:	Mean	-0.85	-1.15	-0.30
(Good – Weak)	Median	0.06	0.04	0.00

Table 10 Changes in Number of Institutional Investors for Additions and Deletions

This table presents the mean and median changes of number of foreign and domestic institutional investors respectively around the MSCI Index reconstitutions. The sample comprises 1,796 additions to and 1,297 deletions from the MSCI Standard Index for 38 countries between January 2000 and December 2015. We record the number of foreign (domestic) institutional investors at the end of the quarter immediately prior to the announcement of the index reconstitutions (pre-announcement), and the number of foreign (domestic) institutional investors at the end of the quarter following the announcement quarter (post-announcement). We test the changes in the number of institutional investors between two quarters and the difference between good and weak protection groups using the t-test (t-statistic) for the mean and the Wilcoxon sign rank test (z-statistic) for the median. Superscripts ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

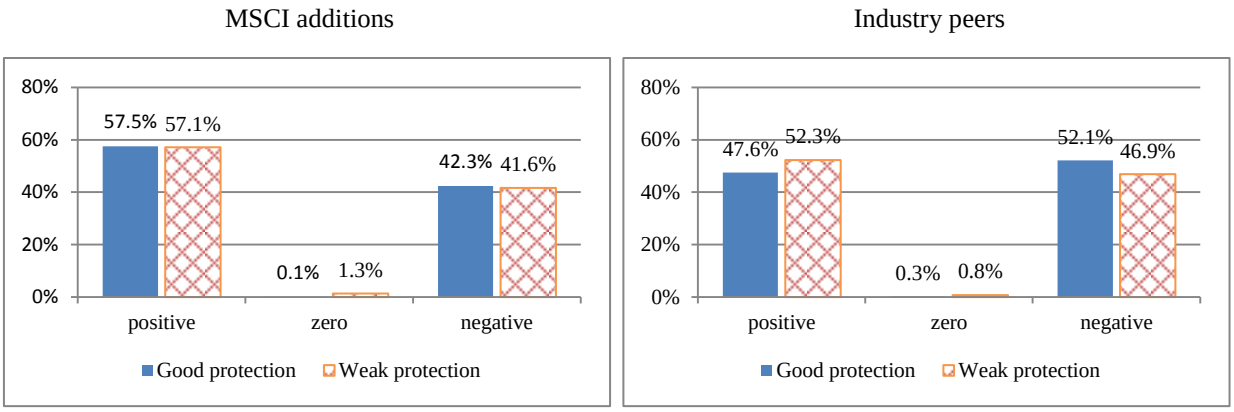
Panel A: Additions

		Number of institutional investors		
		Pre-announcement	Post-announcement	Paired change
Foreign institutions	Mean	71.07	103.47	32.39 ***
	Median	53.00	86.00	28.00 ***
Good protection	Mean	65.38	97.16	31.78 ***
	Median	48.00	79.50	27.00 ***
Weak protection	Mean	81.44	114.95	33.51 ***
	Median	64.00	101.00	30.00 ***
Difference:	Mean	-16.06 ***	-17.80 ***	-1.73
(Good – Weak)	Median	16.00 ***	-21.50 ***	-3.00
Domestic institutions	Mean	17.79	20.04	2.25 ***
	Median	8.00	10.00	1.00 ***
Good protection	Mean	18.52	20.34	1.82 ***
	Median	7.00	9.00	0.00 ***
Weak protection	Mean	16.46	19.51	3.05 ***
	Median	9.00	12.00	1.00 ***
Difference:	Mean	2.06	0.82	1.23 ***
(Good – Weak)	Median	-2.00	-3.00 *	-1.00 ***

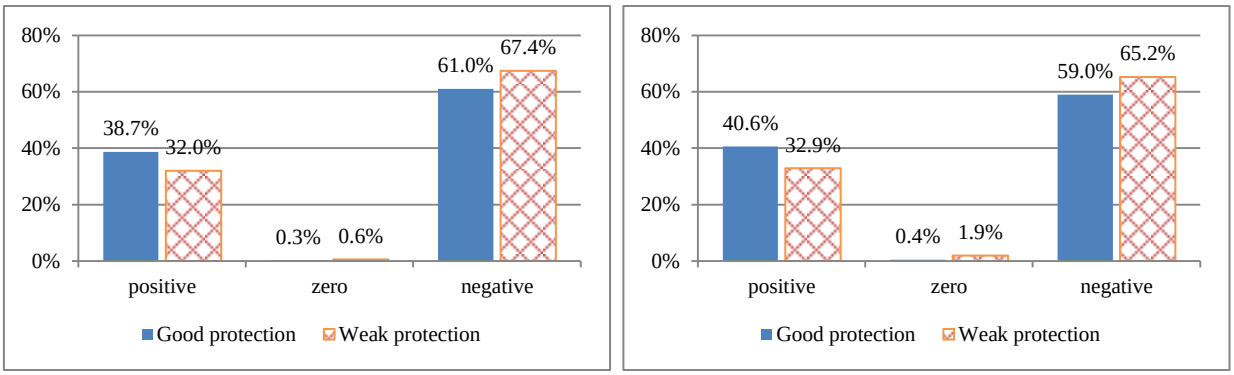
Table 10 (Cont.)

Panel B: Deletions

		Number of institutional investors		
		Pre-announcement	Post-announcement	Paired change
Foreign institutions	Mean	83.75	61.68	-22.07 ***
	Median	70.00	46.00	-18.00 ***
Good protection	Mean	78.10	56.42	-21.69 ***
	Median	68.50	44.00	-20.40 ***
Weak protection	Mean	93.57	70.83	-22.74 ***
	Median	72.00	52.00	-16.00 ***
Difference:	Mean	-15.46 ***	-14.41 ***	1.05
(Good – Weak)	Median	-3.50 ***	-8.00 ***	-4.00
Domestic institutions	Mean	15.47	15.35	-0.11
	Median	5.00	5.00	0.00
Good protection	Mean	15.52	15.39	-0.13
	Median	4.00	4.00	0.00
Weak protection	Mean	15.37	15.29	-0.08
	Median	7.00	9.00	0.00
Difference:	Mean	0.16	0.11	-0.05
(Good – Weak)	Median	-3.00 ***	-5.00 ***	0.00



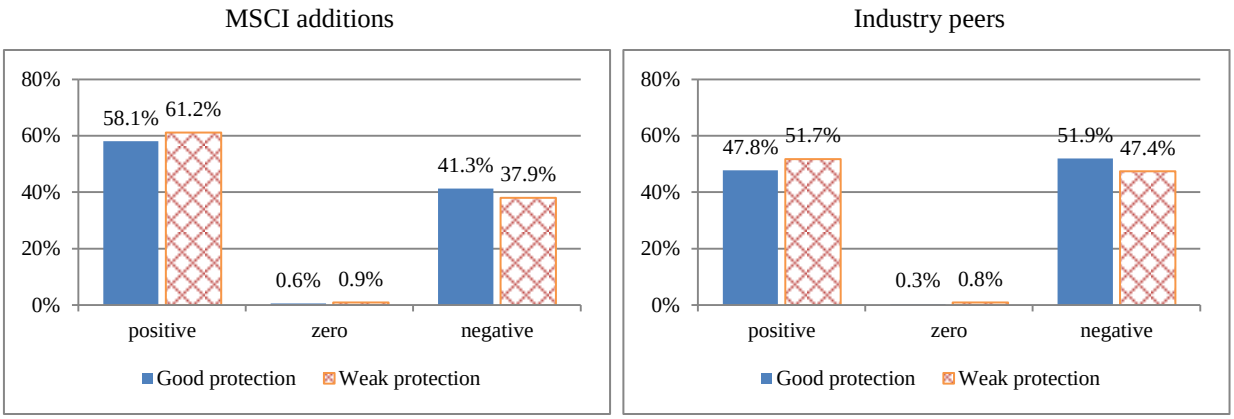
(a) Additions



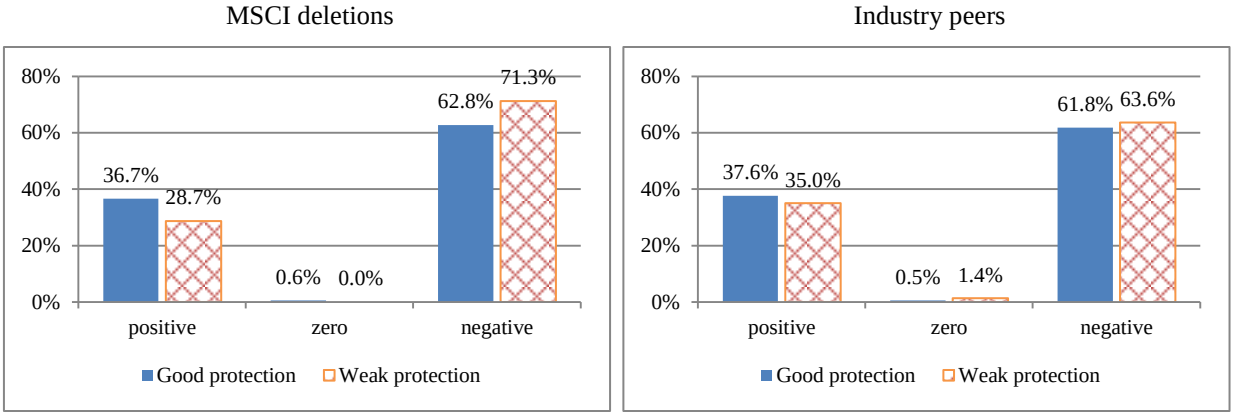
(b) Deletions

Figure 1 Frequencies of Positive, Zero, and Negative Changes in Current-year EPS Forecasts for Additions and Deletions and Their Industry Peers

This figure displays the frequencies of positive, zero, and negative changes in current-year EPS forecasts around the MSCI Country Index re-constituents for a sample of 899 additions and 532 deletions in 38 countries between January 2000 and December 2015. The current year's forecast is considered as a current-year EPS forecast if an index reconstitution announcement for a company occurs at least three months prior to the end of current fiscal year. On the other hand, if an announcement for a company takes place on or after three months immediately prior to the end of the fiscal year, the forecast is treated as a one-year-ahead forecasts. For a given company, we record each financial analyst's EPS forecasts made closest in time but no earlier than four months prior to the announcement month. From these financial analysts' EPS forecasts, we calculate the median as the preannouncement median forecast. For each financial analyst, we also collect the first post-announcement EPS forecast that was made no later than four months following the announcement month. We exclude the forecasts by new analysts who only appeared in the post-announcement. The changes in current-year EPS forecasts are calculated and classified as three groups: positive, zero, and negative. Changes in EPS forecasts for firms in the same countries and in the same Fama-French 48 industry portfolios as the additions or deletions are used as a benchmark. The number of industry peers additions is 10,332 and is 7,402 for deletions, respectively.



(a) Additions



(b) Deletions

Figure 2 Frequencies of Positive, Zero, and Negative Changes in One-year-ahead EPS Forecasts for Additions and Deletions and Their Industry Peers

This figure displays the frequencies of positive, zero, and negative changes in one-year-ahead EPS forecasts around the MSCI Country Index re-constituents for a sample of 892 additions and 523 deletions in 38 countries between January 2000 and December 2015. The current year's forecast is considered as a current-year EPS forecast if an index reconstitution announcement for a company occurs at least three months prior to the end of current fiscal year. On the other hand, if an announcement for a company takes place on or after three months immediately prior to the end of the fiscal year, the forecast is treated as a one-year-ahead forecasts. For a given company, we record each financial analyst's EPS forecasts made closest in time but no earlier than four months prior to the announcement month. From these financial analysts' EPS forecasts, we calculate the median as the preannouncement median forecast. For each financial analyst, we also collect the first post-announcement EPS forecast that was made no later than four months following the announcement month. We exclude the forecasts by new analysts who only appeared in the post-announcement. The changes in current-year EPS forecasts are calculated and classified as three groups: positive, zero, and negative. Changes in EPS forecasts for firms in the same countries and in the same Fama-French 48 industry portfolios as the additions or deletions are used as a benchmark. The number of industry peers for additions is 9,056 and is 6,523 for deletions, respectively.