Firm Characteristics, Return Predictability, and Long-Run Abnormal Returns in Global Stock Markets*

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Abstract

We conduct the most comprehensive examination of returns to non-U.S. firms following corporate events to date, documenting apparently abnormal returns in the wake of initial and secondary stock offerings, stock repurchases, dividend initiations, stock splits, and merger announcements. These abnormal returns are substantially explained by benchmark returns that are based on the relation between returns and characteristics estimated for all firms in the country, implying that no firm- or event-specific explanations are required. However, the ability of firm characteristics to explain post-event returns does not reflect that characteristics can predict firms' exposures to latent risk factors. Our findings suggest that conclusions previously drawn from long-horizon event studies, particularly regarding abnormal returns and their implications for managerial, investor behavior, and corporate finance theories, may need reevaluation.

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The evidence documenting abnormal long-run returns in the wake of corporate events has contributed to the development of significant theories in finance, including those concerning investment, capital structure, dividend policy, mergers and acquisitions, and investor overreaction or underreaction. For example, the literature has shown that managers strategically time announcements related to capital structure changes, dividends, takeovers, investments, and other corporate actions. Moreover, there is evidence suggesting that investors often overreact or underreact to the information presented in many corporate events.[1] Loughran and Ritter (1995, 2000), among others, have argued that investors tend to overvalue firms at the time of their initial public offerings (IPOs), leading to negative abnormal returns post-IPO. The evidence that managers time the announcements of corporate events and investors display patterns of overreaction and underreaction appears to have become bedrock principles for many who study the field of finance.

However, Bessembinder, Cooper, and Zhang (BCZ, 2019), who study U.S. data, challenge the robustness of conclusions based on long-horizon event studies. They demonstrate that when abnormal returns are assessed by the comparison of actual returns to benchmark returns obtained as fitted values from market-wide regressions of firm returns on lagged firm characteristics, the seemingly abnormal returns observed in the months following these events are significantly diminished or eliminated. Their findings imply that there is not a need for firm or event-specific explanations to account for the post-event returns associated with these events. The BCZ results question the validity of stylized facts that are based on long-horizon event studies, at least for their sample of U.S. firms.

[1] See for example, Loughran and Ritter (1995), Eckbo, Masulis, and Norli (2000), Rau and Vermaelen (1998), and Eberhart, Maxwell, and Siddique (2004).

In this paper, we investigate whether the conclusions obtained in the BCS study of U.S. corporate events also extend to a large sample of international corporate events. Examining international data offers several benefits. First, the analysis serves as an out-of-sample test of their implications, thereby providing a more robust test of whether firm characteristics can explain event study returns in diverse markets. Second, this study also contributes to the body of evidence as to whether stock returns are predominantly influenced by local or global factors, providing insight into the degree of financial market integration and the extent of market segmentation worldwide. Third, by covering a broad spectrum of markets, our analysis responds to the call of Hou, Karolyi, and Kho (2011) for a systematic global analysis of relations between firm characteristics and stock returns. We also assess how these relations depend on country-level measures such as market capitalization, liquidity, and stage of development. Lastly, and most importantly, this comprehensive international study enables assessment of the validity of various event-study derived theories of corporate finance and investor behavior in global markets.

Our study presents the most comprehensive analysis to date on whether returns following corporate events by non-U.S. firms are abnormal. Previous research into post-event firm returns in global markets has been inconsistent and limited, typically concentrating on a single market and often times producing conflicting outcomes.[2] In contrast, our research simultaneously

[2] In Appendix IV we summarize seventy-five papers that have considered subsets of these events, most often for specific countries or regions. Our thorough literature search identifies seventy-five papers that have considered subsets of the six corporate events, most often for specific countries or regions. Sample sizes in these studies range from about ten to over 4,000 observations, and the periods studied range from the early 1960s to the late 2010s, with 1-year and 3-year event windows being the most common. Most of the studies focus on Buy-and-Hold-Abnormal-Returns (BHARs) and Cumulative Abnormal Returns (CARs) to assess performance after the six corporate events. However, prior studies show that CARs comprise a biased measure of long-run abnormal performance and that the BHAR approach does not effectively control for differences in firm characteristics that forecast stock returns between the event firm and the benchmark. See Barber and Lyon (1997), Lyon, Barber, and Tsai (1999), Kothari and Warner (2007), and Bessembinder, Cooper, and Zhang (2019) for results concerning potential biases in CARs and BHARs as a measure of long-run firm performance. CARs are usually benchmarked against the market return or

investigates six significant events, including initial and secondary stock issuances, stock repurchases, stock splits, dividend initiations, and mergers/acquisitions. We utilize a sample of nearly 52,000 non-U.S. firms across fifty-eight countries, 38,529 of which have participated in one or more of these events, offering a broader perspective than prior studies.

We first validate that the 14 characteristics employed by BCZ (which are drawn from Lewellen (2015)) have significant predictive power for the cross-section of global monthly stock returns.[3] We study both simple and log returns, but mainly focus on the latter. This decision reflects in part the fact that the international stock return databases are known to contain errors. While we follow prior authors (e.g., Hou, Karolyi, and Kho, 2011; Jensen, Kelly, and Pedersen, 2021) in implementing filters that are intended to mitigate the most serious errors, some errors may survive such screening. Mean log returns are not affected by data errors such as a temporary shift in the placement of a decimal (e.g., a price reported as 99 instead of 9.9 for a single period), while mean simple returns are biased upward by such errors.[4]

We document that the fourteen characteristics previously shown by Lewellen (2015) to have significant forecast power for next-month returns to U.S. stocks also forecast returns to international stocks. This finding bolsters the interpretation that the prior evidence reflects

the CAPM model and thus can contain measurement errors because they do not control for the firm's exposures to non-market risks or important firm characteristics that forecast returns. Such measurement errors, while small in a short event window, could compound into large errors in the long run as emphasized by Fama (1998). As such, it is important to systematically re-evaluate the evidence regarding long run returns after these corporate events using a comprehensive and updated sample, and relying on a research design that effectively controls for variation in firm characteristics.

[3] The 14 characteristics are firm size, book-market ratio, momentum return, return on assets, asset growth ratio, market beta, accruals, dividend payout, long-run past returns, idiosyncratic risk, illiquidity, turnover ratio, leverage, and sales/price ratio.

[4] A disadvantage of focusing on log returns, however, is that cross-sectional averages of log returns do not have a straightforward portfolio interpretation.

genuine economic forces, as opposed to a form of collective data snooping or "p-hacking."[5] Second, we estimate each firm's one-month ahead returns using prior-month characteristics and historical characteristics-return relations in the market following Lewellen (2015) and BCZ. We show that such characteristics-based estimated returns have strong predictive power for next month's returns, validating their usefulness as benchmarks for estimating abnormal returns for international event studies.

The core focus of our paper concerns the estimation of abnormal returns following international corporate events. When we employ traditional event study methodologies (such as adjusting for the return earned by size and book-to-market matched firms), we find that average returns in the 36 months subsequent to six studied corporate events appear to be abnormal compared to non-event firms. Specifically, we observe unusually high average post-event log returns for firms following dividend initiations and share repurchases, and notably low returns after initial public offerings (IPOs), secondary equity offerings (SEOs), mergers/acquisitions, and stock splits. These findings reveal differences between U.S. and global outcomes. For instance, while we document negative and significant abnormal returns following stock split announcements, previous U.S. research reports positive and significant returns.

We implement the BCZ methods to determine if post-event returns to the sample of international event stock are abnormal in light of event firm characteristics and relations between firm returns and characteristics estimated from the broader sample that includes non-event firms as well. We find that the apparently-abnormal post-event returns for global stocks are partially or fully explained by event firm characteristics. More specifically, the excess of event firm

[5] Our results disagree with Cakici, Fieberg, Matko, Zaremba (2024) who show that for 42 countries, firm characteristic anomalies do not predict returns. For discussions of P-hacking and related data snooping issues, see, for example, Harvey, Liu and Zhu (2016) and Harvey and Liu (2021).

returns over returns predicted based on relations between characteristics and returns estimated using all firms in the event firm's country on average does not differ significantly from zero. This broad finding holds not only for the full sample, but also for both simple and log returns and subsamples defined based on firm size, time period, geographic region, and for firms from both developed and emerging economies.

Thus, we confirm the U.S. findings of BCZ in global markets, and conclude that the observed abnormal returns following corporate events in international markets can largely be attributed to firm characteristics rather than to the events themselves. This finding supports the view that market reactions to corporate events are globally more attributable to underlying firm characteristics than the specific details of the events. These results have significant implications for the development of financial theories, the estimation of event study abnormal returns, and the understanding of market behavior across different global contexts.

We delve deeper into the relations between characteristics and returns that are responsible for our central findings. We show that firm characteristics exert a stronger influence on stock returns and account for a larger portion of the cross-sectional variation in these returns when we assess characteristic-return relationships at the country, rather than regional or global, level. We find that the greater country-level characteristic-based predictability extends to the ability of the characteristic-based benchmark returns to explain post-event returns. We estimate the benchmark returns using characteristic-return relations based on same-country firms, all firms in the same economic-geographic region, or the full sample of firms. While the apparently abnormal post-event returns are fully explained when the benchmark is estimated based on country-specific characteristic-return relations, they are only partially explained when the benchmark is estimated based on regional or global characteristic-return relations. Thus, the results indicate that the local characteristic-return relation has greater explanatory power for stock returns than its global counterpart. Our findings are broadly consistent with Griffin (2002), Fama and French (2012), and Hollstein (2022), who show that local factor models outperform global factors. They are also in line with Bekaert, Hodrick, and Zhang (2009), Hou, Karolyi, and Kho (2011), and Karolyi and Wu (2018), who find that models with only global factors have relatively high pricing errors.

While our characteristic-based benchmark approach explains post-event returns on average, there is some variability across countries. Thus, we analyze determinants of post-event returns related to country-level financial market attributes. The results reveal greater post-event abnormal returns among smaller, more volatile, and more segmented financial markets. These findings underscore the impact of market structure and liquidity on the efficiency of price adjustment following corporate events. Specifically, in markets where trading is more volatile, information may be more fragmented, leading to informational barriers, resulting in more pronounced abnormal returns post-event. Additionally, markets with higher segmentation, often due to regulatory barriers or limited investor access, show greater abnormal returns, highlighting the role of market integration in facilitating efficient price discovery. These results suggest that the effectiveness of the characteristic-based benchmark in explaining post-event returns is influenced by the unique financial and regulatory environments of each country, offering insights into the mechanisms driving the characteristic-based abnormal event returns in diverse market contexts. Overall, our results are consistent with prior findings that barriers to financial market integration affect stock prices (Bekaert, Harvey, Lundblad, and Siegel, 2011).

The economic interpretation of our finding that a set of fourteen firm characteristics is largely successful in explaining the apparently abnormal returns in the months following the six corporate events studied here is inseparable from the unresolved question of why firm characteristics are successful in predicting the cross-section of equity returns, both in the U.S. and, as we document, internationally. While some observers have interpreted the predictive power of firm characteristics as indicative of market inefficiencies, Kelly, Pruitt, and Su (2019) report evidence that much of the explanatory power attributed to observable firm characteristics arises because the characteristics act as instrumental variables for time-varying loadings on a small set of unobservable common factors. We use the Instrumented Principal Component Analysis (IPCA) method introduced by Kelly, Pruitt, and Su (2019) to assess whether the explanatory power of the fourteen firm characteristics arises in our global sample because the characteristics proxy for time variation in loadings on unobservable factors. However, we find that the IPCA approach has only limited explanatory power, and does not explain post-event returns as well as the simple method of Lewellen (2015). That is, the IPCA analysis does not support that the characteristics are successful in explaining post-event returns because they proxy for time variation in firm exposures to latent risk factors.

In summary, our study makes four main contributions. First, we conduct the most comprehensive study of international corporate events to date and show that when using a characteristic-based benchmark of normal returns, there is no evidence on average of abnormal post-event returns. Second, we show that these methods are more effective when utilizing local characteristic-return relationships rather than regional or global ones, providing insights into the asset pricing debates regarding the relevance of country-specific versus global pricing information. We also document that firm characteristics are more useful in markets characterized by larger market capitalization, lower volatility, and reduced market segmentation. Third, the findings here support the adoption of characteristic-based benchmarks in future event studies. In particular, the global results presented in this paper, along with the U.S.-based findings in BCZ imply that traditional methods for estimating abnormal returns, such as using size and book-to-market benchmarks, tend to identify as abnormal post-event returns that characteristic-based benchmarks can explain. Fourth, these results imply that many of the stylized facts from event studies (based on prior evidence of abnormal returns) and related theories of manager and investor behaviors should be reassessed.

1. Do Characteristics Forecast Returns in Global Markets?

1.1. Data and Methods

We obtain data on stock returns (measured in US dollars) and accounting variables necessary to construct the 14 firm characteristics from the Compustat Global (for all countries except Canada) and Compustat North America (for Canada) databases. Our sample includes 51,802 stocks from fifty-eight non-U.S. countries, for the twenty-five-year period January 1996 to December 2020. The 1996 start date is selected because coverage in the Compustat Global database is thin in prior years. The criteria by which we selected sample stocks, as well as the error filters employed, are described in Appendix I.

Figure 1 displays the total market capitalization of the firms, by region and for the full sample. The aggregate market capitalization of sample firms increased from approximately $10 trillion in 1996 to nearly $40 trillion by 2007. After a sharp but temporary decline associated with the financial crisis, sample firms' aggregate market capitalization increased to nearly $65 trillion by the end of 2020.

Following Lewellen (2015) we assess whether characteristics have significant forecast power for returns by estimating the following cross-sectional regression for each month t:

$$R_{it} = \alpha_t + \beta_t X_{i,t-1} + \epsilon_{it}, \tag{1}$$

where R_{it} is stock *i*'s realized log (or simple) return in month *t,* and $X_{i,t-1}$ is a vector of firm *i*'s characteristics measured at the end of month *t*-1. We assess whether returns have significant predictive power in the manner of Fama and MacBeth, by testing whether the time series mean of the monthly slope coefficients differ from zero.

In addition, we follow Lewellen in generating a dataset of characteristic-based predicted or benchmark returns for each stock and month, relying on rolling averages of past slope coefficients. Specifically, the predicted return for stock *i* in month *t* is the average intercept over the prior twelve months plus the sum of products of average slope coefficients over the prior twelve months and stock *i*'s month *t*-1 characteristics:

$$E[R_{it}|I_{t-1}] = \frac{1}{12}\sum_{s=t-1}^{t-1} \hat{\alpha}_s + \left(\frac{1}{12}\sum_{s=t-1}^{t-1} \hat{\beta}_s\right) X_{i,t-1}, \tag{2}$$

where $\hat{\alpha}_s$ and $\hat{\beta}_s$ are the coefficients estimated from equation (1) in month *s*. In our baseline specification we estimate equations (1) and (2) on all available stocks in the same country as stock *i*. However, to compare local versus global characteristic-return relations, we also assess the impact of estimating equations (1) and (2) using all stocks in the same region as stock *i*, and using all stocks in the sample.

To assess if returns to firms engaging in corporate events are abnormal during subsequent months, we follow Bessembinder, Cooper and Zhang (2019) and regress differences between realized and benchmark returns on a constant and on indicator variables that are set to one for firm/months of interest, and zero for other firm/months:

$$R_{it} - E[R_{it}|I_{t-1}] = a + \sum_{k=1}^{K} b_k \times D_{itk} + Region_j + u_{it}, \tag{3}$$

where D_{itk} is an indicator that equals one if firm *i* experienced corporate event *k* during thirty-six months prior to month t, and zero otherwise. For example, the dividend initiation indicator in month t equals one for those firms that initiated dividends between months t-1 and t-36, and zero otherwise. Coefficient estimates on the indicator variables (b_k) reveal the extent to which the average difference between realized returns and predicted returns differs during the specified post-event horizon for event firms as compared to firms that did not experience any of the six events. The eight economic regions in our sample are heterogeneous in terms of stages of economic and financial market development and investor behavior (see Section 4). We therefore include economic region fixed effects ($Region_j$) in equation (3).

We study fourteen of the fifteen characteristics that Lewellen (2015) shows to successfully predict future returns to U.S. stocks.[6] The exception is that we exclude stock issuance as a variable to estimate predicted returns, because we study stock returns after equity offerings. Appendix II defines the set of fourteen characteristics, which we refer to as the C14 characteristics. In addition, we study a subset of only five firm characteristics, which we refer to as C5. These are firm size, book-to-market ratio, stock returns over months t-2 to t-12, profitability as measured by return on assets (ROA), and the firm's rate of investment as measured by year-on-year growth in total assets. The C5 characteristics correspond to the risk factors in the asset pricing models of Fama and French (2015) and Hou, Xue, and Zhang (2015), except that we include momentum based on the evidence in Carhart (1997) and subsequent studies, and exclude firms' market beta. To make coefficients on firm characteristics comparable across characteristics and time, we normalize each firm characteristic in each month and for each country by subtracting the cross-sectional mean for the month and dividing by the cross-sectional standard deviation for the month. That is, all firm characteristics have a mean of zero and variance of one each month.

[6] Following Lewellen (2015), we winsorize each firm characteristic at the upper and lower 1% level in each month.

1.2. Characteristics' Explanatory Power for Global Stock Returns

In Table 1, we report coefficient estimates, averaged across time periods, obtained when we estimate equation (1) for each month from January 1996 to December 2020 for the C5 and C14 characteristics. A statistically significant coefficient indicates that the characteristic helps forecast stock returns. Sufficient data is available to estimate the C5 specification for 6.18 million firm/months and to estimate the C14 specification for 4.62 million firm/months. Columns (1) and (2) report results obtained when the dependent variable is simple returns, while Columns (3) and (4) assess whether the characteristics forecast log returns.

The results reported in Table 1 indicate that the C5 and C14 characteristics, which were shown by Lewellen (2015) to have significant forecast power for U.S. stock returns, are also effective predictors for both simple and log stock returns outside the U.S. The average coefficient on each of the C5 characteristics is statistically significant (p-value < .01) when forecasting simple returns, while four of the five characteristics are significant at the .01 level (and the fifth, on log size, is significant at the .05 level) when explaining log returns. Consistent with the prior literature, simple average returns are significantly higher for smaller firms and firms with slower rates of asset growth, as well as for more profitable firms, firms with larger prior returns, and firms with higher book-to-market equity ratios.[7] Results are similar across simple vs. log returns, except that (consistent with the U.S.-based results reported by Bessembinder, Cooper and Zhang (2019)), the sign of the estimated coefficient for firm size is positive rather than negative for log returns in the C5 model (Column (3) of Table 1). Average coefficient estimates for ten of the C14 characteristics are significant at the .01 level when forecasting simple returns, and eleven are significant at the .01 level when forecasting log

[7] See for example, Cooper, Gulen, and Schill (2008) and Fama and French (2008).

returns. Only market beta and prior long-run returns are not significant at the .05 level in either specification.

In general, the statistically significant coefficient estimates reported in Table 1 are similar in both sign and economic magnitude as compared to those reported by Bessembinder, Cooper, and Zhang (2019) for their sample of U.S. stocks drawn from the 1970 to 2014 period, although the R-squared statistics in Table 1 are generally more modest (ranging from .012 to .027) as compared to those they report, reflecting greater volatility in international stock returns.[8] Average coefficient estimates for eleven of the C14 characteristics are significant at the .01 level when forecasting log returns over the first subperiod, and average coefficient estimates for twelve of the C14 characteristics are significant at the .01 level over the second subperiod.

We also verify that, consistent with the results reported by Lewellen (2015) and Bessembinder, Cooper, and Zhang (2019) for U.S. stocks, the returns predicted by the C5 and C14 characteristics do indeed have statistically significant explanatory power for next month realized returns to global stocks. In Table 2 we report estimates obtained when realized month t returns are regressed on predicted returns that are obtained as fitted values from estimating equation (1) using data up to month $t-1$ for the stocks in each country. Estimated slope coefficients are positive and significant at the .01 level, ranging from 0.2347 (simple returns and C14 characteristics) to 0.3794 (log returns and C5 characteristics). Each estimate in Table 2 is statistically significant at the .01 level, and the R-squared statistics in Table 2 (ranging from 0.018 to 0.024) are comparable to corresponding statistics reported by Bessembinder, Cooper, and Zhang (2019) for U.S. stocks, which range from 0.012 to 0.025. On balance, the evidence

[8] We also estimate Table 1 for the subperiods 1996 to 2007 and 2008 to 2020, and report the results in Table A1 in the Internet Appendix I. The subsample results are similar to those for the full sample.

indicates that the C5 and C14 characteristics drawn from Lewellen (2015) have economically and statistically significant forecast power for monthly returns to a broad sample of non-U.S. common stocks.

Overall, the results from Tables 1 and 2 support the use of the Lewellen (2015) characteristic model in the international data. This result is broadly consistent with studies that examine the ability of firm-level characteristics to explain the cross-section of international returns, including Hou, Karolyi, and Kho (2011), Fama and French (2012 and 2017), Jacobs and Muller (2020) and Holstein (2022). In addition, the characteristics continue to strongly forecast the cross-section of international stock returns in the latter half of the sample (see Table A1). By comparison, McLean and Pontiff (2016) report some degradation in the predictability of US stock returns in more recent years.

2. Characteristics' Explanatory Power for Post-Event Returns in Global Markets

In this section, we conduct a review of existing studies of post-event stock returns in non-U.S. markets and test whether characteristics help explain post-event stock returns in global markets. The test results, in combination with those in the prior section, indicate that characteristics have robust explanatory power for global stock returns.

2.1. A Review of Studies of Post-Event Stock Returns in Non-U.S. Markets

We study six important corporate events, each of which has been found in studies of firms listed in the U.S. and other countries to be associated with abnormal post-event stock returns. The events are share repurchase announcements, stock split announcements, mergers and acquisitions (M&As), seasoned equity offerings (SEOs), initial public offerings (IPOs), and cash dividend initiations. See Appendix I for details about the construction of the six corporate events.

We can identify 75 papers that study these corporate events in non-U.S. countries, as summarized in Appendix IV. IPOs attracted the most academic attention, with 52 studies, while dividend initiations were considered in only one study. The numbers of studies of the other corporate events range from six for stock splits to twenty-one for share repurchases.

These studies differ in several dimensions. Sample sizes range from eleven to 4,344 events. By comparison, we study 5,896 dividend initiation events and 86,538 secondary equity offering events. The event window examined varies from 1 month to five years, with 1-year and 3-year event windows being the most common.

The research methods employed to evaluate long-run abnormal returns also vary. Most of the studies employ buy-and-hold abnormal returns (BHARs), which are the difference between buy-and-hold returns to the event firm and buy-and-hold returns to a benchmark over the event window. The benchmark for BHARs used in the studies also varies, including market return, industry return, return to portfolios of firms with similar size or book-to-market ratio, and return to control firms matched on industry, firm size, and book-to-market ratio. Two studies use the "wealth ratio" (the ratio of one plus the event firm buy-and-hold return to one plus the compound market return over the event window) to evaluate the long-run performance after corporate events. Many studies use cumulative market-adjusted or CAPM-adjusted abnormal returns (CARs) to assess long-run performance after the six corporate events. Lastly, thirteen studies employ the calendar time portfolio approach, which forms a monthly portfolio of event firms and estimates the alpha of the portfolio against risk factor models such as the Fama-French (1993) three factor model and the Carhart (1997) four factor model.

However, prior studies show that CARs are a biased measure of long-run abnormal performance (Barber and Lyon, 1997; Lyon, Barber, and Tsai, 1999; Kothari and Warner, 2007). Further, the BHAR approach does not fully control for differences in firm characteristics that forecast stock returns between the event firm and the benchmark.[9] It is therefore desirable to systematically reevaluate the evidence regarding long-run returns after these events using a broad sample and appropriate research methods. We investigate whether a broad sample of non-U.S. firms earn abnormal long-run returns after the six corporate events using the characteristics-based benchmark return method of Bessembinder, Cooper, and Zhang (2019), which allows researchers to effectively control for relations between firm characteristics and stock returns.

The international long-run event studies surveyed in Appendix IV often report abnormal returns that are consistent with the evidence based on studies of U.S. firms. Forty-six (88.5%) of the fifty-two studies of post-IPO returns find negative long-run abnormal returns following IPOs and the negative post-IPO returns are statistically significant at the better than 0.10 level for thirty-three studies (see Panel A in Appendix IV). Similarly, most studies (85.7% and 69.2%) find negative long-run abnormal stock returns after seasoned equity offerings and mergers and acquisitions, respectively. On the other hand, most studies (81.0%) find positive long-run abnormal returns following share repurchases, and the only study of dividend initiations finds positive and significant long-run abnormal stock returns after dividend initiations. These findings are consistent with the findings using samples of corporate events among U.S. firms. However, two-thirds of the six studies of stock splits find negative long-run abnormal stock

[9] See Barber and Lyon (1997), Lyon, Barber, and Tsai (1999), Kothari and Warner (2007), Bessembinder and Zhang (2013), and Bessembinder, Cooper, and Zhang (2019).

returns after stock splits in non-U.S. countries, while in contrast, U.S. firms have been found to earn positive abnormal returns following stock splits (Ikenberry and Ramnath, 2002).

2.2. The Sample of Six Corporate Events in Fifty-Eight Countries

As noted, our sample includes 51,802 stocks from fifty-eight countries, 38,529 of which engaged in at least one of the events studied. We report some results for eight subsamples, comprised of stocks drawn from developed European economies, emerging European economies, developed Asian economies, emerging Asian economies, Australasia, Canada, Latin America, and the Middle East and Africa.[10] Appendix III identifies the countries that are included in each region. Panel A of Table 3 reports on sample sizes for each region. The number of observations available to estimate equation (1) ranges from 93,018 returns observed for 813 firms in Latin America to 2.16 million returns observed for 13,959 firms in developed Asian economies.

The remaining columns of Table 3 Panel A report on the numbers of corporate events studied. These range from 5,896 dividend initiation events to 86,538 secondary equity offering events. Event sample sizes also differ notably across subsamples, and are generally smallest for Latin America and largest for developed European and developed Asian economies.

Panel B of Table 3 reports on the numbers of returns used to estimate equation (1) and on the number of events by calendar year. The number of monthly returns available to estimate equation (1) grew rapidly from about 69,000 in 1996 to 136,000 in 2000, 305,000 in 2010, and 371,000 in 2020. Event sample sizes also grow rapidly from 1,825 in 1996 to 8,155 in 2007, but do not display any notable long-term trend thereafter.

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[10] The assignment of Asian and European countries as "emerging" follows Morningstar designations, as specified here https://admainnew.morningstar.com/directhelp/Glossary/Portfolio/Regional_Exposure.htm.

Firm characteristics potentially explain post-event abnormal stock returns if event firms on average have different characteristics than other firms. We examine differences in firm characteristics between event and non-event firms prior to corporate events by estimating Fama-MacBeth regressions of firm characteristics on each of five pre-event dummies for dividend initiations, stock splits, SEOs, M&As, and share repurchases. Each pre-event dummy takes the value of one for the event firm in the 36-month window before the event, and zero otherwise. We run the regression separately for each of the five events and separately for each of the fourteen firm characteristics. The coefficients on the pre-event dummies displayed in Table A2 are statistically significant in all but five cases, indicating that event firms indeed have distinct characteristics compared to non-event firms before the five events. Event firm characteristics also evolve over time but remain distinct on average from other firms after the events, as demonstrated in Figure A1.

2.3. Returns in the Months after Corporate Events

We examine mean returns for event stocks after each of the six corporate events described in the prior section. We focus in particular on the 36-month period beginning in the first month after the relevant announcements following prior studies (e.g., Eckbo, Masulis, and Norli, 2007; Kothari and Warner, 2007). To do so, we report the results of estimating equation (3) when the benchmark return, $E[R_{it}|I_{t-1}]$, is defined three ways. First, we set the benchmark to zero. In this case the coefficient estimate on each indicator is simply the difference in the mean return for event stock-months within the 36-month post-event window as compared to mean returns for all other stock-months, which gives indication of whether there are apparently abnormal returns to explain. Second, we assess whether event returns are unusual relative to "matching" stocks that are similar in terms of firm size and book-to-market.[11] In particular, we set the benchmark to be the realized return in time *t* on a stock matched to stock *i* based on firm size and book-to-market. In this case the coefficient estimates on the event indicators estimate the extent to which the difference in returns from stocks that are similar to event firms in terms of these two characteristics differ during the 36-month post-event horizons as compared to all other observations.[12]

Finally, we set the benchmark equal to the fitted value from equation (2), in which case coefficient estimates on the indicator variables reveal the differential mean return during the 36-month post-event windows for event stocks as compared to the returns that would be expected based on the relation between returns and characteristics estimated for the broader sample of stocks. In addition to reporting estimated coefficients for each indicator, we report the average of the absolute coefficient estimates (denoted "AAC" on Tables 4, 6, and 8) across the six indicators, and the p-value for a test of the hypothesis that all six coefficients are equal to zero.[13] These AAC and p-value statistics are useful in assessing the extent to which each benchmark leads to coefficient estimates that are on average closer to the benchmark of zero. Table 4 reports full-sample results; Panel A focuses on log returns while Panel B focuses on simple returns.

[11] Other event studies that define matching firms using size and book-to-market include Loughran and Ritter (1995), Eckbo, Masulis, and Norli (2007), and Betton, Eckbo, and Thorburn (2008).
[12] Note that this benchmark makes use of time t information to explain time t returns. In contrast, the C5 and C14 predicted returns are based entirely on regression parameters and characteristics known at time t-1. As a consequence, it would in principle be possible to trade on or hedge against the abnormal returns identified by the C5 and C14 models, but not the abnormal returns defined relative to the matched firm benchmark.
[13] To conduct the test of the hypothesis that all coefficients are equal to zero, we estimate each model for each month from January 1996 to December 2020, stack all the coefficients on the six post-event dummies and regress them on six corresponding event dummies in an OLS regression (without a constant). We then conduct the F-test that six coefficients are jointly zero.

We first assess whether our sample of global firms that engage in corporate events display post-event returns that appear to be abnormal. Column (1) of Table 4 reports results obtained when the benchmark return in equation (3) is set to zero.

The results reported in Panel A of Table 4 indicate that mean log returns during the 36-month post-event windows are different as compared to other months. Coefficients for five of the six events studied are significantly (p-value < .01) different from zero, with returns after completion of mergers and acquisitions comprising the only exception. The largest abnormal mean log returns in absolute magnitude are -0.87% per month for SEOs and -0.72% per month for IPOs. Average abnormal log returns are 0.55% per month after repurchase announcements, 0.37% per month after dividend initiation announcements, and -0.36% per month after stock split announcements. The average absolute coefficient estimate across the six events is 0.52% per month. The p-value for the hypothesis that all six coefficients jointly equal zero is less than 0.0001, verifying that post-event returns for our broad sample of international stocks do indeed appear to be abnormal.[14]

Bessembinder, Cooper and Zhang (2019), using parallel methods, estimate significant abnormal mean log returns for the same six events based on data for U.S. stocks. Like the results obtained here, they report positive mean abnormal log returns after dividend initiations and repurchase announcements and negative mean abnormal log returns after initial and secondary equity offerings. However, they report positive mean abnormal log returns after stock split announcements, while Panel A of Table 4 indicates negative mean abnormal log returns in the global sample.

[14] The coefficients in Table 4 are jointly estimated following equation 3. We also produce a version of Table 4 where we estimate separate coefficients for each event, and find that the results are qualitatively similar. These results are reported in Table A3 in the Internet Appendix.

Results in Panel B of Table 4 indicate that average simple returns were also abnormal during the 36-month post-event windows. The AAC is 0.28% per month, which is smaller than the corresponding estimate for log returns, but the p-value for the test that all six coefficients equal zero is rejected with a p-value of 0.0008. The coefficient estimate on the post-repurchase indicator is statistically significant at the ten percent level, and the coefficient estimates on the other five post-event indicators are statistically significant at the one percent level. The largest coefficient estimates in absolute value are -0.49% per month for SEOs, -0.40% per month for IPOs and 0.22% per month for dividend initiations. Mean simple abnormal returns during the post-event windows are negative for merger/acquisition (-0.20% per month) and positive for repurchase announcements (0.17% per month). The signs of these abnormal simple returns are the same as those reported for abnormal log returns. However, as noted in the introduction, errors in the international stock return database potentially bias average simple returns, and therefore we primarily focus on results obtained for mean log returns.

2.4. The Effect of Size and Market-to-Book Matching

In the second column of Table 4 we present results obtained when the dependent variable in the Fama-MacBeth regression is, for each firm-month, the difference between its return and the return on a size and market-book matched control firm.[15] The results reported in Panel A of Table 4 for log returns show that matching firm returns provide a partial explanation for the apparently abnormal returns after the six events studied. The average absolute coefficient across the six events is reduced to 0.29% per month from 0.52% per month when the benchmark return was set to zero. The coefficient on the post-SEO indicator is increased from -0.87% to -0.64%

[15] See Appendix I for the procedure we use to identify size and market-book matched control firm.

per month, that on the post-IPO indicator is increased from -0.72% per month to -0.23% per month, and that on the post-repurchase indicator is decreased from 0.55% to 0.26% per month.

However, each of the five post-event indicators that was statistically significant in Column (1) of Table 4 Panel A remains significant in Column (2), indicating that the size and market-to-book comparison does not fully explain the apparently abnormal returns. Further, the coefficient estimate on the merger/acquisition indicator, which was insignificant in Column (1), is negative and significant (p-value < .01) in Column (2), as the comparison to matched firm returns results in a more negative estimate. The p-value for the hypothesis that all six indicator variable coefficients equal zero continues to be rejected with a p-value < 0.0001. Note that the R-squared drops to 0.1% in Column (2) from 5.3% in Column (1), indicating that the post-event indicators have low explanatory power for stock returns benchmarked against size-and-book-to-market matched control firms. We conclude that deducting returns to size and market-book control firms does not fully explain the apparently abnormal mean log returns after the six corporate events. The results reported in Panel B of Table 4 for mean simple returns support a similar conclusion, as coefficient estimates on four of the six event indicators remain statistically significant when matching firm returns are deducted.

These results for a broad sample of non-U.S. are consistent with the findings of many of the studies surveyed in Appendix IV and discussed in Section 2.1. Relying on a variety of research methods and divergent samples, the prior studies often, but not uniformly, report apparently positive abnormal returns after dividend initiations and share repurchases and negative abnormal returns after initial and secondary equity offerings, mergers and acquisitions, and stock splits. We next report on tests of whether the characteristics-based benchmark returns help explain the abnormal returns after the six corporate events in countries other than the U.S.

2.5. Characteristics Help Explain Post-Event Stock Returns

We now focus on the central empirical issue assessed in this paper: are the average returns after major corporate events engaged in by international stocks abnormal when assessed in light of event firms' characteristics and relations between returns and characteristics estimated from the broader sample? To answer this question, we estimate equation (3) when the benchmark return is the fitted value from the estimation of equations (1) and (2). For our baseline results, we implement equations (1) and (2) using all stocks in the same country as stock *i*, so that the relation between returns and characteristics is allowed to vary across countries. However, we also report results obtained when equations (1) and (2) are estimated using all stocks in the same region as stock *i* and using all stock in the sample, so that the relation between returns and characteristics is estimated on a regional and a global basis.

2.5.1. Baseline Results

Results obtained when expected returns are based on the five and fourteen characteristics drawn from Lewellen (2015) are reported in Table 4, in the columns labeled "C5" (Column (3)) and "C14" (Column (6)), respectively.[16] These results show that the apparently abnormal returns associated with the six corporate events we study are partially or fully explained by relations between returns and characteristics estimated based on all firms in the same country. For log returns, each coefficient estimate reported in both the C5 and the C14 column of Table 4, Panel A is smaller in absolute magnitude as compared to the unadjusted mean log returns reported in the columns headed "None" (Columns (1) and (4)), and eleven of the twelve coefficient

[16] The smaller number of observations for results in the C14 column reflect the fact data is not always available for the nine characteristics that are contained in the C14 set but not the C5 set.

estimates on the post-event indicators in the C5 and C14 columns are smaller in absolute magnitude than the coefficient estimates in the columns headed “Match” (Columns (2) and (5)).

While four of the six coefficient estimates in the C5 column in Table 4 Panel A remain statistically significant at the .05 level, only one of the six, the post-SEO indicator, is significant at the .01 level. The average absolute coefficient estimate when relying on the C5 characteristics to specify the benchmark return is 0.21%, as compared to 0.29% when the benchmark was defined by returns on size and book-to-market matched firms and 0.52% when the benchmark was zero. Compared to the benchmark based on size and book-to-market matched firms, the C5 characteristics-based benchmark returns reduce the absolute magnitude of the coefficient estimates on the six event indicators by an average of 0.10% as shown in Column (7) of Table 4 Panel A, and the p-value for the hypothesis that the average absolute reduction in coefficient estimate equals zero is 0.001. The results indicate that the C5 characteristics-based benchmark returns have greater explanatory power for the post-event abnormal log returns than the size and book-to-market matched control firm returns. However, the p-value for the hypothesis that all six indicator variable coefficients equal zero is 0.001, indicating that the C5 characteristics do not fully explain the apparently abnormal log returns after the events studied.

Compared to the results for log returns, the C5 characteristics have stronger explanatory power for the abnormal simple returns after the six events as reported in Panel B of Table 4. The coefficient estimates on the six event indicators are statistically insignificant except the coefficient on the post-SEO indicator, which is -0.24 and statistically significant at the 0.05 level. The average absolute coefficient for the six event indicators is 0.11% and the p-value for the hypothesis that all six indicator variable coefficients equal zero is 0.11, indicating that the C5 characteristics can explain the abnormal simple returns after the event studied.

The C14 characteristics have greater explanatory power for the abnormal log returns following the six corporate events than the size and book-to-market matched control firm and the C5 characteristics. The C14 characteristics reduce the absolute value of the coefficients on the six event indicators by an average of 0.19% (Column (8) of Table 4 Panel A) compared to matched control firm and by 0.11% (Column (9)) compared to the C5 characteristics. The reductions in the economic magnitude of the coefficients are statistically significant with p-values less than 0.0001.

The coefficient estimates for each of the six indicator variables in Column (6) labeled C14 is statistically insignificant. The average absolute coefficient across all six events is reduced to 0.10% per month, and perhaps most important, the p-value of 0.32 for the test of the hypothesis that all six coefficient estimates are jointly zero indicates that the hypothesis is not rejected at conventional significance levels. Results for simple returns (Panel B) of Table 4 also support the conclusion that the C14 characteristics fully explain the abnormal simple returns following the six corporate events. None of the coefficient estimates on the event indicators is statistically significant, and the p-value for the hypothesis that all six indicator variable coefficients equal zero is 0.68. In addition, the average absolute coefficient is reduced to only 0.08%.

To summarize, the results indicate that the characteristics of event firms, in combination with relations between firm returns and the C14 characteristics estimated for all firms in the event firms' country can explain both the apparently abnormal log and simple returns to the broad sample of international firms studied here. This result implies that no firm or event-specific explanation is necessarily required to explain returns to event stocks in our broad global sample.

2.5.2. Robustness Tests

The results reported in Section 2.5.1 imply that average returns to a large sample of international stocks in the thirty-six months after the six corporate events studied here are not abnormal in light of event firms' characteristics and relations between returns and characteristics estimated for all firms in the event stocks' countries. In Appendix V, we report on a series of alternative specifications and robustness tests. We summarize these tests below.

The results reported in the prior sections focus on returns observed during 36-month post-event windows. However, Huang and Ritter (2022) more recently argue that studying event firm returns over a post-event window that is "too long" will result in attenuated estimates. Consequently, they advocate for studying returns over a shorter, 12-month, post-event horizon.[17] We implement our methods in our non-U.S. sample over the twelve-month post-event horizon advocated by Huang and Ritter (2022). When the benchmark returns are based on country-wide relations between returns and characteristics, the average absolute coefficient estimates for the twelve-month post-event indicators are 0.37% per month with the C5 characteristics (Column (3) of Table A4 Panel A) compared to 0.21% per month for the thirty-six month post-event indicators (Panel A of Table 4) and are 0.28% per month with the C14 characteristics (Column (6) of Table A4 Panel A) compared to 0.10% per month for the thirty-six month post-event indicators (Panel A of Table 4). Perhaps most importantly, the hypothesis that the six indicator variable coefficient estimates are jointly equal to zero is rejected even for the C14 characteristic benchmark (p-value < 0.001) when focusing only on the twelve months after each event.

[17] Of course, to the extent that this recommendation is based on the ex-post observation of return patterns over alternative horizons a form of sample selection bias is relevant. Our focus on a broad set of global events provides additional perspective as to this possibility.

We also estimate C5 and C14 adjusted returns in the second and third twelve-month periods following the six corporate events, as reported in Panels B and C of Table A4, respectively. We estimate results in Column (6) of Panels B and C of Table A4 show that the average absolute coefficient estimate on the six post-event indicator variables is 0.12% per month in the second twelve months after the events and 0.05% in the third twelve months, indicating that the C14 characteristics-based benchmark returns fully explain the abnormal event firm returns in the second and third twelve-month post-event periods.

The results in Table A4 are based on the full twenty-five year, 1996 to 2020, sample. We also assess the extent to which the conclusions supported by the results in Table A4 regarding the first, second, and third twelve-month periods are consistent over calendar time by estimating equation (3) separately for the 1996 to 2007 and 2008 to 2020 subsamples. Results are reported in Table A5 in the Internet Appendix, and support the conclusion that the inability of the C14 model to fully explain the returns during the first twelve months after each event is mainly evident in the first half of the sample. During the second half of the sample, the C14 model largely explains the abnormal event returns in the first twelve-month period, as the average absolute coefficient is 0.17% (compared to 0.39%) during the first half, and the p-value for the hypothesis that all size coefficients are jointly equal to zero is increased to 0.082.

Since average post-corporate event returns are generally viewed as anomalous, theories provide no guidance as to the appropriate horizon to study. However, the results reported here for an international sample are consistent with the observation made by Huang and Ritter (2022) in their study of U.S. firms that it is more challenging to explain returns in the first year (and in our setting, during the first half of the sample) after corporate events as compared to post-event returns measured over longer horizons.

We perform other robustness tests. We assess the effect of estimating equation (3) based on the pooled sample rather than the Fama-MacBeth method (Table A6). This alternative places equal weight on each event, while the Fama-MacBeth method weights equal time period equally. We also estimate equation (3) for subsamples stratified by firm size (Table A8 Panel A), for the first and second half of the sample period (Table A8 Panel B), by region (Table A7) and by country (Table A9 in the Internet Appendix). Further, we assess the effect of using event firm indicator variables to allow coefficients in equation (1) to differ for event vs. non-event firms (Table A10 in the Internet Appendix). Our central results, including (i) mean returns in the thirty-six months after corporate events appear to be abnormal, (ii) the magnitude of the apparently abnormal returns is reduced but not eliminated when benchmark returns are based on matched firm returns, and (iii) mean post-event returns are statistically indistinguishable from zero when the benchmark is based on equations (1) to (3) and the C14 characteristics, are consistent across these various specifications.

3. Characteristics' Explanatory Power for Returns at the Local VS. Global Level

Having shown the robust explanatory power of 14 firm characteristics for stock returns in fifty-eight global markets, in this section, we address which characteristic-return relation (local or global) has greater explanatory power. Extant studies tackle the question by comparing the explanatory power of local vs. global risk factors for stock returns. They have found mixed results. Griffin (2002) and Fama and French (2012) show that local risk factors have better explanatory power, while Bekaert, Hodrick, and Zhang (2009), Hou, Karolyi, and Kho (2011), and Karolyi and Wu (2018) find that models with both local and global risk factors have greater explanatory power. Unlike these studies, we examine the explanatory power of 14 characteristics (rather than a few risk factors) at the local vs. global level. We find that characteristics have greater explanatory power for stock returns at the local, i.e., country, than the global level.

3.1. Local vs. Global Characteristic-Return Relations

We estimate the equation (1) cross-sectional regression for each country and report in Table A11 the coefficient estimates on the 14 characteristics and the regression R-squared, which are then summarized in Table 5 Panel A. The coefficients are comparable across countries because each characteristic is standardized to having mean of zero and variance of one. The coefficient estimates on the 14 firm characteristics vary greatly from country to country. For example, the average Fama-MacBeth coefficient estimate on firm size across the fifty-eight countries is -0.19 with a standard deviation of 0.27. Similarly, the cross-country average coefficient on book-to-market ratio is 0.23 with a standard deviation of 0.19. In addition, many of the coefficients have the opposite sign across countries within a given characteristic. For example, the coefficient on firm size is positive for ten countries (with none being statistically significant) and negative for 33 countries (with 12 being statistically significant). The fact that coefficient estimates vary notably across countries suggests that a country-specific approach is likely to be more effective in predicting returns to individual stocks, but also calls for further study to determine the reasons for such variation.

The average regression R-squared across the fifty-eight countries is 0.22 with a standard deviation of 0.09 and a minimum of 0.07. For comparison, the R-squared is merely 0.03 when we estimate equation (1) using the data points of all countries (see column (4) of Table 1). The improved model fit at the country level also suggests that characteristics have greater explanatory power for the cross-section of stock returns at the country level than the global level. Our findings are consistent with those of Bekaert, Hodrick, and Zhang (2009), Hou, Karolyi, and

Kho (2011), and Karolyi and Wu (2018), which are based on risk factors rather than firm characteristics.

3.2. Local vs. Global Characteristic-Return Relations and Post-Event Returns

The results reported in Section 2 were obtained when we estimated equations (1) and (2) on a country-by-country basis. In this subsection we assess the effect of estimating equations (1) and (2) within each of the eight regional and development subsamples or using the pooled sample of all non-U.S. stocks. Table 6 reports the relevant results. Columns (1) and (2) report outcomes when the benchmark return is zero and when the benchmark is the return to a control firm matched to the event firm based on size and market capitalization. These results parallel those in the first two columns of Table 4 Panel A, except that the results here are based only on those firms for which all the C14 characteristics are available, so that comparisons are not affected by changes in sample composition. To further facilitate comparisons, Column (3) of Table 6 reproduces from Column (4) of Table 4, Panel A outcomes obtained when relations between firm returns and the C14 characteristics are estimated on a country-specific basis. Finally, Columns (4) and (5) of Table 6 present results when benchmark returns are estimated based on C14 regressions implemented at the regional and full sample levels, respectively.

The central result from Table 6 is that the estimation of equations (1) and (2) at the country level is more effective in explaining the apparently abnormal returns following corporate events as compared to results obtained when these equations are estimated at the regional or full-sample levels. In Column (3), where results are based on country-by-country estimation of equations (1) and (2) the average absolute coefficient estimate on the six indicator variables is 0.10% per month, and the p-value for the test that the six coefficient estimates are jointly equal to zero is 0.323. In contrast, regional estimation of equations (1) and (2) increases the average absolute coefficient estimate to 0.19% per month and full sample estimation increases it to 0.22% per month. P-values for the hypothesis that all six coefficient estimates are zero are decreased to below 0.005 with both regional estimation and full sample estimation.

That is, while regional or full sample estimation of equations (1) and (2) substantially reduce the magnitude of coefficient estimates on the post-event indicators as compared to no benchmark adjustment (Column (1)) or to outcomes obtained based on size and book-to-market benchmark adjustments, they are not as effective as when equations (1) and (2) are estimated on a country-by-country basis. The hypothesis that the differences in the six coefficient estimates using the country-country estimation of equations (1) and (2) versus the region-by-region estimation or the pooled estimation are zero is rejected with p-values smaller than 0.0001 (Columns (7) and (8)). These results support similar conclusions as those of Holstein (2022), who shows that local factor models perform better than regional or global factors in explaining 134 cross-sectional anomalies across 48 countries.

The fact that the C14 characteristics can effectively explain post-event returns, evidenced by the outcome that the hypothesis that the AAC equals zero is not rejected, implies that no firm or event-specific explanation is necessarily required to explain returns in the thirty-six months after the six events studied here. However, since this conclusion is overturned when equation (1) is estimated on a regional or global, rather than country-specific, basis, the results imply that a country-specific explanation for the relation between firm returns and characteristics will be required.

4. Factors that Affect Cross-Country Variation in Characteristics' Explanatory Power

In this section, we investigate the country-level financial market attributes that affect the explanatory power of characteristics for stock returns. We consider five financial market attributes. The first two attributes, stock market capitalization and GDP per capita, relate to the size and development stage of the financial market. The third attribute is the turnover rate of stocks traded in the market. High turnover rates imply greater market liquidity. The fourth attribute we consider is stock return volatility, which relates to risk and market uncertainty. Bekaert, Harvey, Lundblad, and Siegel (2011) show that these market attributes are correlated with the level of market segmentation, which is the fifth attribute we consider.

We estimate equation (1) for each country and in each month, and then calculate the average absolute value of the coefficients on the 14 characteristics (termed as the AAC-equation1) and the average R-squared of the 12 monthly cross-sectional regressions for each country in each year from 1996-2020. Because the 14 characteristics are all standardized (with mean of zero and variance of one), a higher AAC implies that the characteristics have a greater impact on stock returns. Similarly, a higher regression R-squared suggests that the characteristics explain more of the cross-sectional variation of stock returns in the country.

Table 5 Panel B presents the pooled OLS regressions at the country-year level, where the dependent variable is the AAC-equation1 (column (1)) or the average R-squared (column (2)) and the explanatory variables are the country attributes measured at the end of the last year. The coefficient on market capitalization is negative and statistically significant at the one percent level in both columns. On the other hand, the coefficient on GDP per capita is positive and statistically significant at the one percent and ten percent levels in the two columns. The coefficient on market return volatility is positive but is statistically significant only in column

(1), where the dependent variable is the AAC-equation1. The coefficients on turnover ratio and market segmentation are both statistically insignificant. On balance, the results suggest that firm characteristics have greater predictive power for stock returns in smaller, volatile markets and in markets with higher income levels.

To study the effects of the financial market attributes on characteristics' explanatory power for post-event returns, we compute the mean of the monthly absolute average coefficient (AAC) on the six post-event indicators in equation (3) in each calendar year and for each country. Recall that AAC is the average absolute value of the coefficients on the six post-event indicators in each month in equation (3). In particular, we calculate the 12-month average AAC for the model specification where the dependent variable is the matching firm adjusted return (column (2) of Table 4; denoted AAC-Match) and the C14-benchmark adjusted return (column (6) of Table 4; denoted AAC-C14). AAC-Match measures the post-event abnormal returns that are not explained by size-BM-matched control firm; AAC-C14 measures abnormal returns that are not explained by the 14 characteristics.

Table 7 column (1) presents pooled OLS regression results where the dependent variable is the AAC-Match and the explanatory variables are the five financial market attributes, each measured at the end of the prior year. Column (2) is the same as column (1) except that the dependent variable is replaced with the AAC-C14.

The results for ACC-Match reveal greater post-event abnormal returns among smaller, less liquid (lower turnover rate), and more volatile financial markets. The results for ACC-C14 reveal greater post-event abnormal returns among smaller, more volatile, and more segmented financial markets. On balance, firm characteristics appear to have greater explanatory power (i.e., the average of the absolute coefficient estimates is lower) for post-event stock returns in larger, less volatile, and less segmented economies. Our results are consistent with prior findings that barriers to financial market integration affect stock prices (Bekaert, Harvey, Lundblad, and Siegel, 2011).

5. Do the C14 Characteristics Proxy for Firm Exposures to Latent Risk Factors?

The ability of the C14 characteristics to explain post-event returns could arise either because the C14 characteristics proxy for priced risk exposures or because of mispricing. To obtain relevant information, we implement the Instrumented Principal Component Analysis (IPCA) method introduced by Kelly, Pruitt, and Su (2019). IPCA identifies latent risk factors and determines whether observable characteristics explain returns because they effectively predict variation in firms' exposures to these factors. The method also allows that predictive power can arise because characteristics predict alphas with respect to these latent factors.

We first assess the effectiveness of the IPCA approach in our sample. We estimate country-level IPCA models using observations in each country. Since our interest lies in the predictive power of characteristics for returns to individual stocks, we focus on the predictive R^2 and individual stock application of their model.[18] We implement both the restricted and unrestricted versions of their model. The restricted model only uses latent risk factors and loadings on these factors to predict returns. The unrestricted model also allows for intercepts that are functions of the instruments, thereby admitting the possibility that expected returns depend on characteristics in a way that is not explained by time-varying exposures to latent factors.

[18] Kelly, Pruitt and Su (2019) also report results for managed portfolios of stocks, and a total R^2 statistic that uses information in the full sample, rather than just relying on prior data.

In Table A12 of the Internet Appendix, we present the results of the IPCA analysis implemented using the C14 characteristics. We obtain a predictive R^2 of 0.5% from the unconstrained implementation of the IPCA model, and a predictive R^2 of 0.1% from the constrained version. The predictive R^2 estimates do not increase as we allow for varying numbers of latent factors, from one to five.

By comparison, Kelly, Pruitt, and Su report (in their Table 1) unrestricted predictive R^2 statistics for individual stocks that range from 0.72% to 0.76%, and restricted predictive R^2 statistics that increase from 0.35% with one factor to 0.68% with five factors. That is, the Kelly, Pruitt, and Su results for individual U.S. stocks imply that the constraint that characteristics predict only latent factor betas but not alphas with respect to those factors becomes less binding as more factors are allowed and is inconsequential when five latent factors are allowed for. In contrast, our results do not indicate an increase in restricted predictive R^2 statistics or converge towards the unrestricted statistic as the number of factors increases. The implication is that the C14 factors primarily forecast returns in the global sample because they forecast alphas with respect to the latent factors identified by IPCA.

We assess whether the IPCA method can explain why the C14 characteristics are successful in explaining returns after corporate events. In Table 8 we report results that compare the performance of the size and market-book matched benchmarks, as well as the C14 benchmarks against benchmarks derived from the IPCA model. Specifically, we use benchmark returns from an unrestricted predictive two-factor model in Column (4), an unrestricted predictive five-factor model in Column (5), an unrestricted total two-factor model in Column (6), and an unrestricted total five-factor model in Column (7). If time variation in firm exposures to latent risk factors accounts for the C14 model's success, then the expected returns from the IPCA analysis should help explain the post-event returns.

In Table 8 we report results obtained when we use fitted values from the IPCA implementation in the role of benchmark returns. The IPCA benchmark has only limited success in explaining log returns (Panel A) or simple returns (Panel B) to event firms in the months after the six corporate events. We report results obtained when expected returns are obtained from two (columns 4 and 6) and five-factor (columns 5 and 7) IPCA models, when the IPCA estimation is purely predictive (columns 4 and 5) as well as when the full sample is used for estimation (columns 6 and 7).

The IPCA model has a degree of success, in that the AACs obtained are smaller than in raw returns. Focusing on log returns (Panel A of Table 8), AACs from the five-factor IPCA models are slightly smaller than those obtained by the matching procedure. The predictive model, results reported in Column (5), can explain the returns to post-split event firms, and the total R2 model, results reported in Column (7), is able to explain the returns to the post-MA event firms.

However, the lowest AAC obtained based on IPCA methods is 0.223 (column (5), for a five-factor IPCA that is based on full-sample estimation), while the C14 model gives an AAC of 0.100 (column (3)). Further, the hypothesis that the AAC equals zero is rejected (p-value of 0.0001 or less) for each version of the IPCA model. Similar results are obtained for simple returns (Panel B of Table 8).

On balance, these results indicate that the ability of the C14 model to explain post-event returns does not arise because these characteristics proxy for time-varying exposures to the latent factors identified by IPCA methods. However, since the IPCA method allows for time variation in factor exposures but not in factor risk premia, the hypothesis that the C14 characteristics proxy for changes in equilibrium expected returns is not definitively rejected.

6. Conclusions

We study a broad cross-section of 51,802 stocks from fifty-eight non-U.S. countries, 38,529 of which have participated in one or more of a group of six commonly studied corporate events. We assess whether firm characteristics that have been shown to possess forecast power for individual U.S. stock returns are also effective as predictors of returns to non-U.S. stocks. We document that the firm characteristics that Lewellen (2015) shows to have significant forecast power for next-month returns to U.S. stocks also forecast returns to international stocks. We also document that average returns in the months after a set of six corporate events studied, collectively, appear to be abnormal using traditional event study approaches to measure abnormal returns. In particular, we focus on 36-month post-event periods, and document that average post-event log returns to event firms appear to be unusually large after dividend initiations and share repurchases announcements, and abnormally low after IPOs, SEOs, mergers/acquisitions, and stock splits.

Importantly, we show that these apparently abnormal post-event returns can be explained by event firm characteristics.   More specifically, the excess of event firm returns over returns predicted based on relations between firm characteristics and returns estimated using all firms in the country on average does not differ significantly from zero. This broad finding holds not only for the full sample, but also for subsamples defined based on firm size, time period, geographic region, and for firms from both developed and emerging economies. Our results, therefore, support the conclusion that no firm or event-specific explanation is necessary to explain returns during the thirty-six months after the six corporate events we study in our global sample.

We also investigate whether characteristics have greater explanatory power for stock returns at the local level (i.e., the country level) or at the global level. We find that characteristics' explanatory power for returns is greater at the country level. In addition, the ability of the C14 factors to explain post-event returns is degraded if the relation between returns and characteristics is estimated on a regional or global basis instead of at the country level. That is, while a firm or event-specific explanation is not required, a country-specific explanation for the relation between firm returns and characteristics is required to explain post-event abnormal returns.

We find that characteristics' explanatory power for stock returns varies greatly across the fifty-eight financial markets. Characteristics have greater explanatory power for post-event abnormal returns in larger, less volatile, and less segmented economies.

Lastly, we assess whether firm characteristics are proxies for covariance risks in global markets. We find that estimating expected returns based on the IPCA method of Kelly, Pruitt, and Su (2019) also does not explain post-event outcomes. That is, the C14 characteristics are successful in explaining post-event returns not because they serve as instruments for firm exposures to latent priced risk factors. However, the IPCA method does not allow for time variation in the risk premia associated with factors, so the question of why the C14 characteristics predict returns remains open.

Overall, our findings show a lack of post-event average abnormal returns across our extensive international sample. This suggests that many established conclusions from event studies, especially those related to abnormal returns and their implications for theories of managerial and investor behavior, as well as corporate finance, may require reevaluation.

Appendix I: Sample Selection, Error Filters, and Selection of Matched Control Stocks

1. Sample Selection for the Six Corporate Events

We obtain data on four of the six corporate events from the SDC Platinum databases. We identify firms engaging in completed mergers and acquisitions based on the criteria that the deal must be a merger (SDC form "Merger"), acquisition of majority interest ("Acq. Maj. Int."), acquisition of remaining interest ("Acq. Rem. Int."), or acquisition of partial interest ("Acq. Part. Int."). Following Betton, Eckbo, and Thorburn (2008), we require the acquisition to be a control bid, i.e., the acquirer owns less than 50% of the target firm at the announcement date and intends to own more than 50% of the targe firm after the transaction. In addition, to exclude small transactions that will not have material impacts on the acquirer's performance, we require that the transaction value must be more than $5 million and more than 5% of the acquirer's market capitalization at the month-end before deal announcement. Our sample contains 14,698 mergers and acquisitions from 1996 to 2020.

The SEOs and IPOs samples are also retrieved from SDC Platinum. We exclude SEOs and IPOs without valid offer prices. The sample includes 86,538 SEOs and 14,405 IPOs from 1996 to 2020.

We identify share repurchases from the SDC merger and acquisition database with a deal form of "buyback." Since SDC might record multiple announcements of the same repurchase from different sources (Banyi, Dyl, and Kahle, 2008), we only keep the first announcement in those cases where a firm announces multiple share repurchases in the same month. The sample consists of 17,400 share repurchase announcements between 1996 and 2020. Some firms may regularly announce share repurchase programs anticipated by investors. Such regular share repurchase announcements may reduce the magnitudes of post-repurchase stock returns documented in this and prior studies.

We identify initiations of cash dividends from the dividend file of the Compustat Global database, requiring that the security that receives the cash dividend has been listed in the database for more than two years following Michaely, Thaler, and Womack (1995) and Boehme and Sorescu (2002). The sample contains 5,896 dividend initiations between 1996 and 2020.

We retrieve the ex-dividend date of stock splits from the Compustat Global database. We use the ex-dividend date as the event date for stock splits because the Compustat Global database does not report the declaration date for stock splits. We require the split rate to be at least 1.25 (corresponding to a five-for-four split) because mini stock splits with a split factor below 1.25 are usually distributed as stock dividends (Bessembinder, Cooper, and Zhang, 2019). The sample has 25,564 stock splits over the period 1996-2020.

2. Error Filters

Our sample focuses on common stocks that are identified by Compustat Global as the primary security of the underlying firm and assign stocks to countries based on the country of their stock exchange. All variables are measured in US dollars (based on exchange rates from Compustat Global) so that they are comparable across countries. We compute daily stock returns using the following variables from Compustat Global: *prccd* (daily price), *ajexdi* (daily adjustment factor), *exratd* (exchange rate) and *trfd* (daily total return factor). We compound daily stock returns to calculate monthly stock returns. Stocks in a country are subject to the same exchange rate, and thus using US dollar-based stock returns will not affect the inferences of post-event stock returns. To alleviate the influence of data errors in the international data and reduce potential biases arising from low-price and illiquid stocks, prior studies usually winsorize stock return data and exclude illiquid stocks (e.g, Hou, Karolyi, and Kho, 2011; Jensen, Kelly, and Pedersen, 2021). Following these studies, we winsorize stock returns at 0.1% and 99.9% within each country and exclude stocks with less than $1 million market cap or with less than $0.01 share price at the previous month end. We also require at least 50 valid observations in a country-month when estimating the regression of stock returns on one-month lagged firm characteristics.

3. Selection of Matched Control Stocks

For each sample firm other than IPO firms, we select a matching firm within the same country based on firm size and book-to-market ratio following the procedure of Bessembinder, Cooper, and Zhang (2019). In each month, the matching stock is the one with the closest book-to-market ratio among the stocks with market capitalization between 70% and 130% of the stock in question. Market capitalization equals stock price times the number of shares outstanding at the previous month-end. Book-to-market ratio is the ratio of the firm's common equity (data item *prccd* times *cshoc* in Compustat) in the latest annual financial statement to its market capitalization at the end of the last month. Book equity is assumed to be available six months after the firm's fiscal year-end.

Appendix II: Definition of the C5 and C14 Firm Characteristics

We measure these characteristics following Lewellen (2015). All variables are created using data from the Compustat Global database. Accounting data are assumed to be available six months after the fiscal year end.

	Characteristics in the C5 Model
Log Size	Natural log of market capitalization, which is stock price (*prccd*) times number of shares outstanding (*cshoc*), at the end of the prior month.
Log BM	Natural log of the book-to-market ratio at the end of the prior month. Book value is the firm's common equity (Compustat item *ceq*) in the latest annual report. Market value is the firm's market capitalization (*prccd* times *cshoc* in Compustat) at the end of the prior month reported in CRSP.
Momentum	Buy-and-hold stock returns over months (-12, -2) before the month of interest.
ROA	Income before extraordinary items (*ib*) divided by average total assets (*at*) in the year.
Asset Growth	Natural log of the ratio of total assets (*at*) at the end of the year to total assets at the beginning of the year, following Cooper, Gulen, and Schill (2008).
	Additional Nine Characteristics in the C14 Model
Beta	Market beta estimated using monthly excess stock returns and country market risk premiums over the preceding 60 months. We require a minimum of six data points for the accuracy of the estimation.
Accrual	Change in working capital from the last year minus depreciation and amortization (*dp*), divided by average total assets (*at*) in the year, following Sloan (1996). Working capital equals current assets (*act*) minus cash and short-term investment (*che*) minus current liabilities (*lct*) plus debt in current liabilities (*dlc*) plus income taxes payable (*txp*). Missing *act*, *che*, *lct*, *dlc*, *txp*, and *dp* are replaced with zero.
Dividend	Dividends per share over the prior 12 months divided by the price at the end of the prior month.
Log LR Return	Natural log of buy-and-hold stock returns over months (-13, -36) before the month of interest.
Idiosyncratic risk	In each month, we compute the standard deviation of the residual daily stock returns when regressing stock returns on country market factor. Idiosyncratic risk is the average standard deviation over the prior 12 months.
Illiquidity	The average daily ratio of absolute stock return to dollar trading volume during the prior 12 months, as defined by Amihud (2002).
Turnover	Average monthly turnover (shares traded divided by shares outstanding) during the prior 12 months.
Leverage	Debt in current liabilities (*dlc*) plus long-term debt (*dltt*), divided by market capitalization (*prccd* times *cshoc* in Compustat) at the end of the last month. Missing *dlc* and *dltt* are replaced with zero.
Sales/Price	Sales (*sale*) divided by market capitalization (*prccd* times *cshoc* in Compustat) at the end of the last month.

Appendix III: List of Countries and Assigned Regions

Region	Country	Region	Country
Asia Developed	Japan	Europe Developed	Italy
Asia Developed	South Korea	Europe Developed	Netherlands
Asia Developed	Singapore	Europe Developed	Norway
Asia Developed	Hong Kong, China	Europe Developed	Portugal
Asia Developed	Taiwan, China	Europe Developed	Sweden
Asia Emerging	Bangladesh	Europe Emerging	Bulgaria
Asia Emerging	China	Europe Emerging	Croatia
Asia Emerging	Indonesia	Europe Emerging	Poland
Asia Emerging	India	Europe Emerging	Romania
Asia Emerging	Sri Lanka	Europe Emerging	Russia
Asia Emerging	Malaysia	Europe Emerging	Turkey
Asia Emerging	Pakistan	Latin America	Argentina
Asia Emerging	Philippines	Latin America	Brazil
Asia Emerging	Thailand	Latin America	Chile
Asia Emerging	Vietnam	Latin America	Mexico
Australasia	Australia	Latin America	Peru
Australasia	New Zealand	Middle East & Africa	United Arab Emirates
Canada	Canada	Middle East & Africa	Egypt
Europe Developed	Austria	Middle East & Africa	Israel
Europe Developed	Belgium	Middle East & Africa	Jordan
Europe Developed	Switzerland	Middle East & Africa	Kenya
Europe Developed	Cyprus	Middle East & Africa	Kuwait
Europe Developed	Germany	Middle East & Africa	Morocco
Europe Developed	Denmark	Middle East & Africa	Mauritius
Europe Developed	Spain	Middle East & Africa	Nigeria
Europe Developed	Finland	Middle East & Africa	Oman
Europe Developed	France	Middle East & Africa	Saudi Arabia
Europe Developed	United Kingdom	Middle East & Africa	Tunisia
Europe Developed	Greece	Middle East & Africa	South Africa

Appendix IV: Summary of Studies of the Six Corporate Events in Non-U.S. Countries

Panel A: Summary of the findings of the international studies

	Dividend initiation	Split	IPO	SEO	M&A	Share repurchase
# papers	1	6	31	7	12	19
# country-events studied	1	6	52	7	13	21
# studies, returns ≥ 0	1	2	6	1	4	17
% studies, returns ≥ 0	100.0%	33.3%	11.5%	14.3%	30.8%	81.0%
# studies, returns ≥ 0 & sig.	1	1	4	1	2	9
% studies, returns ≥ 0 & sig.	100.0%	16.7%	7.7%	14.3%	15.4%	42.9%
# studies, returns < 0	0	4	46	6	9	4
% studies, returns < 0	0.0%	66.7%	88.5%	85.7%	69.2%	19.0%
# studies, returns < 0 & sig.	0	3	33	6	5	3
% studies, returns < 0 & sig.	0.0%	50.0%	63.5%	85.7%	38.5%	14.3%

Panel B: Summary of the findings of studies of dividend initiations

Author	Region	Period	Sample size	Long-run returns	Event window	Measure
How et al. (2011)	Australia	1992-2004	272	51.31%***	3 years	BHAR w.r.t. size match
How et al. (2011)	Australia	1992-2004	223	79.65%***	5 years	BHAR w.r.t. size match
How et al. (2011)	Australia	1992-2004	332	0.662%***	3 years	Monthly FF3 alpha of return spread between portfolio of dividend initiators and portfolio of control firms
How et al. (2011)	Australia	1992-2004	332	2.527%***	5 years	Monthly FF3 alpha of return spread between portfolio of dividend initiators and portfolio of control firms

Panel C: Summary of the findings of studies of stock splits

Author	Region	Period	Sample size	Long-run returns	Event window	Measure
Bodhanwala (2016)	India	2006-2014	519	2.00%	30 days	Cumulative average CAPM-adjusted return
Byun and Jo (2007)	Korea	1998-2002	109	-31.15%***	3 years	BHAR w.r.t. market
Jog and Zhu (2008)	Canada	1970-2002	836	7.0%***	3 years	Cumulative average market-adjusted return
Jog and Zhu (2008)	Canada	1970-2002	836	10.0%**	5 years	Cumulative average market-adjusted return
Kim et al. (2012)	Korea	1999-2009	281	-30.9%***	1 year	BHAR w.r.t. market
Mwangi (2009)	Kenya	2000-2005	11	-6.55%***	3 years	BHAR w.r.t. size portfolio
Tosiriwatanapong et al. (2020)	Thailand	2009-2018	96	-5.65%	30 days	Cumulative average CAPM-adjusted return

Panel D: Summary of the findings of studies of IPOs

Author	Region	Period	Sample size	Long-run returns	Event window	Measure
Aggarwal et al. (1993)	Brazil	1980-1990	48	0.53*	3 years	Wealth ratio w.r.t. market
Aggarwal et al. (1993)	Chile	1982-1990	18	0.76	3 years	Wealth ratio w.r.t. market
Aggarwal et al. (1993)	Mexico	1987-1990	38	0.80*	1 year	Wealth ratio w.r.t. market
Alvarez and Gonzalez (2005)	Spain	1987-1997	37	-25.47%	3 years	BHAR w.r.t. size-BM match
Bhatia and Singh (2010)	India	1992-2001	438	-21.15%***	3 years	BHAR w.r.t. market
Brounen and Eicholtz (2002)	France	1984-1999	17	-10.76%***	1 year	BHAR w.r.t. market
Brounen and Eicholtz (2002)	Sweden	1984-1999	13	22.16%*	1 year	BHAR w.r.t. market
Brounen and Eicholtz (2002)	UK	1984-1999	24	-5.83%	1 year	BHAR w.r.t. market
Brown (1999)	UK	1990-1995	232	-0.91%	3 years	BHAR w.r.t. market
Chipeta and Jardine (2014)	South Africa	1996-2010	154	-52.01%***	3 years	Cumulative average market-adjusted return
Doeswijk et al. (2006)	Netherlands	1977-2001	154	-10.00%	3 years	BHAR w.r.t. market
Drobetz et al. (2005)	Switzerland	1983-2000	87	-1.69%	3 years	BHAR w.r.t. market
Duque and Almeida (2000)	Portugal	1992-1998	21	-16.27%	1 year	BHAR w.r.t. market
Ehrhardt (2003)	Germany	1970-1990	105	-8.09%	3 years	BHAR w.r.t. size match
Espenlaub et al. (2000)	UK	1985-1992	588	-0.804%***	3 years	Monthly FF3 alpha
Finn and Higham (1988)	Ausralia	1966-1978	93	-4.40%	11 months	Cumulative average market-adjusted return
Gajewski and Gresse (2006)	Austria	1995-2004	23	-31.98	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	Belgium	1995-2004	58	14.98	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	Finland	1995-2004	44	-61.47%***	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	France	1995-2004	363	-36.33%***	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	Germany	1995-2004	415	-53.69%***	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	Greece	1995-2004	183	38.10%*	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	Italy	1995-2004	135	-30.47%***	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	Neitherlands	1995-2004	47	-18.81%	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	Poland	1995-2004	95	-30.71%***	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	Portugal	1995-2004	16	-19.24%	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	Spain	1995-2004	36	-29.30%***	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	Sweden	1995-2004	95	-47.61%***	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	Switzerland	1995-2004	61	-27.10%***	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	Turkey	1995-2004	79	-191.51%***	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	UK	1995-2004	454	-27.74%***	3 years	BHAR w.r.t. market
Gajewski and Gresse (2006)	15 European countries	1995-2004	2104	-32.61%***	3 years	BHAR w.r.t. market

Jakobsen and Sorensen (2001)	Denmark	1984-1992	76	-13.1%*	5 years	BHAR w.r.t. size match
Jelic and Briston (2003)	Poland	1991-1999	165	-37.83%**	3 years	Cumulative average market-adjusted return
Keloharju (1993)	Finland	1984-1989	79	-26.4%***	3 years	Cumulative average market-adjusted return
Khurshed et al. (1999)	UK	1991-1995	240	-17.81%***	3 years	BHAR w.r.t. marekt return
Kim et al. (1995)	Korea	1985-1989	169	91.59%***	3 years	BHAR w.r.t. industry-size match
Kunz and Aggarwal (1993)	Switzerland	1983-1989	42	-6.10%	3 years	BHAR w.r.t. market return
Lee et al. (1996)	Ausralia	1976-1989	266	-51.259%***	3 years	Cumulative average market-adjusted return
Leleux and Muzyka (1997)	France	1987-1991	56	-29.2%**	3 years	Cumulative market-adjusted return
Leleux and Muzyka (1997)	UK	1987-1991	220	-21.8%**	3 years	Cumulative market-adjusted return
Levis (1993)	UK	1980-1988	712	-22.96%***	3 years	Cumulative market-adjusted return
Liu et al. (2012)	China	2000-2007	627	-44.7%***	3 years	BHAR w.r.t. size-BM match
Ljungqvist (1997)	Germany	1970-1993	189	-12.1%***	3 years	BHAR w.r.t. market
Nounis (2004)	Greece	1994-2001	233	16.35%***	1 year	BHAR w.r.t. market
Schlag and Wodrich (2000)	Germany	1884-1914	182	-0.13%***	5 years	BHAR w.r.t. industry index
Schuster (2003)	France, Germany, Italy, Netherlands, Spain, Sweden, Switzerland	1988-1998	973	0.99***	5 years	Wealth ratio w.r.t. market
Seitibraimov (2012)	Russia	1996-2010	78	-47.34%***	3 years	BHAR w.r.t. market
Seitibraimov (2012)	Ukrain	1996-2010	16	-100.02%***	3 years	BHAR w.r.t. market
Seitibraimov (2012)	Kazakhstan	1996-2010	16	-45.92%***	3 years	BHAR w.r.t. market
Seitibraimov (2012)	Russia, Ukrain, Kazakhstan	1996-2010	112	-65.15%***	3 years	BHAR w.r.t. market
Stehle et al. (2000)	Germany	1960-1992	187	1.54%	3 years	BHAR w.r.t. market
Su and Bangassa (2011)	China	2001-2008	590	-21.74%***	3 years	BHAR w.r.t. market
Suherman and Buchdadi (2007)	Indonesia	2001-2005	37	-75.63%***	2 years	BHAR w.r.t. market

Panel E: Summary of the findings of studies of SEOs

Author	Region	Period	Sample size	Long-run returns	Event window	Measure
Dong et al. (2012)	Canada	1998-2007	1,125	-6.20%***	60 days	Cumulative market-adjusted return
Du et al. (2016)	China	1998-2010	216	10.2%*	3 years	BHAR w.r.t. industry-size match
Huang et al. (2016)	China	2006-2014	101	-0.21%***	2 months	Daily market-adjusted returns
Ikenberry et al. (2000)	Canada	1989-1997	1,060	-1.887***	3 years	Monthly FF3 alpha
Marsh (1979)	UK	1962-1975	254	-2.2%***	2 years	CARs w.r.t. size match
McLean et al. (2009)	41 countries	1981-2006	3,007,248	-0.54%***	1 month	Coefficient on annual equity issuance in the regression of monthly return
Stehle et al. (2000)	Germany	1960-1992	584	-3.17%	3 years	BHAR w.r.t. market

Panel F: Summary of the findings of studies of mergers and acquisitions

Author	Region	Period	Sample size	Long-run returns	Event window	Measure
Chakrabarti (2008)	India	2000-2007	388	55.65%	3 years	Cumulative market-adjusted return
Chakrabarti et al. (2008)	43 countries	1991-2004	1157 cross-border M&As	9.0%**	3 years	BHAR w.r.t. market
Chi et al. (2011)	China	1998-2003	1148	0.03%	6 months after M&A announcement	BHAR w.r.t. market
Conn et al. (2005)	UK	1984-1998	4344	-0.21%	3 years	Monthly portfolio return of acquirers minus monthly portfolio return of size/BM matching firms.
Conn et al. (2005)	UK	1984-1998	4344	-9.02%	3 years	BHAR w.r.t. size-BM match
Danbolt (1995)	UK	1986-1991	50 cross-border M&As of public UK targets	-4.77%**	5 months after M&A announcement	Cumulative market-adjusted return
Eckbo and Thorburn (2000)	Canada	1964-1983	1261	-0.63%***	1 year after M&A announcement	Average monthly CAPM-adjusted return
Francoeur (2006)	Canada	1990-2000	301	-29.75%	3 years	BHAR w.r.t. industry-size-BM match
Francoeur (2006)	Canada	1990-2000	118	16.22%	5 years	BHAR w.r.t. industry-size-BM match
Francoeur (2006)	Canada	1990-2000	551	-0.06%	3 years	Monthly FF3 alpha
Francoeur (2006)	Canada	1990-2000	551	-0.02%	5 years	Monthly FF3 alpha
Gregory and McCorriston (2005)	UK	1984-1994	333 cross-border M&As by UK firms	-9.29%	5 years	BHAR w.r.t. size-BM portfolio
Kyriazis (2010)	Greece	1993-2006	86	-2.29%***	3 years	Average monthly FF3 alpha across acquirers
Lamba and Tripathi (2015)	India	1998-2009	N/A	-43.63%***	1 year after M&A announcement	Cumulative average CAPM-adjusted return
Sudarsanam and Mahate (2003)	UK	1983-1995	519	-8.71%***	3 years after M&A announcement	Compound market-adjusted return
Zhou et al. (2015)	China	1994-2008	825	23.36%***	2 years after M&A announcement	BHAR w.r.t. reference portfolio

Panel G: Summary of the findings of studies of share repurchases

Author	Region	Period	Sample size	Long-run returns	Event window	Measure
Agarwalla et al. (2015)	India	1998-2012	176	1.23%	2 years	Monthly Carhart4 alpha
Agarwalla et al. (2015)	India	1998-2012	176	0.58%	3 years	Monthly Carhart4 alpha
Agarwalla et al. (2015)	India	1998-2012	129	-4.47%	2 years	BHAR w.r.t. size-BM portfolio
Agarwalla et al. (2015)	India	1998-2012	114	-8.94%	3 years	BHAR w.r.t. size-BM portfolio
Akyol and Foo (2013)	Australia	1998-2008	761	2.53%	1 year	BHAR w.r.t. size-BM match
Akyol and Foo (2013)	Australia	1998-2008	629	7.46%	2 years	BHAR w.r.t. size-BM match
Akyol and Foo (2013)	Australia	1998-2008	495	6.27%	3 years	BHAR w.r.t. size-BM match
Albaity and Said (2016)	Malaysia	2009-2010	221	-0.41%***	3 years	Monthly FF3 alpha
Albaity and Said (2016)	Malaysia	2009-2010	221	4.14%	3 years	BHAR w.r.t. market
Andriosopoulos and Lasfer (2015)	UK	1997-2006	513	0.91%*	20 days	Cumulative market-adjusted return
Andriosopoulos and Lasfer (2015)	France	1997-2006	263	-0.67%	20 days	Cumulative market-adjusted return
Andriosopoulos and Lasfer (2015)	Germany	1997-2006	194	0.09%	20 days	Cumulative market-adjusted return
Castro and Yoshinaga (2019)	Brazil	2003-2014	412	0.617%***	3 years	Monthly FF3 alpha
Chen et al. (2011)	Taiwan	2000-2008	948	26.65%	1 year	BHAR w.r.t. market
Dong et al. (2012)	Canada	1998-2007	1033	1.70%**	60 days	Cumulative market-adjusted return
Hsu et al. (2016)	Taiwan	2000-2013	3676	0.764%***	3 years	Monthly Carhart4 alpha
Ikenberry et al. (2000)	Canada	1989-1997	1060	0.587%***	3 years	Monthly FF3 alpha
Latif et al. (2013)	Malaysia	1999-2006	77	16.24%	3 years	BHAR w.r.t. size-BM match
Lee et al. (2005)	Korea	1994-2000	268	-0.27%	3 years	Monthly FF3 alpha
Rau and Vermaelen (2002)	UK	1980-1998	57	-7.01%*	1 year	Cumulative abnormal returns
Seal and Matharu (2018)	India	1999-2009	145	71.10%***	3 years	BHAR w.r.t. market
Seal and Matharu (2018)	India	1999-2009	145	129.30%***	5 years	BHAR w.r.t. market
Seal and Matharu (2018)	India	1999-2009	145	-49.60%	3 years	BHAR w.r.t. industry-size match
Seal and Matharu (2018)	India	1999-2009	145	-66.70%	5 years	BHAR w.r.t. industry-size match
Su and Lin (2012)	Taiwan	2000-2003	303	-1.745%***	3 years	Monthly Carhart4 alpha
Su and Lin (2012)	Taiwan	2000-2003	303	6.20%	3 years	BHAR w.r.t. industry-size-BM match
Wada (2005)	Japan	1995-2001	1425	16.5%**	1 year	Cumulative market-adjusted return
Wang et al. (2013)	Taiwan	2000-2010	3022	0.50%**	3 years	Monthly FF3 alpha
Wang et al. (2013)	Taiwan	2000-2010	3022	38.83***	3 years	BHAR w.r.t. market
Wang et al. (2020)	Vietnam	2008-2016	268	7.92%**	1 year	BHAR w.r.t. industry peers
Wesson et al. (2014)	South Africa	1999-2009	195	29.18%	2 years	Cumulative abnormal returns
Zhang (2005)	Hong Kong	1993-1997	800	-1.10%	3 years	BHAR w.r.t. size-BM match

Appendix V: Extensions and Robustness Tests

We report in this Appendix the results of a series of robustness tests and extensions, focusing these tests on the 36-month period after each event, log returns, and the C14 characteristics.

Pooled Estimation

Our baseline empirical approach is to estimate equation (3) by the Fama-MacBeth method, where the cross-sectional regression is estimated each month and final coefficient estimates are obtained as the time series averages of the monthly coefficients. The Fama-MacBeth method therefore places equal weight each time period, and by extension places relatively greater weight on events that occur during periods with few other events. An alternative approach that has been used in prior studies is to obtain results based on the pooled panel of observations, which effectively places equal weight on each event in the sample.[19]

Table A6 reports results that correspond to those in Panel A of Table 4, except that we rely on pooled estimation with region and time (monthly) fixed effects rather than the Fama-MacBeth approach to estimate equation (3). The results reported on Table A6 are very similar to those on Panel A of Table 4. Using pooled estimation and a zero benchmark (Column (1)) the mean absolute coefficient estimate is 0.50%, compared to 0.52% using the Fama-MacBeth method, and the mean absolute coefficient is statistically significant with p-value below 0.0001. Five of the six coefficient estimates on the indicator variables are significant at the 0.01 level and the coefficient on the post-acquisition indicator is significant at the 0.10 level in Column (1) of Table A6, implying that apparently abnormal log returns exist after all six events.

[19] Prior studies, e.g., Fama (1998), Loughran and Ritter (2000), and Eckbo, Masulis, and Norli (2007), have debated on whether researchers should assign equal weights to each firm-event or to each time period. Assigning equal weight to each period (as in the Fama-MacBeth regression) can lower the test power if post-event abnormal returns concentrate in certain periods.

The mean absolute coefficient estimate obtained by pooled estimation is reduced to 0.28% per month (Column (2)) when the benchmark is the return on firms matched by size and market-to-book, to 0.21% per month (Column (3)) when the benchmark return is based on relations between returns and the C5 characteristics estimated for all firms in the country, and to 0.10% per month (Column (6)) when the benchmark return is based on relations between returns and the C14 characteristics estimated for all firms in the country. These average coefficients in Table A6 are very similar to the corresponding estimates obtained using the Fama-MacBeth method and reported in Panel A of Table 4. Further, the hypothesis that all six indicator variable coefficients are equal to zero is not rejected when relying on the C14 characteristics to estimate benchmark returns (p-value = 0.181). On balance, the results in Table A6 imply that the C14 characteristics can explain the apparently abnormal returns following the six corporate events, no matter when we assign equal weights to each period or to each firm event.

Firm Size

We next assess the extent to which our central results are consistent across firms of differing sizes. Previous researchers have documented substantive differences in characteristic-based return predictability and in corporate event study returns across firm sizes (Ikenberry, Lakonishok, and Vermaelen, 1995; Fama and French, 2008; and Ritter, 2011). There are also strong firm size effects reported in international asset pricing studies (Fama and French, 2017; Gao, Parsons, and Shen, 2018; and Jacobs and Muller, 2020) and in international event studies (Keloharju, 1993; Khurshed, Mudambi, and Goergen, 1999; Bhatia and Singh, 2010).

We estimate equation (3) separately for large and small firms, where a firm is deemed to be small if its month *t-1* market capitalization is less than the median market capitalization of firms in the same country and the same month. Results obtained when the benchmark return is set to zero, reported in Columns (1) and (4) of Panel A of Table A8, indicate the existence of apparently abnormal returns for both large and small firms, although magnitudes are greater for the latter. Specifically, the average absolute coefficient estimate across the six event indicators is 0.42% per month for large firms and 0.60% per month for small firms, and the hypothesis that all six coefficients equal zero is rejected for both large and small firms with p-values smaller than 0.0001. The apparently abnormal log return for small firms exceeds 0.50% per month in absolute magnitude for four (dividend initiations, IPOs, SEOs, and mergers/acquisitions) of the six events studied. Deducting the return for size and book-to-market control firms reduces the magnitude of the apparently abnormal returns to 0.25% per month for large firms (Column 2 of Table A8 Panel A) and 0.36% per month for small firms (Column 5), but the hypothesis that all six indicator variable coefficients equal zero is rejected for both large and small firms, with each p-value smaller than 0.0001.

Using the predicted return obtained by implementing equations (1) and (2) using the C14 characteristics further reduces the average absolute coefficient estimate on the six indicator variables to 0.17% per month (Column 3) for large firms and 0.13% per month for small firms (Column 6). The hypothesis that all six coefficients equal zero is rejected for large firms (p-value = 0.012) but not for small firms (p-value = 0.166). Notably, the coefficient estimate on the post-acquisition indicator is statistically significant for both large and small firms but have different signs, being 0.1076 for large firms (Column 3) and -0.2503 for small firms (Column 6). On balance, stock returns following the six corporate events vary across international stocks of large vs. small capitalization, and the C14 characteristics-based benchmark returns have explanatory power for post-event stock returns for both large and small firms.

Robustness Across Time

The results we report to this point are based on the full twenty-five year, 1996 to 2020 sample. We next assess the extent to which our central results have been consistent across calendar time by estimating equation (3) separately for 1996 to 2007 and 2008 to 2020 subsamples. Results are reported in Panel B of Table A8, and support the conclusion that the apparently abnormal average log returns after the six corporate events studied have declined by a moderate amount over time. Specifically, the mean absolute coefficient estimate when the benchmark return is zero decreased from 0.58% per month during the first half of the sample (Column (1)) to 0.39% per month during the second half (Column (4)). This decline occurred even though the coefficient estimate on the post-SEO indicator variable grew in absolute magnitude from -0.856% during the first subperiod to -0.984% during the more recent subperiod. Mean absolute coefficient estimates when the benchmark is the return on size and book-to-market matched firms decreased from 0.33% per month during the first half of the sample (Column (2)) to 0.25% per month during the second half (Column 5).

When equation (3) is implemented using fitted values from implementing equations (1) and (2) based on the C14 characteristics, the mean absolute coefficient estimate across the six indicators is reduced to 0.15% during the early subsample (Column (3)) and 0.06% during the later subsample (Column (6)). Notably, the coefficient estimate on the post-SEO indicator, which had grown in absolute value to -0.984% when no matching return was deducted, is reduced in absolute magnitude to only -0.114% per month by the C14 adjustment and becomes statistically insignificant.

Most importantly, while apparently abnormal returns after these six events are observed during both subsamples, as p-values for the hypothesis that all six indicator variable coefficients equal zero are less than 0.0001 in Columns (1), (2), (4), and (5), this hypothesis is not rejected during either subperiod when the expected return based on the C14 characteristics is deducted. P-values, reported in Columns (3) and (6) of Table A8, Panel B are 0.393 and 0.899 for the early and later subperiods, respectively. These results indicate that the central conclusion of this study that post-event returns are not abnormal in light of relations between returns and firm characteristics estimated for all firms in the country have been consistent over time.

Results for Geographic and Economic Development Subsamples

The results we report to this point are based on the full sample of 51,802 firms from fifty-eight countries that engage in at least one of the six corporate events. However, previous studies have documented substantive differences in event study returns across countries and regions (see the review in Appendix IV). We next examine how the results of our empirical approach vary across regions. We report on Table A7 results for subsamples broken out by geographic region and economic development. Panel A reports results for Asian firms from developed and emerging economies, Panel B for firms from Australasia and Canada, Panel C for European firms from developed and emerging economies, and Panel D for firms from Latin America as well as the Middle East and Africa.

The outcomes of tests of the hypothesis that coefficient estimates for all six event indicator variables jointly equal zero as previously described supported the conclusions that: (i) the hypothesis is rejected when the benchmark return in equation (3) is set to zero, that is, average returns after these six events are apparently abnormal, (ii) the hypothesis continues to be rejected when the realized return on stocks of matched size and market capitalization is deducted as the benchmark, that is, average returns remain abnormal, albeit smaller in magnitude, after allowing for matched stock returns, and (iii) the hypothesis is no longer rejected when C14-based benchmark returns are deducted, that is, returns to event firms are not abnormal after allowing for event firm characteristics and relations between returns and characteristics estimated for all firms in the country. The results reported on Table A7 show that the conclusions (i), (ii), and (iii) are each supported in all eight geographic and development-based subsamples.

For all eight subsamples, the hypothesis that the six indicator variable coefficients are jointly zero is rejected when the benchmark return is set to zero (Columns (1) and (4)). P-values are uniformly less than 0.001, with the exception of the Latin America and Middle East and Africa subsamples (Panel D), where p-values are about 0.065. That is, apparently abnormal returns exist after these six events in all eight subsamples.

Estimates for specific events are not entirely uniform, however. Point estimates indicate negative abnormal returns after SEOs and positive abnormal returns after repurchases for all eight subsamples. Abnormal returns are negative after IPOs for seven of the eight subsamples, the lone exception being for Latin American firms. Point estimates indicate positive abnormal returns after dividend initiations for six of the eight subsamples, the exceptions being Latin American and Middle East/Africa firms. Abnormal returns are negative after stock splits for every region except Canada. Abnormal returns after mergers/acquisitions are more mixed, being negative in five subsamples, but positive in three (Canada, developed European countries, and Latin America).

The hypothesis that the six indicator variable coefficients are jointly zero continues to be rejected for all eight subsamples when the benchmark is the return on size and book-to-market matched firms (Columns (2) and (5)). P-values are less than 0.001 for five of the subsamples, the exceptions being the emerging European, Latin American, and Middle East/Africa subsamples, where the p-values are less than 0.05. That is, the results for each subsample indicate that the comparison to returns on size and book-to-market matched firms reduces but does not eliminate the apparently abnormal post-event returns.

Finally, the results of the test of the hypothesis that all six indicator variable coefficients equal zero as reported in Columns (3) and (6) of Table A7 indicate, for all eight subsamples, that the C14 expected return benchmark explains the apparently abnormal returns after the six corporate events. P-values range from 0.187 for developed-economy European firms to 0.822 for Latin American firms. That is, the results reported in Table A7 indicate that, while apparently abnormal returns after the six corporate events we study are observed in all eight geographic and development-based subsamples, these returns are for all subsamples explained by event firm characteristics in combination with estimates of the relations between firm returns and characteristics estimated from the broader market.

Results for Individual Countries

Besides the analysis for different geographic regions and for countries in different stages of economic development in the last subsection, we also study post-event stock returns for each of the 34 countries with at least 300 corporate events in the sample. The estimation results reported in Table A9 in the Internet Appendix reveal that the AAC based on size-and-BM matched firms is statistically significant at the 5% level for 16 of the 34 countries (47%), and that none of the coefficient estimates on the six post-event indicators are statistically significant for only three of the remaining 18 countries. That is, event firms earn apparently abnormal post-event returns as compared to their size/BM-matched firms in most of the 34 countries. In contrast, for only 4 of the 34 countries (12%) the AAC is statistically insignificant at the 5% level based on the C14 benchmark returns. The cross-country average AAC p-value increases from 13.6% based on the size/BM-matched benchmark to 47.3% based on the C14 benchmark returns. The increase in the p-value is even more notable (from 5.0% to 32.4%) when we weight the p-value by the number of corporate events in the countries. Figure 2 also visualizes the economic magnitude of the AAC for each country decreases when the C14 factors are used to define the benchmark returns. On balance, these results indicate that the C14 benchmark helps explain post-event stock returns for individual countries and for the pooled sample of countries.

Benchmark that Allows for Different Characteristic-Return Relation Post Event

The results so far presume that the characteristic-return relation is the same for event and non-event firms. To accommodate the possibility that such relations differ, we add interaction variables for the 14 characteristics and the post-event indicator to equation (1). The Fama-MacBeth regression results, reported in Table A10 Panel A in the Internet Appendix, show that event firm returns are more responsive to momentum and idiosyncratic risk. The resulting C14 benchmark returns are modestly more effective in explaining post-event returns, as the AAC is reduced to 0.06% from 0.10% when we assume the same characteristic-return relation for all firms (see Table A10 Panel C). That is, while the hypothesis that the C14 characteristics can fully explain post-event returns is not rejected in either case, the fit is slightly better if the relation between firm returns and characteristics differs for event firms.

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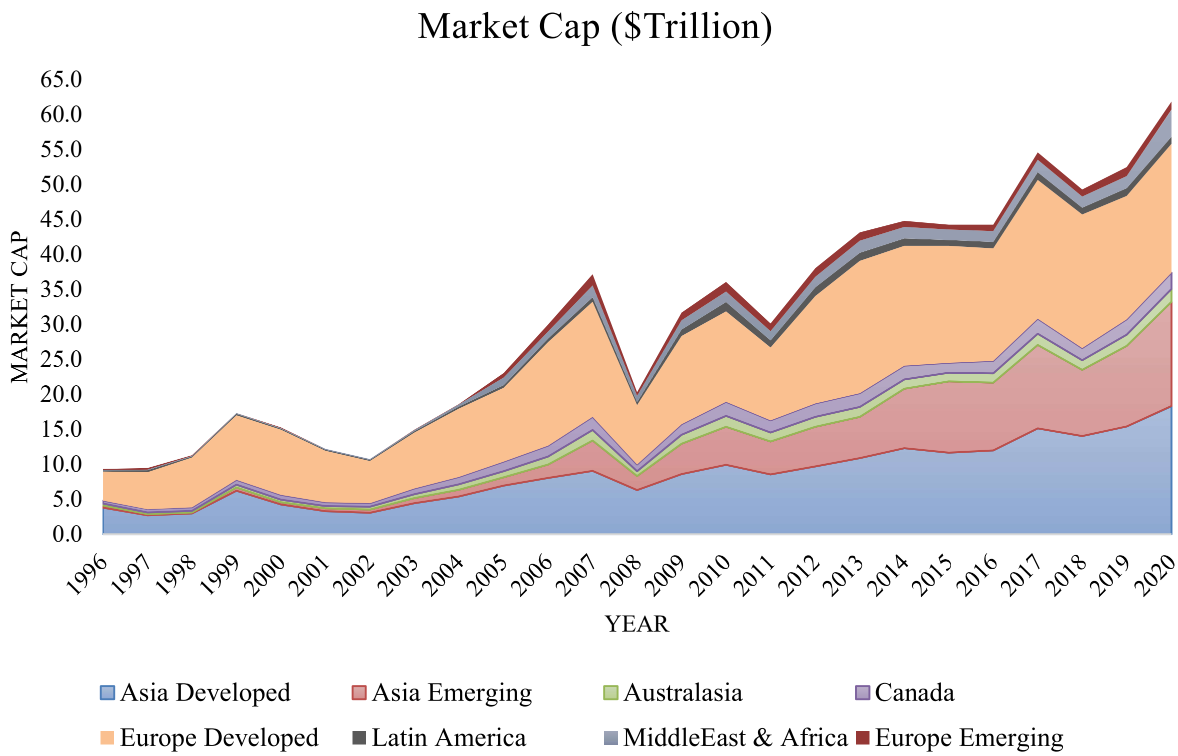

Figure 1
Market capitalization over time and by region, 1996 to 2020
This figure plots the aggregate market capitalization of common stocks in each geographic and economic region from 1996 to 2020.

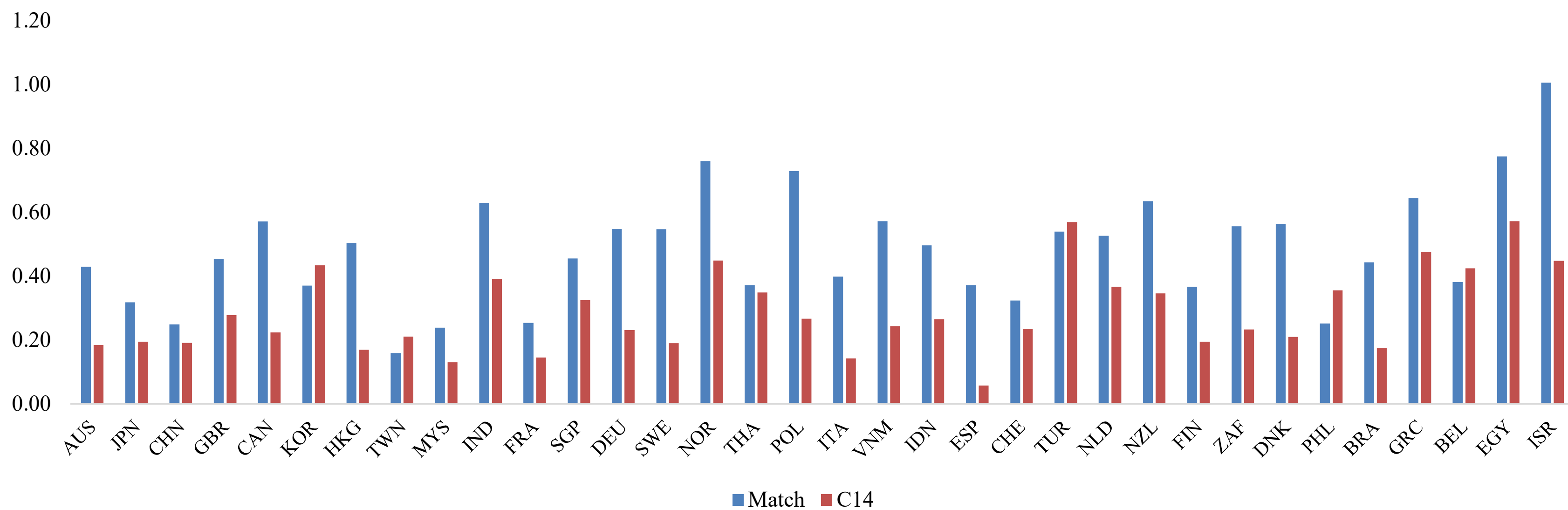

Figure 2

Average absolute coefficient on the six post-event dummies for individual countries

This figure plots the average absolute coefficient (AAC) on the six post-event dummies for the 34 countries with at least 300 corporate events. The horizontal axis is the ISO3 codes for the countries, while the vertical axis is the AAC using the size-and-book-to-market matched firms as the benchmark ("Match") and using the predicted returns based on the fourteen-characteristic model (C14) as the benchmark ("C14"). The coefficients are estimated from Fama-MacBeth regressions of benchmark-adjusted log returns on six post-event dummies and are reported in Table A9 in the Internet Appendix.

Table 1
Average coefficients on each firm characteristic across the sample period, January 1996 to December 2020

	(1)	(2)	(3)	(4)
	C5	C14	C5	C14
Dep. Var.	Simple return		Log return	
Log size	-0.1779***	-0.2103***	0.1196**	-0.1263*
	(-3.18)	(-3.38)	(2.41)	(-1.93)
Log Book-to-market	0.3169***	0.1997***	0.4407***	0.2229***
	(4.96)	(4.03)	(7.77)	(5.11)
Momentum	0.3632***	0.4193***	0.4515***	0.5253***
	(5.46)	(7.82)	(6.73)	(10.18)
ROA	0.2046***	0.1134***	0.4611***	0.2122***
	(4.46)	(3.54)	(11.41)	(6.87)
Asset growth	-0.1822***	-0.1129***	-0.2645***	-0.1614***
	(-5.18)	(-4.18)	(-6.67)	(-5.94)
Beta		0.0937		0.0205
		(1.57)		(0.34)
Accrual		-0.0903***		-0.1095***
		(-6.03)		(-7.16)
Dividend		0.0734***		0.1273***
		(3.06)		(5.18)
LR return		-0.0180		0.0535*
		(-0.60)		(1.78)
Idio risk		-0.2072***		-0.6992***
		(-4.11)		(-13.47)
Illiquidity		0.0797**		0.1354***
		(2.39)		(3.63)
Turnover		-0.2508***		-0.3369***
		(-7.30)		(-9.81)
Leverage		-0.0704**		-0.1860***
		(-2.17)		(-5.76)
Sales/price		0.1431***		0.1448***
		(5.95)		(5.81)
Constant	0.9090**	0.9023**	-0.3223	-0.3205
	(2.28)	(2.27)	(-0.80)	(-0.78)
Observations	6,177,896	4,620,048	6,177,896	4,620,048
R-squared	0.0122	0.0231	0.0131	0.0272
Number of months	300	300	300	300

Each month, we estimate cross-sectional regressions of monthly simple stock returns and log stock returns (percentage returns based on stock prices converted to US dollars) on firm characteristics measured at the end of the preceding month. This table presents the average coefficients over the sample period from January 1996 to December 2020. Firm characteristics are winsorized within each country-month at the upper and the lower 1% and are normalized by subtracting the mean and dividing by the standard deviation. The Fama-MacBeth standard errors are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. The associated t - statistics are reported in the parentheses below each coefficient. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 2
Predicted stock return and realized stock return

	(1)	(2)	(3)	(4)
	C5	C14	C5	C14
Dependent var.	Simple return		Log return	
Predicted return	0.2965***	0.2347***	0.3794***	0.3470***
	(5.52)	(5.53)	(7.05)	(7.95)
Constant	0.4761	0.5565*	-0.2005	-0.2034
	(1.47)	(1.66)	(-0.65)	(-0.63)
N	6,177,896	4,620,048	6,177,896	4,620,048
R-squared	0.0208	0.0184	0.0235	0.0230
Number of months	300	300	300	300

This table presents the results of Fama-MacBeth regressions where the dependent variable is the realized monthly simple or log return and the explanatory variable is the predicted simple or log return. The predicted simple (log) return for the stocks in each country is obtained from the regression of month t simple (log) returns on month t-1 characteristics specified in Table 1 (the five-characteristic model (C5) or the fourteen-characteristic model (C14)) using all available stocks in this country. The predicted simple or log return for month t is the average regression intercept over the prior twelve months plus the sum of products of average slope coefficients over the prior twelve months and month t-1 characteristics. See Appendix I for definitions of the characteristics. The Fama-MacBeth standard errors are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. T-statistics for tests of whether the estimated coefficient equals zero are reported in parentheses. Superscripts ***, **, and * correspond to statistical significance at the one, five, and ten percent levels, respectively.

Table 3
Number of corporate events

Panel A: Sample Sizes by geographic and economic region

	Return Data		Number of Corporate Events					
Region	Number Unique Stocks	Number Monthly Returns	Dividend initiation	Stock split	IPO	SEO	Merger and acquisition	Share repurchase
Asia Developed	13,959	2,158,996	1,273	6,678	4,808	20,744	3,593	7,620
Asia Emerging	13,000	1,469,705	1,660	11,825	3,550	11,210	2,918	1,641
Australasia	3,264	333,345	288	515	1,385	26,421	1,209	1,119
Canada	3,654	305,326	545	415	317	4,814	1,565	3,122
Europe Developed	12,191	1,323,249	1,184	3,719	3,506	19,978	4,541	2,996
Europe Emerging	2,235	200,113	381	1,039	391	1,124	280	277
Latin America	813	93,018	104	296	152	812	218	360
Middle East & Africa	2,686	294,144	461	1,077	296	1,435	374	265
Total	51,802	6,177,896	5,896	25,564	14,405	86,538	14,698	17,400

Panel B: Number of corporate events by year

Year	Number Monthly Returns	Dividend initiation	Stock split	IPO	SEO	Merger and acquisition	Share repurchase	Total Number Events
1996	68,572	85	396	281	614	251	198	1,825
1997	76,790	111	572	321	717	277	282	2,280
1998	93,423	210	520	260	687	304	427	2,408
1999	119,844	184	720	513	1,061	440	582	3,500
2000	135,573	113	838	762	1,632	579	526	4,450
2001	145,599	113	587	407	1,738	456	463	3,764
2002	160,087	130	613	514	2,100	356	803	4,516
2003	166,826	407	707	564	2,476	343	1,175	5,672
2004	182,108	483	1,160	948	2,644	492	486	6,213
2005	202,186	355	1,060	914	2,557	598	491	5,975
2006	223,590	262	1,347	1,101	2,896	754	505	6,865
2007	248,921	295	1,206	1,293	3,839	841	681	8,155
2008	268,118	253	1,144	485	3,470	714	1,228	7,294
2009	278,366	246	947	436	5,835	539	1,132	9,135
2010	305,329	313	1,251	985	5,547	688	688	9,472
2011	316,488	316	1,468	802	4,403	680	1,034	8,703
2012	328,197	282	1,179	537	4,537	597	710	7,842
2013	336,824	291	1,413	495	5,160	619	596	8,574
2014	343,559	251	1,330	761	5,239	776	692	9,049
2015	347,846	256	1,568	830	5,524	946	930	10,054
2016	353,491	239	1,301	399	4,965	833	759	8,496
2017	361,968	226	1,240	267	5,356	789	588	8,466
2018	370,676	177	1,260	322	4,456	761	1,022	7,998
2019	372,070	168	911	162	4,351	658	713	6,963
2020	371,445	130	826	46	4,734	407	689	6,832
Total	6,177,896	5,896	25,564	14,405	86,538	14,698	17,400	164,501

This table reports the number of corporate events by year from 1996-2020 by geographic and economic region (Panel A) and by year (Panel B). We retrieve the samples of mergers and acquisitions, seasoned equity offerings, initial public offering, and share repurchases from the SDC Platinum database. The samples of dividend initiations and stock splits are constructed from the Compustat Global database. See Appendix II for details of sample construction.

Table 4
Post-event stock returns using different benchmarks

Panel A: Log Returns

	C5 Return Available			C14 Return Available					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Benchmark	None	Match	C5	None	Match	C14	(3) – (2)	(6) – (5)	(6) – (3)
Dependent var.	Log return – Benchmark log return						Difference in coefficients on post-event dummies		
Post-DI	0.3667***	0.2914***	0.1750**	0.3578***	0.3085***	0.1204	-0.1164	-0.1881**	-0.0546
	(4.61)	(6.09)	(2.34)	(4.29)	(5.50)	(1.49)	(-1.64)	(-2.47)	(-1.09)
Post-split	-0.3570***	-0.1298***	-0.2220**	-0.3011***	-0.1224**	-0.1083	-0.0923	0.0141	0.1137***
	(-3.35)	(-2.69)	(-2.22)	(-2.73)	(-2.35)	(-1.00)	(-1.02)	(0.14)	(2.65)
Post-IPO	-0.7156***	-0.2321**	-0.1628	-0.6330***	-0.2057*	-0.0484	0.0693	0.1573	0.1144
	(-3.90)	(-2.14)	(-1.06)	(-3.89)	(-1.69)	(-0.34)	(0.56)	(1.22)	(1.39)
Post-SEO	-0.8725***	-0.6358***	-0.4202***	-0.9226***	-0.6747***	-0.1596	0.2157***	0.5151***	0.2605***
	(-7.46)	(-8.77)	(-3.67)	(-7.50)	(-8.12)	(-1.34)	(2.66)	(5.43)	(8.96)
Post-MA	-0.0984	-0.1792***	-0.0534	-0.1241*	-0.1760***	-0.0067	0.1257**	0.1693***	0.0467**
	(-1.50)	(-4.18)	(-0.90)	(-1.83)	(-3.81)	(-0.11)	(2.21)	(2.83)	(2.40)
Post-rep	0.5527***	0.2555***	0.2540**	0.5372***	0.2395***	0.1594	-0.0015	-0.0801	-0.0946***
	(5.45)	(6.41)	(2.47)	(4.97)	(5.43)	(1.37)	(-0.02)	(-0.71)	(-3.76)
Constant	-0.0786	0.0789***	0.1200	-0.0589	0.0883***	0.0860			
	(-0.19)	(4.02)	(0.29)	(-0.14)	(3.37)	(0.21)			
Region FE	Y	Y	Y	Y	Y	Y			
Observations	6,177,896	6,161,811	6,177,896	4,620,048	4,611,384	4,620,048			
R-squared	0.0533	0.0013	0.0532	0.0568	0.0018	0.0565			
Number of months	300	300	300	300	300	300			
AAC	0.5192	0.2873	0.2146	0.4793	0.2878	0.1005	0.1035	0.1873	0.1141
Joint 6, p-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.3228	0.0011	0.0000	0.0000

Panel B: Simple Returns

	C5 Return Available			C14 Return Available					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Benchmark	None	Match	C5	None	Match	C14	(3) – (2)	(6) – (5)	(6) – (3)
Dependent var.	Simple return – Benchmark simple return						Difference in coefficients on post-event dummies		
Post-DI	0.2221***	0.1806***	0.1138	0.2015**	0.1717***	0.1046	-0.0668	-0.0671	-0.0092
	(2.64)	(3.64)	(1.45)	(2.35)	(2.92)	(1.22)	(-0.88)	(-0.83)	(-0.19)
Post-split	-0.2188**	-0.0317	-0.1099	-0.1877*	-0.0460	-0.0408	-0.0782	0.0052	0.0691*
	(-2.07)	(-0.64)	(-1.10)	(-1.70)	(-0.86)	(-0.38)	(-0.86)	(0.06)	(1.91)
Post-IPO	-0.4027**	-0.1260	-0.0371	-0.3377**	-0.0840	0.0737	0.0889	0.1577	0.1108
	(-2.45)	(-1.30)	(-0.25)	(-2.29)	(-0.72)	(0.54)	(0.82)	(1.38)	(1.34)
Post-SEO	-0.4919***	-0.3948***	-0.2392**	-0.5191***	-0.4208***	-0.1135	0.1555**	0.3072***	0.1257***
	(-4.43)	(-6.10)	(-2.14)	(-4.33)	(-5.63)	(-0.94)	(2.01)	(3.41)	(4.35)
Post-MA	-0.1978***	-0.0856**	-0.0250	-0.2328***	-0.0949**	-0.0128	0.0606	0.0822	0.0123
	(-3.02)	(-2.15)	(-0.42)	(-3.35)	(-2.11)	(-0.20)	(1.04)	(1.32)	(0.58)
Post-rep	0.1723*	0.1371***	0.1589	0.1380	0.1114***	0.1235	0.0218	0.0122	-0.0354
	(1.69)	(3.67)	(1.53)	(1.30)	(2.60)	(1.07)	(0.22)	(0.11)	(-1.42)
Constant	0.9492**	0.0287	0.0958	0.9444**	0.0358	0.0823			
	(2.37)	(1.63)	(0.24)	(2.36)	(1.46)	(0.21)			
Region FE	Y	Y	Y	Y	Y	Y			
Observations	6,177,896	6,161,811	6,177,896	4,620,048	4,611,384	4,620,048			
R-squared	0.0496	0.0012	0.0498	0.0528	0.0016	0.0527			
Number of months	300	300	300	300	300	300			
AAC	0.2843	0.1593	0.1140	0.2695	0.1548	0.0782	0.0786	0.1053	0.0604
Joint 6, p-value	0.0008	0.0000	0.1091	0.0068	0.0000	0.6776	0.1088	0.0014	0.0000

This table reports coefficients estimated from Fama-MacBeth regressions on six post-event dummies, which take the value of one during 36 months after the event and zero otherwise. We estimate the regressions using all stocks in the Compustat Global database over the period from Jan. 1996 to Dec. 2020 with available predicted log return based on the five-characteristic model (C5) (columns 1-3) or the fourteen-characteristic model (C14) (columns 4-6). The dependent variable in columns (1) and (4) is the realized monthly return. In the other columns, the dependent variable is the realized monthly return less the benchmark return. In columns (2) and (5), the benchmark is the realized return to the size-and-book-to-market matched firm. In columns (3) and (6), the benchmark is the predicted return obtained from the regression of month t returns on month t-1 characteristics specified in Table 1: the five-characteristic model (C5) or the fourteen-characteristic model (C14). The predicted return for the stocks in each country is obtained from the regression of month t returns on month t-1 characteristics specified in Table 1 using all available stocks in this country. The predicted return for month t is the average regression intercept over the prior twelve months plus the sum of products of average slope coefficients over the prior twelve months and month t-1 characteristics. AAC indicates the average absolute coefficient on the six post-event dummies. The last row reports the p-value of the joint test that the coefficients on all the six post-event dummies (or all the six coefficient differentials across models) are zero. We estimate each model for each month from January 1996 to December 2020, stack all the coefficients on the six post-event dummies (or all the six coefficient differentials across models), and regress them on six corresponding event dummies in an OLS regression (without a constant). We then conduct the F-test that all of the six coefficients are jointly zero. See Appendix I for definitions of the characteristics. The Fama-MacBeth standard errors for all columns are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. T-statistics are reported in parentheses. Superscripts ***, ** and * correspond to statistical significance at the one, five and ten percent levels, respectively.

Table 5
Coefficients on firm characteristics, country-by-country regression results

Panel A: Summary statistics of coefficient estimates on the firm characteristics across individual countries

	Mean	Median	Max	Min	SD	No. positive & significant	No. positive & insignificant	No. negative & significant	No. negative & insignificant
Log size	-0.19	-0.13	0.33	-0.92	0.27	0	10	12	21
Log Book-to-market	0.23	0.24	0.59	-0.34	0.19	20	20	1	2
Momentum	0.54	0.55	1.01	-0.26	0.31	32	10	0	1
ROA	0.34	0.21	1.20	0.00	0.30	21	22	0	0
Asset growth	-0.14	-0.15	0.31	-0.41	0.15	1	5	14	23
Beta	-0.09	-0.07	0.26	-1.12	0.23	0	15	2	26
Accrual	-0.15	-0.15	0.00	-0.52	0.10	0	2	19	22
Dividend	0.19	0.12	1.63	-0.20	0.34	12	20	0	11
LR return	0.01	0.02	0.45	-0.71	0.17	2	24	3	14
Idio risk	-0.66	-0.58	0.00	-1.82	0.43	0	1	32	10
Illiquidity	-0.15	0.09	1.94	-10.35	1.73	8	19	0	16
Turnover	-0.57	-0.35	0.08	-10.04	1.49	0	1	28	14
Leverage	-0.13	-0.15	2.47	-1.06	0.53	0	11	14	18
Sales/price	0.13	0.16	0.64	-1.74	0.35	16	21	1	5
AAC-equation1	0.33	0.28	1.71	0.15	0.26				
R2	0.22	0.21	0.35	0.07	0.09				

Panel B: Country attributes and the average absolute coefficients and R-squared from the first-stage regression

	(1) AAC-equation1	(2) R-squared
Country market cap $_{t-1}$	-0.0010***	-0.0409***
	(-3.85)	(-5.94)
GDP per capita $_{t-1}$	0.0009***	0.0127*
	(3.18)	(1.75)
Country market turnover $_{t-1}$	-0.0005	-0.0163
	(-1.36)	(-1.10)
Country market return volatility $_{t-1}$	0.0318**	0.0012
	(2.59)	(0.00)
Segmentation $_{t-1}$	0.0183	0.4327
	(1.32)	(1.35)
Constant	0.0216***	1.1656***
	(3.35)	(6.25)
Year FE	Y	Y
R-squared	0.1309	0.3678
Observations	770	770

Each month, we estimate cross-sectional regressions of monthly log stock returns (percentage returns based on stock prices converted to US dollars) on the 14 firm characteristics measured at the end of the preceding month for each country. Table A11 presents the average coefficients over the sample period from January 1996 to December 2020 for each country. Panel A of this table presents summary statistics of the coefficient estimates on the 14 firm characteristics across the countries. AAC is the average absolute value of the 14 coefficients. Firm characteristics are winsorized within each country-month at the upper and the lower 1% and are normalized by subtracting the mean and dividing by the standard deviation. The Fama-MacBeth standard errors are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. Panel B of this table presents the pooled OLS regressions, where the dependent variable is the average absolute coefficients (AAC-equation1) and the average R-squared of the 12 monthly cross-sectional regressions mentioned above for each country in each year from 1996 to 2020. The explanatory variables are country attributes measured at the end of the last year. Country market cap is the stock market capitalization of a country. GDP per capita is gross domestic product divided by midyear population. Country market turnover ratio is the value of domestic shares traded divided by their market capitalization. Country market return volatility is the standard deviation of a country's stock market monthly returns in a year. Segmentation is the market segmentation measure for each country based on Bekaert, Harvey, Lundblad, and Siegel (2011). We cluster standard errors by market in Panel B. T-statistics are reported in parentheses. Superscripts ***, **, and * correspond to statistical significance at the one, five and ten percent levels, respectively.

Table 6
Post-event stock returns using characteristics-based benchmark returns computed at the region level or the global level

	C14 Return Available							
	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)
Benchmark	None	Match	Country-level	Region-level	Global	(3) – (2)	(3) – (4)	(3) – (5)
Dependent var.	Log return – Benchmark log return					Difference in coefficients on post-event dummies		
Post-DI	0.3578***	0.3085***	0.1204	0.1884**	0.2712***	-0.1881**	-0.0680*	-0.1507***
	(4.29)	(5.50)	(1.49)	(2.28)	(3.36)	(-2.47)	(-1.68)	(-3.47)
Post-split	-0.3011***	-0.1224**	-0.1083	-0.1314	-0.1328	0.0141	0.0231	0.0245
	(-2.73)	(-2.35)	(-1.00)	(-1.23)	(-1.21)	(0.14)	(0.46)	(0.47)
Post-IPO	-0.6330***	-0.2057*	-0.0484	-0.3193**	-0.3310**	0.1573	0.2709***	0.2826***
	(-3.89)	(-1.69)	(-0.34)	(-2.23)	(-2.26)	(1.22)	(3.98)	(3.47)
Post-SEO	-0.9226***	-0.6747***	-0.1596	-0.2921***	-0.3284***	0.5151***	0.1324***	0.1688***
	(-7.50)	(-8.12)	(-1.34)	(-2.64)	(-2.99)	(5.43)	(4.70)	(4.78)
Post-MA	-0.1241*	-0.1760***	-0.0067	-0.0280	-0.0039	0.1693***	0.0213	-0.0028
	(-1.83)	(-3.81)	(-0.11)	(-0.43)	(-0.06)	(2.83)	(0.69)	(-0.08)
Post-rep	0.5372***	0.2395***	0.1594	0.1797	0.2663**	-0.0801	-0.0203	-0.1069**
	(4.97)	(5.43)	(1.37)	(1.60)	(2.37)	(-0.71)	(-0.43)	(-2.03)
Constant	-0.0589	0.0883***	0.0860	0.0896	0.1450			
	(-0.14)	(3.37)	(0.21)	(0.22)	(0.34)			
Region FE	Y	Y	Y	Y	Y			
Observations	4,620,048	4,611,384	4,620,048	4,620,048	4,620,048			
R-squared	0.0568	0.0018	0.0565	0.0577	0.0563			
Number of months	300	300	300	300	300			
AAC	0.4793	0.2878	0.1005	0.1898	0.2223	0.1873	0.0893	0.1227
Joint 6, p-value	0.0000	0.0000	0.3228	0.0020	0.0000	0.0000	0.0000	0.0000

This table reports coefficients estimated from Fama-MacBeth regressions on six post-event dummies, which take the value of one during the first 36 months after the event and zero otherwise. We estimate the regressions using all stocks in the Compustat Global database over the period from Jan. 1996 to Dec. 2020 with available predicted log return based on the fourteen-characteristic model (C14). The dependent variable in the first column is the realized monthly log return. In the second columns, the benchmark is the realized log return to the size-and-book-to-market matched firm. In the other columns, the dependent variable is the realized monthly log return less the benchmark log return. In the third column, the predicted return for the stocks in each country (See Table A4) is obtained from the regression of month t returns on month t-1 characteristics specified in Table 1 using all available stocks in a country. In the fourth column, the predicted log return for the stocks in each of the eight geographic and economic regions is obtained from the regression of month t log returns on month t-1 characteristics specified in Table 1 using all available stocks in this region. In the fifth column, the predicted log return for the stocks in our sample is obtained from the regression of month t log returns on month t-1 characteristics specified in Table 1 using all available stocks. The predicted log return for month t is the average regression intercept over the prior twelve months plus the sum of products of average slope coefficients over the prior twelve months and month t-1 characteristics. AAC indicates the average absolute coefficient on the six post-event dummies. The last row reports the p-value of the joint test that the coefficients on all the six post-event dummies (or all the six coefficient differentials across models) are zero. We estimate each model for each month from January 1996 to December 2020, stack all the coefficients (or all the six coefficient differentials across models) on the six post-event dummies, and regress them on six corresponding event dummies in an OLS regression (without a constant). We then conduct the F-test that all the six coefficients are jointly zero. See Appendix I for definitions of the characteristics. The Fama-MacBeth standard errors for all columns are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. T-statistics are reported in parentheses. Superscripts ***, ** and * correspond to statistical significance at the one, five and ten percent levels, respectively.

Table 7
Comparing Match and C14 model performance across countries

	(1) AAC-match	(2) AAC-C14
Country market cap $_{t-1}$	-0.2985***	-0.2513***
	(-8.12)	(-7.75)
GDP per capita $_{t-1}$	0.0324	0.0284
	(0.64)	(0.76)
Country market turnover $_{t-1}$	-0.1730**	-0.0511
	(-2.17)	(-0.87)
Country market return volatility $_{t-1}$	5.3873***	2.9168*
	(2.84)	(1.98)
Segmentation $_{t-1}$	1.0555	4.0356*
	(0.53)	(1.72)
Constant	9.0145***	7.3602***
	(8.91)	(7.14)
Year FE	Y	Y
R-squared	0.3895	0.3510
Observations	639	639

This table analyzes the performance of models in each country using country-level variables. We first estimate the coefficients on the six post-event dummies for each country-month and then compute the average coefficients for each post-event dummy for each country-year. In Column (1), the dependent variable is the average absolute coefficients of the six post-event dummies for each country-year using matched firms (AAC-match). In Column (2), the dependent variable is the average absolute coefficients of the six post-event dummies for each country-year using country-level C14 benchmarks (AAC-C14). Country market return volatility is the standard deviation of a country's stock market monthly returns in a year. Country market cap is the stock market capitalization of a country. GDP per capita is gross domestic product divided by midyear population. Country market turnover ratio is the value of domestic shares traded divided by their market capitalization. Segmentation is the market segmentation measure for each country based on Bekaert et al. (2011). We cluster the standard errors by market. T-statistics are reported in parentheses. Superscripts ***, **, and * correspond to statistical significance at the one, five and ten percent levels, respectively.

Table 8
Post-event stock returns using different benchmarks: IPCA risk factors

Panel A: Log returns

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Benchmark	None	Match	C14	IPCA_OOS _2 factors	IPCA_OOS _5 factors	IPCA_IS _2 factors	IPCA_IS _5 factors
Dependent var.	Log return – Benchmark log return						
Post-DI	0.3578***	0.3085***	0.1204	0.1486**	0.1683**	0.1773**	0.1948**
	(4.29)	(5.50)	(1.49)	(2.01)	(2.29)	(2.18)	(2.43)
Post-split	-0.3011***	-0.1224**	-0.1083	-0.2497**	-0.1384	-0.3051***	-0.2267**
	(-2.73)	(-2.35)	(-1.00)	(-2.31)	(-1.28)	(-2.83)	(-2.11)
Post-IPO	-0.6330***	-0.2057*	-0.0484	-0.3476**	-0.2799*	-0.4153***	-0.3998***
	(-3.89)	(-1.69)	(-0.34)	(-2.14)	(-1.77)	(-2.80)	(-2.71)
Post-SEO	-0.9226***	-0.6747***	-0.1596	-0.5868***	-0.3871***	-0.4121***	-0.2940**
	(-7.50)	(-8.12)	(-1.34)	(-4.45)	(-2.94)	(-3.48)	(-2.50)
Post-MA	-0.1241*	-0.1760***	-0.0067	-0.2557***	-0.1793***	-0.1981***	-0.1109
	(-1.83)	(-3.81)	(-0.11)	(-3.70)	(-2.60)	(-2.89)	(-1.64)
Post-rep	0.5372***	0.2395***	0.1594	0.1918*	0.1850*	0.1783*	0.2101*
	(4.97)	(5.43)	(1.37)	(1.75)	(1.69)	(1.67)	(1.95)
Constant	-0.0589	0.0883***	0.0860	1.1292***	1.0437***	0.0599	0.0200
	(-0.14)	(3.37)	(0.21)	(2.82)	(2.61)	(0.15)	(0.05)
Region FE	Y	Y	Y	Y	Y	Y	Y
Observations	4,620,048	4,611,384	4,620,048	4,453,813	4,453,813	4,620,048	4,620,048
R-squared	0.0568	0.0018	0.0565	0.0517	0.0516	0.0562	0.0562
Number of months	300	300	300	276	276	300	300
AAC	0.4793	0.2878	0.1005	0.2967	0.2230	0.2810	0.2394
Joint 6, p-value	0.0000	0.0000	0.3228	0.0000	0.0000	0.0000	0.0001

Panel B: Simple returns

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Benchmark	None	Match	C14	IPCA_OOS _2 factors	IPCA_OOS _5 factors	IPCA_IS _2 factors	IPCA_IS _5 factors
Dependent var.	Simple return – Benchmark simple return						
Post-DI	0.2015**	0.1717***	0.1046	0.1600**	0.1507*	0.1791**	0.1496*
	(2.35)	(2.92)	(1.22)	(2.07)	(1.93)	(2.12)	(1.77)
Post-split	-0.1877*	-0.0460	-0.0408	-0.2055*	-0.0805	-0.1984*	-0.1006
	(-1.70)	(-0.86)	(-0.38)	(-1.82)	(-0.72)	(-1.82)	(-0.93)
Post-IPO	-0.3377**	-0.0840	0.0737	-0.2263	-0.1409	-0.2839**	-0.2345*
	(-2.29)	(-0.72)	(0.54)	(-1.45)	(-0.92)	(-2.01)	(-1.69)
Post-SEO	-0.5191***	-0.4208***	-0.1135	-0.6074***	-0.3480***	-0.4504***	-0.2353**
	(-4.33)	(-5.63)	(-0.94)	(-4.54)	(-2.63)	(-3.78)	(-2.02)
Post-MA	-0.2328***	-0.0949**	-0.0128	-0.2905***	-0.1722**	-0.2332***	-0.1054
	(-3.35)	(-2.11)	(-0.20)	(-4.02)	(-2.42)	(-3.37)	(-1.54)
Post-rep	0.1380	0.1114***	0.1235	0.1879*	0.1851*	0.1740*	0.1955*
	(1.30)	(2.60)	(1.07)	(1.74)	(1.71)	(1.67)	(1.85)
Constant	0.9444**	0.0358	0.0823	0.8249**	0.7416*	0.0172	-0.0245
	(2.36)	(1.46)	(0.21)	(2.02)	(1.82)	(0.04)	(-0.06)
Region FE	Y	Y	Y	Y	Y	Y	Y
Observations	4,620,048	4,611,384	4,620,048	4,453,813	4,453,813	4,620,048	4,620,048
R-squared	0.0528	0.0016	0.0527	0.0476	0.0474	0.0526	0.0525
Number of months	300	300	300	276	276	300	300
AAC	0.2695	0.1548	0.0782	0.3035	0.1796	0.2532	0.1702
Joint 6, p-value	0.0068	0.0000	0.6776	0.0000	0.0026	0.0000	0.0117

This table reports coefficients estimated from Fama-MacBeth regressions of raw or benchmark-adjusted monthly stock returns on six post-event dummies, which take the value of one during 36 months after the event and zero otherwise. We estimate the regressions using all stocks in the Compustat Global database over the period from Jan. 1996 to Dec. 2020 with available predicted log return or simple return based on the fourteen-characteristic model (C14). The dependent variable in column (1) is the realized log (Panel A) or simple (Panel B) monthly return. In the other columns, the dependent variable is the realized monthly return less the benchmark return. In column (2), the benchmark is the realized return to the size-and-book-to-market matched firm. In column (3), the benchmark is the predicted return obtained from the regression of month t returns on month t-1 characteristics specified in Table 1: the fourteen-characteristic model (C14). The predicted return for the stocks in each country is obtained from the regression of month t returns on month t-1 characteristics specified in Table 1 using all available stocks in this country. The predicted return for month t is the average regression intercept over the prior twelve months plus the sum of products of average slope coefficients over the prior twelve months and month t-1 characteristics. In columns (4) and (5), the benchmark is the predicted returns from the out-of-sample (OOS) version of IPCA unrestricted models with two and five latent risk factors. In columns (6) and (7), the benchmark is the predicted returns from the in-sample version of IPCA unrestricted models with two and five latent risk factors. We estimate country-level IPCA models using observations in each country. AAC indicates the average absolute coefficient on the six post-event dummies. The last row reports the p-value of the joint test that the coefficients on all the six post-event dummies (or all the six coefficient differentials across models) are zero. We estimate each model for each month from January 1996 to December 2020, stack all the coefficients on the six post-event dummies (or all the six coefficient differentials across models), and regress them on six corresponding event dummies in an OLS regression (without a constant). We then conduct the F-test that all of the six coefficients are jointly zero. See Appendix I for definitions of the characteristics. The Fama-MacBeth standard errors for all columns are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. T-statistics are reported in parentheses. Superscripts ***, ** and * correspond to statistical significance at the one, five and ten percent levels, respectively.

Internet Appendix for

Firm Characteristics, Return Predictability, and Long-Run Abnormal Returns in Global Stock Markets

Additional Tables and Figures


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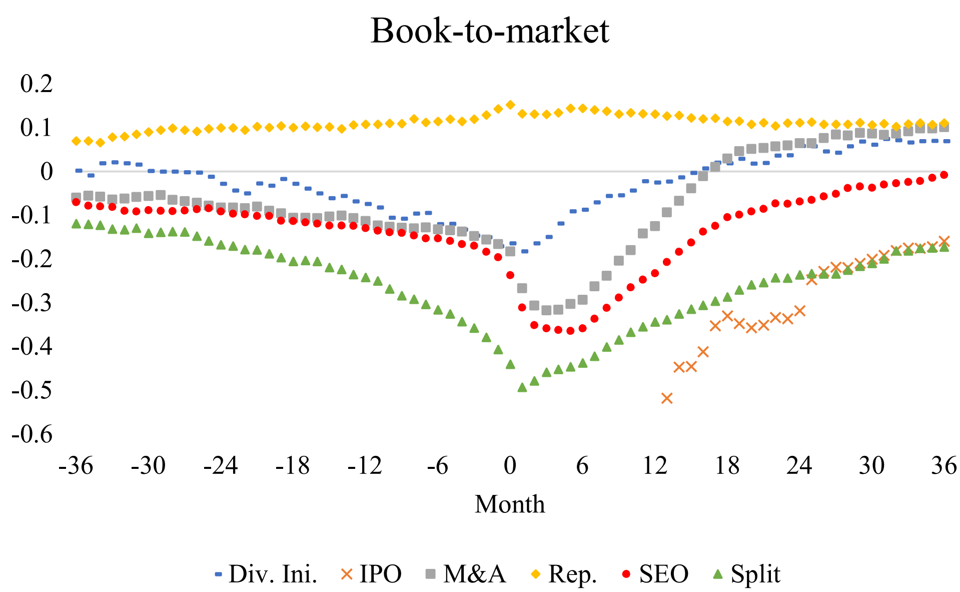
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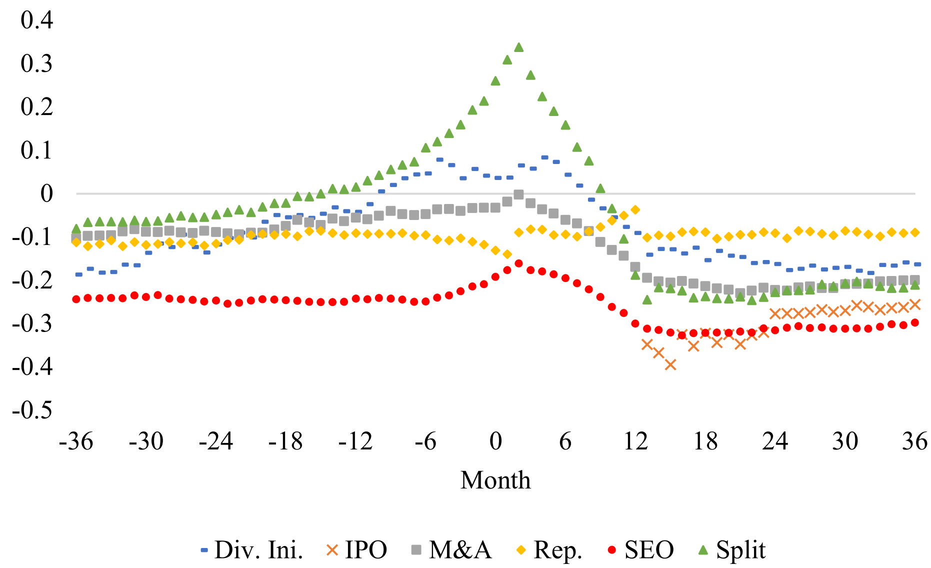

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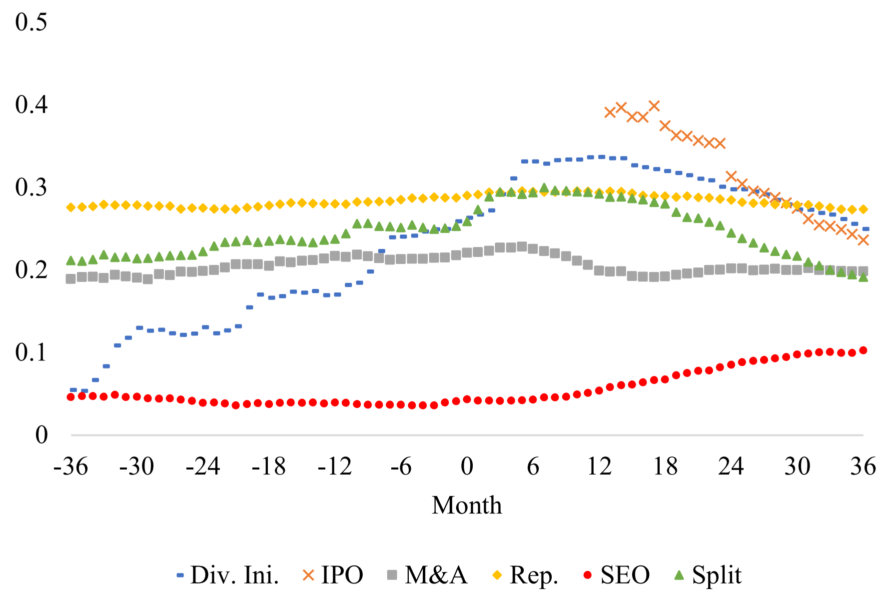

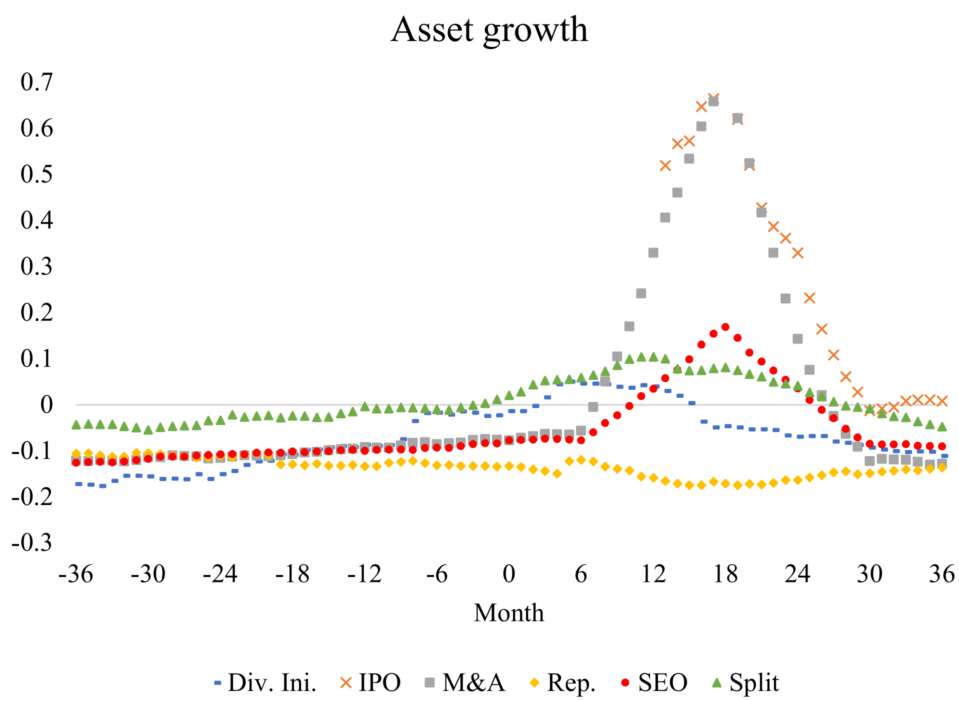

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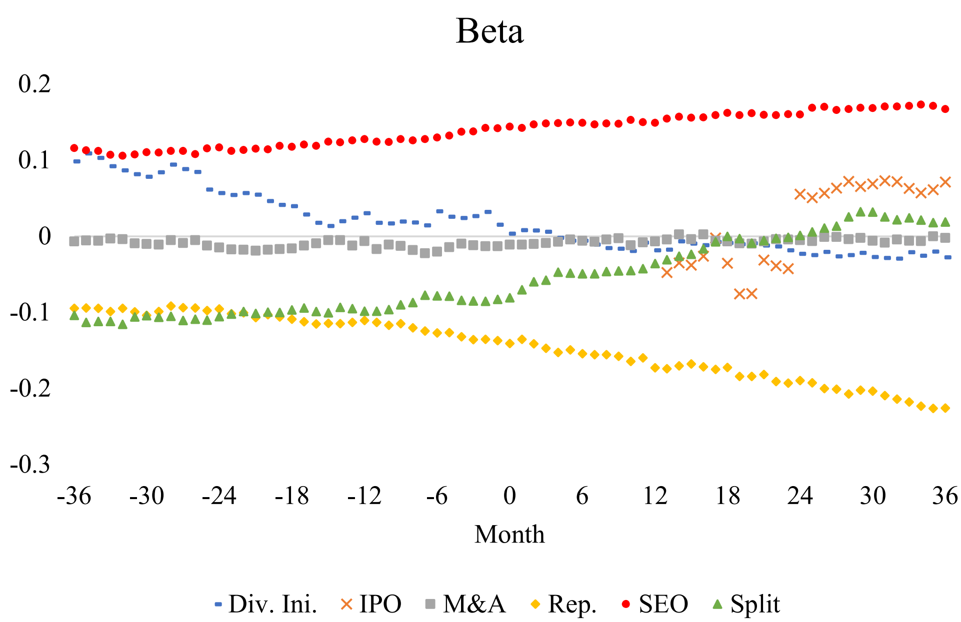

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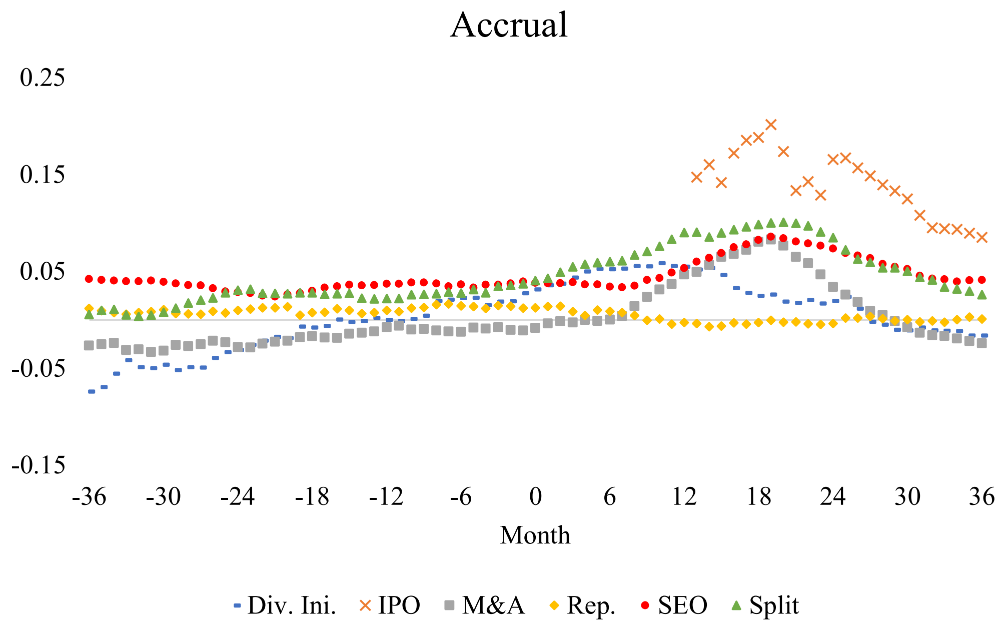
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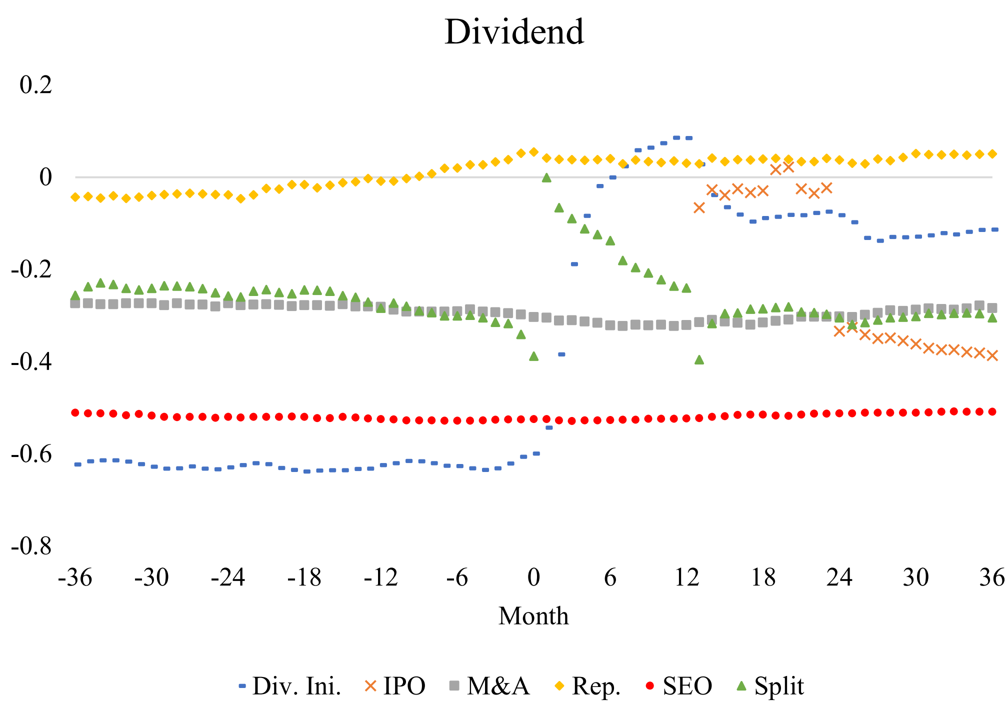
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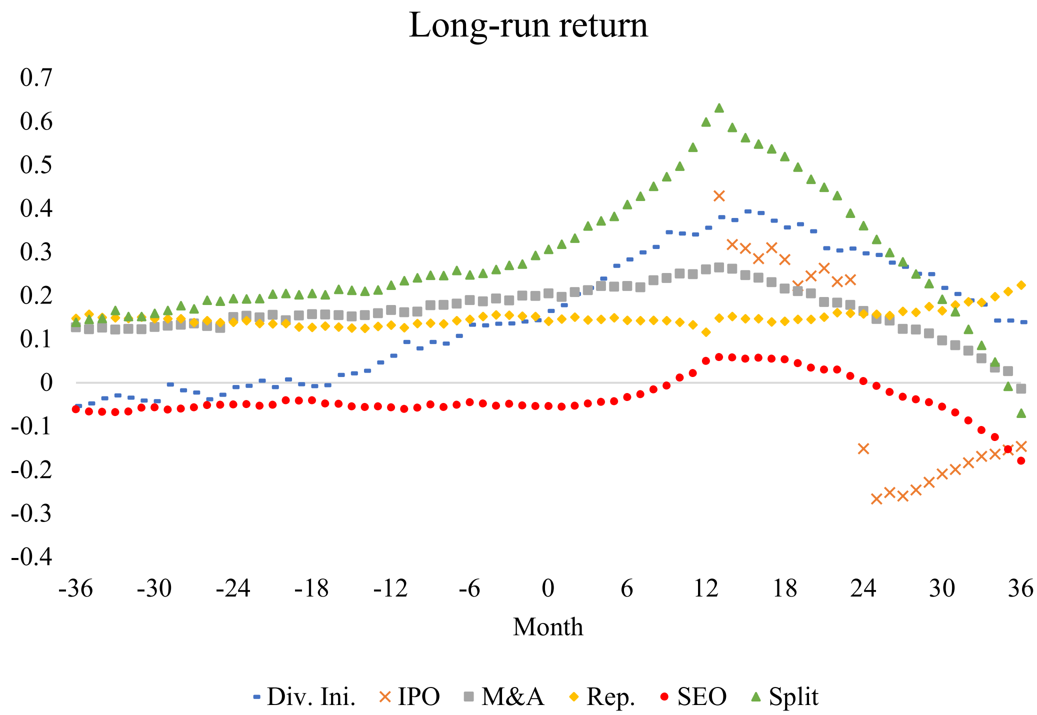
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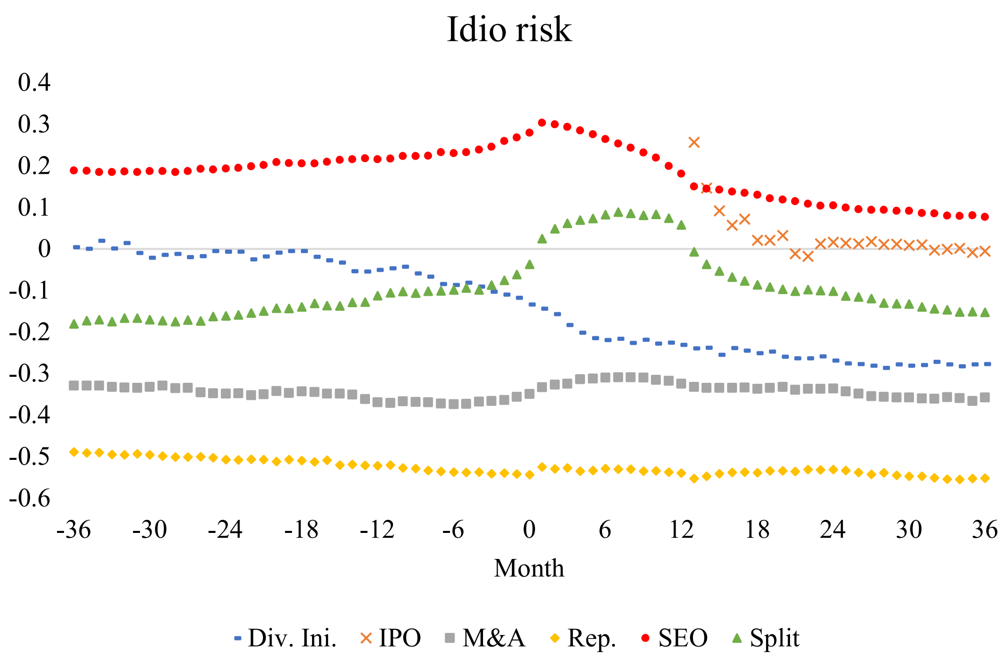
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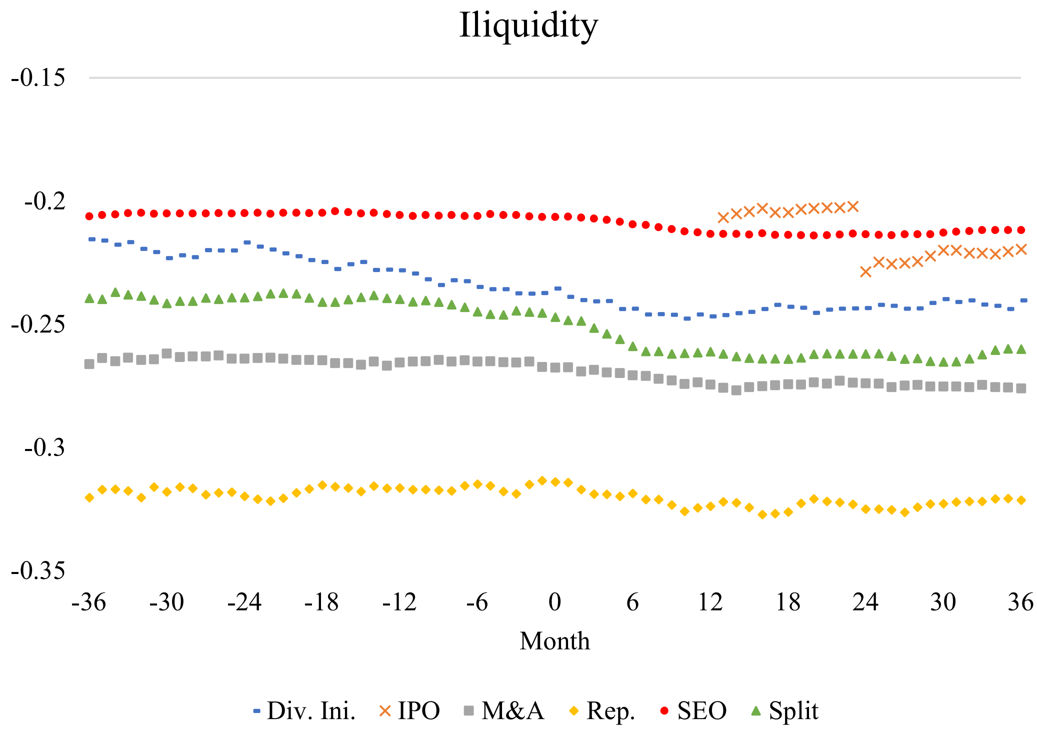
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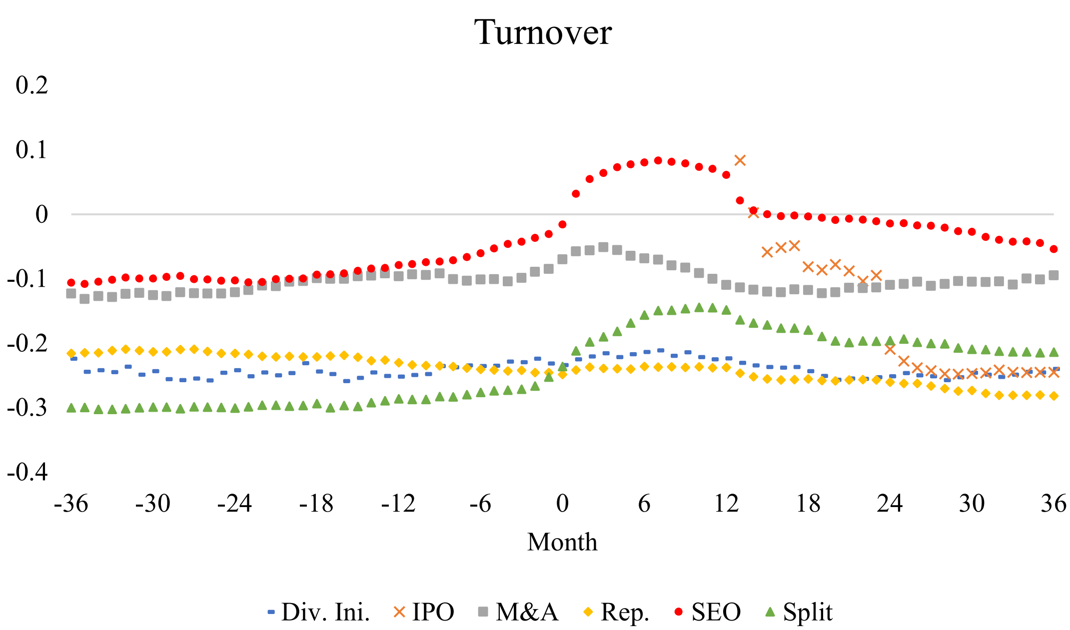
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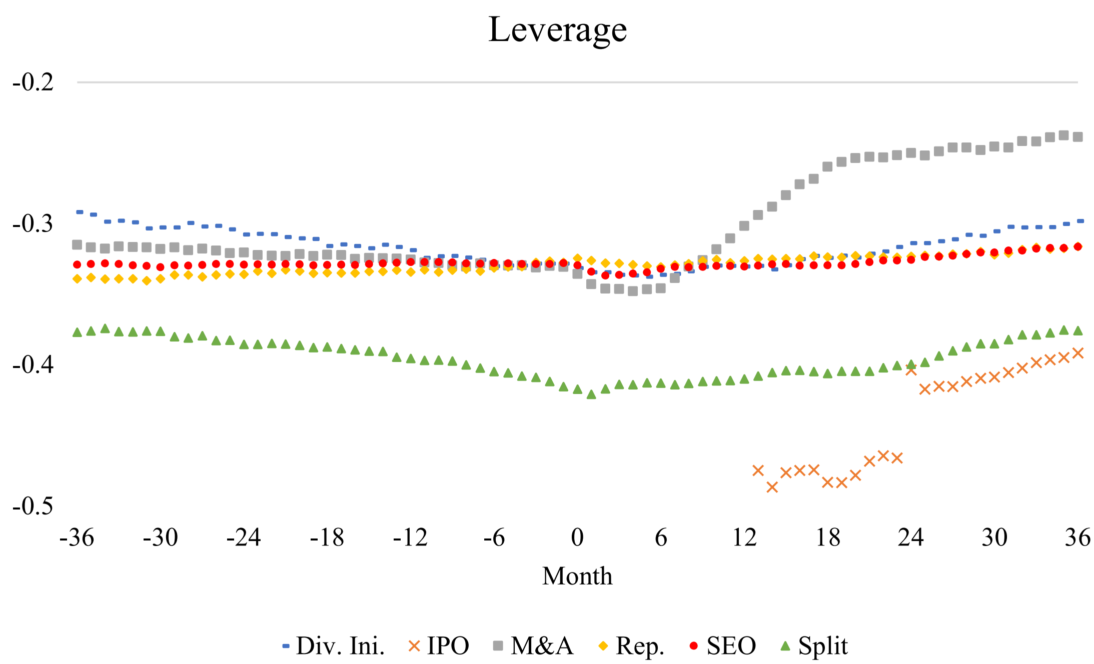

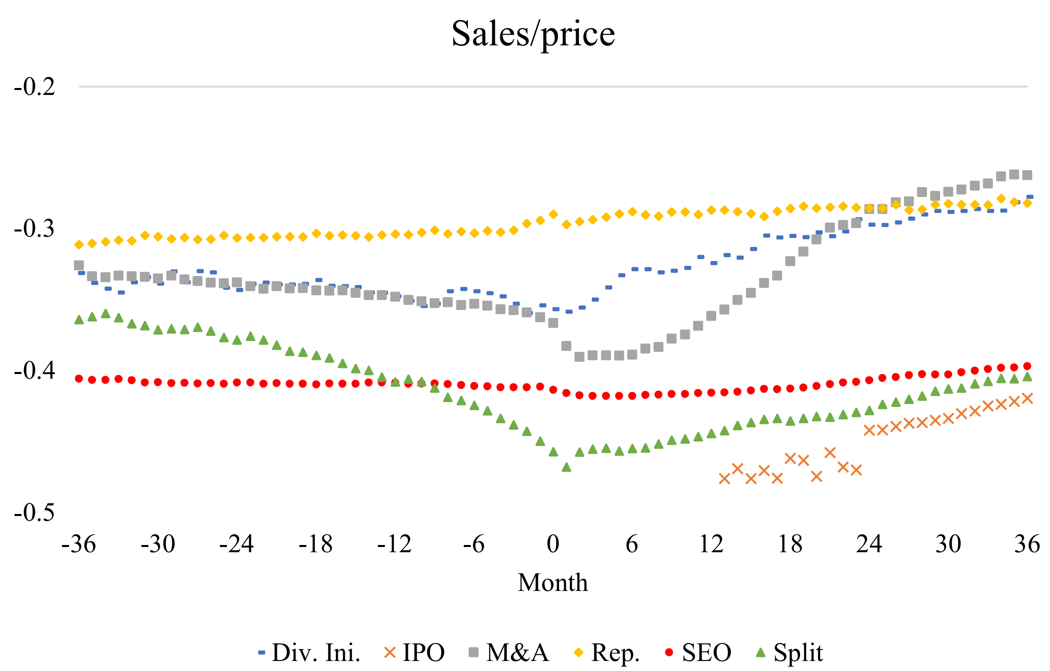

Figure A1
Characteristics around corporate events
This figure plots median firm characteristics over the 73 months (−36,36) around each of the six corporate events over the period from Jan. 1996 to Dec. 2020. We only plot firm characteristics over months (13,36) after each IPO because almost all characteristics are unavailable during the first 12 months after IPO. Firm characteristics are winsorized within each country-month at the upper and the lower 1% and are normalized by subtracting the mean and dividing by the standard deviation.

Table A1
Average coefficients on each firm characteristic over two sub-periods: 1996–2007 and 2008–2020

Panel A: Simple return

	(1)	(2)	(3)	(4)
	C5	C14	C5	C14
Dep. Var.	Simple return (1996 – 2007)		Simple return (2008 – 2020)	
Log size	-0.0994	-0.0288	-0.2509***	-0.3779***
	(-1.09)	(-0.27)	(-4.72)	(-6.97)
Log book-to-market	0.4400***	0.2695***	0.2421***	0.1353***
	(4.06)	(3.17)	(4.67)	(2.65)
Momentum	0.5085***	0.4809***	0.2634***	0.3624***
	(5.33)	(6.77)	(2.81)	(4.63)
ROA	0.0890	0.0478	0.2747***	0.1739***
	(1.20)	(0.82)	(8.02)	(6.62)
Asset growth	-0.1875***	-0.0871*	-0.1617***	-0.1368***
	(-3.03)	(-1.82)	(-4.64)	(-5.08)
Beta		0.0838		0.1028
		(0.95)		(1.26)
Accrual		-0.1073***		-0.0746***
		(-4.10)		(-4.89)
Dividend		0.0763*		0.0706***
		(1.72)		(3.37)
LR return		-0.0241		-0.0123
		(-0.50)		(-0.32)
Idio risk		-0.1668**		-0.2446***
		(-2.00)		(-4.19)
Illiquidity		0.1232**		0.0396
		(2.23)		(1.05)
Turnover		-0.2541***		-0.2477***
		(-4.41)		(-6.16)
Leverage		-0.0173		-0.1193***
		(-0.29)		(-4.48)
Sales/price		0.1847***		0.1047***
		(4.46)		(4.43)
Constant	1.0472**	0.9913*	0.7371	0.8200
	(1.99)	(1.80)	(1.29)	(1.43)
Observations	1,823,519	1,323,547	4,354,377	3,296,501
R-squared	0.0170	0.0314	0.0063	0.0155
Number of months	144	144	156	156

Panel B: Log return

	(1)	(2)	(3)	(4)
	C5	C14	C5	C14
Dep. Var.	Log return (1996 – 2007)		Log return (2008 – 2020)	
Log size	0.1913**	0.0787	0.0534	-0.3156***
	(2.25)	(0.71)	(1.04)	(-5.85)
Log book-to-market	0.5561***	0.2729***	0.3343***	0.1768***
	(5.45)	(3.71)	(7.07)	(3.72)
Momentum	0.5878***	0.5588***	0.3256***	0.4944***
	(5.66)	(7.43)	(4.07)	(7.01)
ROA	0.3865***	0.1745***	0.5298***	0.2470***
	(5.48)	(3.14)	(13.65)	(8.60)
Asset growth	-0.2901***	-0.1439***	-0.2408***	-0.1775***
	(-4.23)	(-3.11)	(-5.71)	(-5.91)
Beta		0.0068		0.0331
		(0.08)		(0.39)
Accrual		-0.1298***		-0.0908***
		(-4.82)		(-5.99)
Dividend		0.1487***		0.1076***
		(3.20)		(5.55)
LR return		0.0087		0.0949***
		(0.18)		(2.71)
Idio risk		-0.6138***		-0.7779***
		(-7.18)		(-13.51)
Illiquidity		0.2493***		0.0303
		(4.39)		(0.74)
Turnover		-0.3700***		-0.3064***
		(-6.43)		(-7.79)
Leverage		-0.1591***		-0.2108***
		(-2.74)		(-6.81)
Sales/price		0.1949***		0.0986***
		(4.47)		(4.38)
Constant	-0.1571	-0.2240	-0.4747	-0.4096
	(-0.29)	(-0.40)	(-0.80)	(-0.69)
Observations	1,823,519	1,323,547	4,354,377	3,296,501
R-squared	0.0190	0.0355	0.0076	0.0195
Number of months	144	144	156	156

Each month, we estimate cross-sectional regressions of firm monthly simple stock returns and log stock returns (percentage returns based on stock prices converted to US dollars) on firm characteristics measured at the end of the preceding month. This table presents average coefficients over two sub sample periods (1996–2007 and 2008–2020). Firm characteristics are winsorized within each country-month at the upper and the lower 1% and are normalized by subtracting the mean and dividing by the standard deviation. The Fama-MacBeth standard errors are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. Returns are in percentage. The associated t -statistics are reported in the parentheses below each coefficient. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A2
Difference in firm characteristics between event and nonevent firms

	Pre-DI	Pre-split	Pre-SEO	Pre-MA	Pre-rep
Size	-0.0879***	0.1808***	0.1739***	0.3800***	0.3713***
Book-to-market	-0.2132***	-0.3201***	-0.2817***	-0.1763***	0.0117
MOM.	0.2104***	0.2488***	0.0924***	0.0969***	0.0332***
ROA	0.0495***	0.1757***	-0.1548***	-0.0043	0.2036***
Asset growth	0.1222***	0.1505***	0.0713***	0.0353***	0.0496***
Beta	0.0700***	-0.0335***	0.1580***	0.0806***	0.0055
Accrual	0.0335***	0.0345***	-0.0155**	-0.0115**	0.0366***
Dividend	-0.5779***	-0.0720***	-0.3021***	-0.0111	0.2032***
LR return	0.0474***	0.1688***	-0.0063	0.0681***	0.0984***
Idiosyncratic risk	0.1860***	-0.0745***	0.1515***	-0.1364***	-0.2991***
Illiquidity	0.0476***	-0.0850***	-0.0853***	-0.1654***	-0.1639***
Turnover	0.0649***	0.0401***	0.2735***	0.2376***	0.0742***
Leverage	-0.0725***	-0.1450***	0.0665***	-0.0570***	-0.1511***
Sales/Price	-0.1121***	-0.1653***	-0.0679***	-0.0964***	-0.1035***

This table reports coefficient estimates in Fama-MacBeth regressions of firm characteristics on each of the five pre-event dummies: dividend initiation, stock splits, SEO, M&A, and share repurchase. We run the regressions separately for each of the five events. The pre-event dummy takes the value of one for the event firm in the 36 months before the event, and zero otherwise. We estimate the regressions using all stocks in the Compustat Global database over the period from Jan. 1996 to Dec. 2020 with available predicted log returns based on the fourteen-characteristic model (C14). Firm characteristics are winsorized within each country-month at the upper and the lower 1% and are normalized by subtracting the mean and dividing by the standard deviation. The Fama-MacBeth standard errors are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A3
Post-event stock returns using different benchmarks: Regression results for each of the six corporate events

Panel A: Regression results for dividend initiations

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.4011***	0.3077***	0.1866**	0.3754***	0.3160***	0.1306
	(4.82)	(6.15)	(2.45)	(4.37)	(5.53)	(1.59)
Region FE	Y	Y	Y	Y	Y	Y
Observations	6,177,896	6,161,811	6,177,896	4,620,048	4,611,384	4,620,048
R-squared	0.0476	0.0003	0.0483	0.0514	0.0006	0.0519
Number of months	300	300	300	300	300	300

Panel B: Regression results for stock splits

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-split	-0.4737***	-0.2068***	-0.2747**	-0.4277***	-0.2085***	-0.1276
	(-4.11)	(-3.90)	(-2.54)	(-3.53)	(-3.64)	(-1.09)
Region FE	Y	Y	Y	Y	Y	Y
Observations	6,177,896	6,161,811	6,177,896	4,620,048	4,611,384	4,620,048
R-squared	0.0489	0.0004	0.0496	0.0527	0.0007	0.0531
Number of months	300	300	300	300	300	300

Panel C: Regression results for IPOs

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-IPO	-0.7758***	-0.2659**	-0.1972	-0.7525***	-0.2845**	-0.0776
	(-4.04)	(-2.39)	(-1.22)	(-4.23)	(-2.19)	(-0.50)
Region FE	Y	Y	Y	Y	Y	Y
Observations	6,177,896	6,161,811	6,177,896	4,620,048	4,611,384	4,620,048
R-squared	0.0488	0.0005	0.0493	0.0518	0.0007	0.0522
Number of months	300	300	300	300	300	300

Panel D: Regression results for SEOs

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-SEO	-0.9403***	-0.6716***	-0.4542***	-0.9877***	-0.7083***	-0.1728
	(-7.34)	(-8.59)	(-3.67)	(-7.30)	(-7.94)	(-1.33)
Region FE	Y	Y	Y	Y	Y	Y
Observations	6,177,896	6,161,811	6,177,896	4,620,048	4,611,384	4,620,048
R-squared	0.0493	0.0007	0.0496	0.0533	0.0011	0.0532
Number of months	300	300	300	300	300	300

Panel E: Regression results for mergers and acquisitions

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-MA	-0.2400***	-0.2850***	-0.1310*	-0.2813***	-0.2903***	-0.0343
	(-3.14)	(-6.05)	(-1.89)	(-3.46)	(-5.63)	(-0.45)
Region FE	Y	Y	Y	Y	Y	Y
Observations	6,177,896	6,161,811	6,177,896	4,620,048	4,611,384	4,620,048
R-squared	0.0477	0.0003	0.0484	0.0515	0.0007	0.0520
Number of months	300	300	300	300	300	300

Panel F: Regression results for share repurchases

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-rep	0.5873***	0.2699***	0.2622**	0.5657***	0.2545***	0.1636
	(5.68)	(6.54)	(2.51)	(5.16)	(5.57)	(1.40)
Region FE	Y	Y	Y	Y	Y	Y
Observations	6,177,896	6,161,811	6,177,896	4,620,048	4,611,384	4,620,048
R-squared	0.0479	0.0003	0.0487	0.0518	0.0006	0.0523
Number of months	300	300	300	300	300	300

Panels A-F of this table report coefficients estimated from Fama-MacBeth regressions on each of the six post-event dummies, respectively, which take the value of one during 36 months after the event and zero otherwise. We estimate the regressions using all stocks in the Compustat Global database over the period from Jan. 1996 to Dec. 2020 with available predicted log return based on the five-characteristic model (C5) (columns 1-3) or the fourteen-characteristic model (C14) (columns 4-6). The dependent variable in columns (1) and (4) is the realized monthly return. In the other columns, the dependent variable is the realized monthly return less the benchmark return. In columns (2) and (5), the benchmark is the realized return to the size-and-book-to-market matched firm. In columns (3) and (6), the benchmark is the predicted return obtained from the regression of month t returns on month t-1 characteristics specified in Table 1: the five-characteristic model (C5) or the fourteen-characteristic model (C14). The predicted return for the stocks in each country is obtained from the regression of month t returns on month t-1 characteristics specified in Table 1 using all available stocks in this country. The predicted return for month t is the average regression intercept over the prior twelve months plus the sum of products of average slope coefficients over the prior twelve months and month t-1 characteristics. See Appendix I for definitions of the characteristics. The Fama-MacBeth standard errors for all columns are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. T-statistics are reported in parentheses. Superscripts ***, ** and * correspond to statistical significance at the one, five and ten percent levels, respectively.

Table A4
Post-event stock returns using different benchmarks: Results for three 12-month event windows

Panel A: Months 1 to 12 after the event

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.4949***	0.4324***	0.3061***	0.5321***	0.5217***	0.3787***
	(6.30)	(6.63)	(4.30)	(6.20)	(6.37)	(4.27)
Post-split	-0.5466***	-0.1347**	-0.5305***	-0.4414***	-0.1702***	-0.4174***
	(-4.04)	(-2.47)	(-3.94)	(-3.41)	(-2.81)	(-2.99)
Post-SEO	-0.9423***	-0.6214***	-0.5381***	-0.9496***	-0.6077***	-0.2523
	(-6.03)	(-7.45)	(-3.55)	(-5.86)	(-6.33)	(-1.59)
Post-MA	-0.0631	-0.1382**	-0.0253	-0.0825	-0.1207*	-0.0175
	(-0.73)	(-2.22)	(-0.33)	(-0.93)	(-1.87)	(-0.22)
Post-rep	0.7003***	0.4054***	0.4074***	0.7192***	0.4177***	0.3168***
	(7.16)	(8.08)	(4.28)	(6.91)	(7.49)	(3.10)
Constant	-0.1671	0.0218**	0.0954	-0.1350	0.0352*	0.0787
	(-0.40)	(1.97)	(0.23)	(-0.33)	(1.83)	(0.19)
Region FE	Y	Y	Y	Y	Y	Y
Observations	6,177,896	6,161,811	6,177,896	4,620,048	4,611,384	4,620,048
R-squared	0.0504	0.0008	0.0509	0.0541	0.0013	0.0542
Number of months	300	300	300	300	300	300
AAC	0.5742	0.3562	0.3691	0.5741	0.3759	0.2832
Joint 5, p-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Panel B: Months 13 to 24 after the event

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.3420***	0.2132**	0.1835*	0.3177***	0.2337**	0.1368
	(3.46)	(2.35)	(1.92)	(3.20)	(2.23)	(1.32)
Post-split	-0.3742***	-0.0775	-0.0791	-0.3611***	-0.0960	-0.0331
	(-3.06)	(-1.08)	(-0.67)	(-2.70)	(-1.28)	(-0.25)
Post-IPO	-0.7179***	-0.3006**	-0.0335	-0.2640	0.0477	0.3859
	(-3.28)	(-2.10)	(-0.19)	(-0.97)	(0.16)	(1.29)
Post-SEO	-1.0858***	-0.7805***	-0.4570***	-1.1328***	-0.8211***	-0.1782
	(-8.29)	(-8.47)	(-3.80)	(-8.51)	(-8.44)	(-1.49)
Post-MA	-0.2227***	-0.2862***	-0.0669	-0.2444***	-0.2687***	-0.0078
	(-2.91)	(-4.48)	(-0.95)	(-2.97)	(-3.63)	(-0.10)
Post-rep	0.5216***	0.2678***	0.1422	0.4825***	0.2823***	-0.0065
	(3.57)	(4.10)	(0.99)	(3.17)	(4.03)	(-0.04)
Constant	-0.1442	0.0419***	0.0833	-0.1139	0.0541***	0.0777
	(-0.35)	(3.35)	(0.20)	(-0.28)	(2.77)	(0.19)
Region FE	Y	Y	Y	Y	Y	Y
Observations	6,177,896	6,161,811	6,177,896	4,620,048	4,611,384	4,620,048
R-squared	0.0507	0.0011	0.0509	0.0543	0.0015	0.0542
Number of months	300	300	300	300	300	300
AAC	0.5440	0.3210	0.1604	0.4671	0.2916	0.1247
Joint 6, p-value	0.0000	0.0000	0.0028	0.0000	0.0000	0.4599

Panel C: Months 25 to 36 after the event

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.2194*	0.1836**	0.0141	0.1147	0.1203	-0.1363
	(1.82)	(2.44)	(0.13)	(0.84)	(1.37)	(-1.07)
Post-split	-0.1666	-0.1322**	-0.0422	-0.1503	-0.0883	0.0303
	(-1.55)	(-2.47)	(-0.40)	(-1.26)	(-1.34)	(0.25)
Post-IPO	-0.6784***	-0.1952*	-0.2144	-0.7924***	-0.3201**	-0.1072
	(-3.92)	(-1.93)	(-1.38)	(-4.12)	(-2.22)	(-0.65)
Post-SEO	-0.8320***	-0.6996***	-0.3731***	-0.9194***	-0.7612***	-0.1228
	(-7.47)	(-8.22)	(-3.44)	(-7.44)	(-7.81)	(-1.06)
Post-MA	-0.0023	-0.1668***	-0.0670	-0.0804	-0.2109***	-0.0096
	(-0.03)	(-3.23)	(-0.99)	(-1.08)	(-3.66)	(-0.13)
Post-rep	0.5750***	0.1694**	0.2251	0.5248***	0.0692	0.0741
	(4.06)	(2.18)	(1.63)	(3.22)	(0.68)	(0.45)
Constant	-0.1691	0.0303**	0.0787	-0.1197	0.0526**	0.0718
	(-0.41)	(2.59)	(0.19)	(-0.29)	(2.49)	(0.18)
Region FE	Y	Y	Y	Y	Y	Y
Observations	6,177,896	6,161,811	6,177,896	4,620,048	4,611,384	4,620,048
R-squared	0.0500	0.0009	0.0504	0.0545	0.0015	0.0545
Number of months	300	300	300	300	300	300
AAC	0.4123	0.2578	0.1560	0.4303	0.2617	0.0801
Joint 6, p-value	0.0000	0.0000	0.0088	0.0000	0.0000	0.8119

This table reports coefficients estimated from Fama-MacBeth regressions on six post-event dummies. In Panel A, the post-event dummies take the value of one during the first 12 months after the event and zero otherwise. In Panel B, the post-event dummies take the value of one if it is between the 13th month and the 24th month after the event and zero otherwise. In Panel C, the post-event dummies take the value of one if it is between the 25th month and the 36th month after the event and zero otherwise. We estimate the regressions using all stocks in the Compustat Global database over the period from Jan. 1996 to Dec. 2020 with available predicted log return based on the five-characteristic model (C5) (the first three columns) or the fourteen-characteristic model (C14) (the last three columns). The dependent variable in the first and fourth columns is the realized monthly log return. In the other columns, the dependent variable is the realized monthly log return less the benchmark log return. In the second and fifth columns, the benchmark is the realized log return to the size-and-book-to-market matched firm. In the third and sixth columns, the benchmark is the predicted log return obtained from the regression of month t log returns on month t-1 characteristics specified in Table 1: the five-characteristic model (C5) or the fourteen-characteristic model (C14). The predicted log return for the stocks in each country is obtained from the regression of month t log returns on month t-1 characteristics specified in Table 1 using all available stocks in this country. The predicted log return for month t is the average regression intercept over the prior twelve months plus the sum of products of average slope coefficients over the prior twelve months and month t-1 characteristics. AAC indicates the average absolute coefficient on the six post-event dummies. The last row reports the p-value of the joint test that the coefficients on all the six post-event dummies are zero. We estimate each model for each month, stack all the coefficients on the six post-event dummies, and regress them on six corresponding event dummies in an OLS regression (without a constant). We then conduct the F-test that all the six coefficients are jointly zero. See Appendix I for definitions of the characteristics. The Fama-MacBeth standard errors for all columns are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. T-statistics are reported in parentheses. Superscripts ***, ** and * correspond to statistical significance at the one, five and ten percent levels, respectively.

Table A5
Post-event stock returns using different benchmarks: Results for three 12-month event windows and over two sub-periods

Panel A: Months 1 to 12 after the event, 1996 to 2007

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.5541***	0.4146***	0.3180***	0.6439***	0.5742***	0.5198***
	(4.26)	(3.80)	(2.83)	(4.95)	(4.35)	(3.83)
Post-split	-0.8007***	-0.1438	-0.6831***	-0.6741***	-0.2501**	-0.6588***
	(-4.30)	(-1.48)	(-3.82)	(-3.96)	(-2.36)	(-3.63)
Post-SEO	-0.8187***	-0.5731***	-0.5779**	-0.7560***	-0.5214***	-0.3630
	(-3.19)	(-4.65)	(-2.28)	(-2.87)	(-3.62)	(-1.38)
Post-MA	-0.1153	-0.2569***	-0.0754	-0.1510	-0.2425**	-0.0483
	(-1.24)	(-2.85)	(-0.82)	(-1.54)	(-2.58)	(-0.53)
Post-rep	0.6593***	0.3852***	0.4521***	0.6553***	0.3893***	0.3796**
	(4.09)	(4.59)	(3.16)	(4.04)	(4.06)	(2.59)
Constant	-0.3220	0.0064	-0.0068	-0.3244	0.0182	-0.0317
	(-0.49)	(0.38)	(-0.01)	(-0.49)	(0.63)	(-0.05)
Region FE	Y	Y	Y	Y	Y	Y
Observations	1,823,519	1,817,982	1,823,519	1,323,547	1,320,443	1,323,547
R-squared	0.0658	0.0010	0.0650	0.0702	0.0016	0.0689
Number of months	144	144	144	144	144	144
AAC	0.5896	0.3547	0.4213	0.5761	0.3955	0.3939
Joint 5, p-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Panel B: Months 1 to 12 after the event, 2008 to 2020

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.4403***	0.4488***	0.2951***	0.4289***	0.4732***	0.2485**
	(4.92)	(6.00)	(3.31)	(3.90)	(4.76)	(2.24)
Post-split	-0.3121*	-0.1263**	-0.3897**	-0.2266	-0.0965*	-0.1945
	(-1.68)	(-2.41)	(-1.99)	(-1.23)	(-1.66)	(-0.97)
Post-SEO	-1.0563***	-0.6659***	-0.5013***	-1.1283***	-0.6874***	-0.1501
	(-5.75)	(-5.89)	(-2.89)	(-5.92)	(-5.40)	(-0.82)
Post-MA	-0.0149	-0.0286	0.0210	-0.0191	-0.0082	0.0109
	(-0.11)	(-0.35)	(0.18)	(-0.13)	(-0.10)	(0.09)
Post-rep	0.7382***	0.4240***	0.3662***	0.7783***	0.4439***	0.2589*
	(6.41)	(7.27)	(2.92)	(5.87)	(7.21)	(1.83)
Constant	-0.0240	0.0361**	0.1897	0.0399	0.0510**	0.1805
	(-0.05)	(2.58)	(0.35)	(0.08)	(2.03)	(0.34)
Region FE	Y	Y	Y	Y	Y	Y
Observations	4,354,377	4,343,829	4,354,377	3,296,501	3,290,941	3,296,501
R-squared	0.0361	0.0006	0.0378	0.0392	0.0009	0.0407
Number of months	156	156	156	156	156	156
AAC	0.5124	0.3387	0.3147	0.5162	0.3418	0.1726
Joint 5, p-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0815

Panel C: Months 13 to 24 after the event, 1996 to 2007

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.5771***	0.3814***	0.3953**	0.5472***	0.3137*	0.3362*
	(3.63)	(2.64)	(2.59)	(3.53)	(1.77)	(1.95)
Post-split	-0.5955***	-0.0168	0.0135	-0.5595***	-0.0630	-0.0062
	(-3.49)	(-0.13)	(0.08)	(-2.89)	(-0.46)	(-0.03)
Post-IPO	-1.0138**	-0.4687*	-0.0543	0.1467	0.4561	1.0132*
	(-2.36)	(-1.74)	(-0.16)	(0.30)	(0.87)	(1.83)
Post-SEO	-1.1195***	-0.8425***	-0.5048***	-1.1499***	-0.9185***	-0.2567
	(-5.17)	(-5.21)	(-2.78)	(-5.17)	(-5.34)	(-1.43)
Post-MA	-0.2251*	-0.2698**	-0.0445	-0.2868**	-0.2753**	0.0211
	(-1.82)	(-2.48)	(-0.40)	(-2.22)	(-2.16)	(0.18)
Post-rep	0.3816	0.1031	0.0012	0.2622	0.1238	-0.1836
	(1.50)	(1.13)	(0.00)	(1.02)	(1.27)	(-0.68)
Constant	-0.2919	0.0255	-0.0211	-0.2954	0.0360	-0.0289
	(-0.45)	(1.25)	(-0.03)	(-0.45)	(1.15)	(-0.05)
Region FE	Y	Y	Y	Y	Y	Y
Observations	1,823,519	1,817,982	1,823,519	1,323,547	1,320,443	1,323,547
R-squared	0.0670	0.0015	0.0656	0.0708	0.0021	0.0691
Number of months	144	144	144	144	144	144
AAC	0.6521	0.3471	0.1689	0.4921	0.3584	0.3028
Joint 6, p-value	0.0000	0.0000	0.0284	0.0000	0.0000	0.1474

Panel D: Months 13 to 24 after the event, 2008 to 2020

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.1250	0.0579	-0.0121	0.1059	0.1599	-0.0473
	(1.16)	(0.55)	(-0.11)	(0.92)	(1.36)	(-0.42)
Post-split	-0.1700	-0.1336**	-0.1645	-0.1780	-0.1264*	-0.0579
	(-1.02)	(-2.13)	(-1.03)	(-0.99)	(-1.85)	(-0.32)
Post-IPO	-0.4448***	-0.1455	-0.0143	-0.6432**	-0.3293	-0.1933
	(-3.51)	(-1.30)	(-0.10)	(-2.56)	(-1.24)	(-0.89)
Post-SEO	-1.0546***	-0.7234***	-0.4128**	-1.1169***	-0.7312***	-0.1057
	(-6.84)	(-7.60)	(-2.59)	(-7.26)	(-7.57)	(-0.67)
Post-MA	-0.2205**	-0.3013***	-0.0875	-0.2053**	-0.2626***	-0.0345
	(-2.37)	(-4.25)	(-0.98)	(-1.98)	(-3.26)	(-0.34)
Post-rep	0.6509***	0.4198***	0.2723*	0.6859***	0.4286***	0.1570
	(4.27)	(4.90)	(1.87)	(4.22)	(4.59)	(0.98)
Constant	-0.0077	0.0570***	0.1797	0.0536	0.0708***	0.1762
	(-0.02)	(3.93)	(0.33)	(0.11)	(3.00)	(0.34)
Region FE	Y	Y	Y	Y	Y	Y
Observations	4,354,377	4,343,829	4,354,377	3,296,501	3,290,941	3,296,501
R-squared	0.0357	0.0007	0.0374	0.0390	0.0009	0.0405
Number of months	156	156	156	156	156	156
AAC	0.4443	0.2969	0.1606	0.4892	0.3397	0.0993
Joint 6, p-value	0.0000	0.0000	0.0626	0.0000	0.0000	0.8551

Panel E: Months 25 to 36 after the event, 1996 to 2007

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.3996*	0.2929**	0.0787	0.2106	0.1565	-0.1470
	(1.78)	(2.39)	(0.39)	(0.81)	(1.05)	(-0.61)
Post-split	-0.3620***	-0.2183**	-0.0343	-0.3693**	-0.2300*	-0.0227
	(-2.62)	(-2.30)	(-0.24)	(-2.24)	(-1.87)	(-0.13)
Post-IPO	-1.0763***	-0.3700**	-0.4348	-1.2605***	-0.6244**	-0.2670
	(-3.40)	(-2.07)	(-1.49)	(-3.60)	(-2.36)	(-0.86)
Post-SEO	-0.7344***	-0.6740***	-0.2924*	-0.7999***	-0.7109***	-0.0991
	(-4.12)	(-4.89)	(-1.74)	(-4.02)	(-4.46)	(-0.56)
Post-MA	0.0980	-0.0894	0.0151	-0.0159	-0.1427	0.0495
	(0.91)	(-1.11)	(0.14)	(-0.13)	(-1.50)	(0.40)
Post-rep	0.6426***	0.0690	0.2412	0.5225*	-0.1741	0.0609
	(2.70)	(0.51)	(1.06)	(1.80)	(-0.93)	(0.21)
Constant	-0.3230	0.0096	-0.0298	-0.3022	0.0323	-0.0397
	(-0.49)	(0.54)	(-0.05)	(-0.46)	(0.98)	(-0.06)
Region FE	Y	Y	Y	Y	Y	Y
Observations	1,823,519	1,817,982	1,823,519	1,323,547	1,320,443	1,323,547
R-squared	0.0659	0.0012	0.0649	0.0714	0.0021	0.0697
Number of months	144	144	144	144	144	144
AAC	0.6521	0.3471	0.1689	0.4921	0.3584	0.3028
Joint 6, p-value	0.0000	0.0000	0.3667	0.0000	0.0000	0.9482

Panel F: Months 25 to 36 after the event, 2008 to 2020

	C5 Return Available			C14 Return Available		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C5	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.0531	0.0827	-0.0455	0.0261	0.0869	-0.1264
	(0.56)	(0.94)	(-0.44)	(0.25)	(0.89)	(-1.21)
Post-split	0.0139	-0.0528	-0.0495	0.0518	0.0425	0.0792
	(0.09)	(-1.06)	(-0.32)	(0.32)	(0.93)	(0.47)
Post-IPO	-0.3111**	-0.0339	-0.0110	-0.3602**	-0.0393	0.0404
	(-2.42)	(-0.35)	(-0.09)	(-2.53)	(-0.36)	(0.30)
Post-SEO	-0.9221***	-0.7232***	-0.4476***	-1.0297***	-0.8077***	-0.1446
	(-6.78)	(-7.02)	(-3.22)	(-6.94)	(-6.96)	(-0.95)
Post-MA	-0.0948	-0.2382***	-0.1428*	-0.1399	-0.2739***	-0.0643
	(-1.10)	(-3.69)	(-1.77)	(-1.52)	(-4.15)	(-0.73)
Post-rep	0.5127***	0.2621***	0.2102	0.5270***	0.2938***	0.0862
	(3.17)	(3.30)	(1.29)	(3.21)	(3.88)	(0.51)
Constant	-0.0271	0.0495***	0.1789	0.0489	0.0713***	0.1747
	(-0.05)	(3.40)	(0.33)	(0.10)	(2.68)	(0.34)
Region FE	Y	Y	Y	Y	Y	Y
Observations	4,354,377	4,343,829	4,354,377	3,296,501	3,290,941	3,296,501
R-squared	0.0352	0.0006	0.0370	0.0389	0.0010	0.0404
Number of months	156	156	156	156	156	156
AAC	0.3180	0.2322	0.1511	0.3558	0.2574	0.0902
Joint 6, p-value	0.0000	0.0000	0.0207	0.0000	0.0000	0.7478

This table reports coefficients estimated from Fama-MacBeth regressions on six post-event dummies and over two sub-periods. Panels A, C, and E are for the 1996-2007 period, while Panels B, D, and F are for the 2008-2020 period. In Panels A-B, the post-event dummies take the value of one during the first 12 months after the event and zero otherwise. In Panels C-D, the post-event dummies take the value of one if it is between the 13th month and the 24th month after the event and zero otherwise. In Panels E-F, the post-event dummies take the value of one if it is between the 25th month and the 36th month after the event and zero otherwise. We estimate the regressions using all stocks in the Compustat Global database with available predicted log return based on the five-characteristic model (C5) (the first three columns) or the fourteen-characteristic model (C14) (the last three columns). The dependent variable in the first and fourth columns is the realized monthly log return. In the other columns, the dependent variable is the realized monthly log return less the benchmark log return. In the second and fifth columns, the benchmark is the realized log return to the size-and-book-to-market matched firm. In the third and sixth columns, the benchmark is the predicted log return obtained from the regression of month t log returns on month t-1 characteristics specified in Table 1: the five-characteristic model (C5) or the fourteen-characteristic model (C14). The predicted log return for the stocks in each country is obtained from the regression of month t log returns on month t-1 characteristics specified in Table 1 using all available stocks in this country. The predicted log return for month t is the average regression intercept over the prior twelve months plus the sum of products of average slope coefficients over the prior twelve months and month t-1 characteristics. AAC indicates the average absolute coefficient on the six post-event dummies. The last row reports the p-value of the joint test that the coefficients on all the six post-event dummies are zero. We estimate each model for each month, stack all the coefficients on the six post-event dummies, and regress them on six corresponding event dummies in an OLS regression (without a constant). We then conduct the F-test that all the six coefficients are jointly zero. See Appendix I for definitions of the characteristics. The Fama-MacBeth standard errors for all columns are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. T-statistics are reported in parentheses. Superscripts ***, ** and * correspond to statistical significance at the one, five and ten percent levels, respectively.

Table A6
Post-event stock returns using different benchmarks: Pooled OLS regression results

	C5 Return Available			C14 Return Available					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Benchmark	None	Match	C5	None	Match	C14	(3) – (2)	(6) – (5)	(6) – (3)
Dependent var.	Log return – Benchmark log return						Difference in coefficients on post-event dummies		
Post-DI	0.3919***	0.2710***	0.2440***	0.4058***	0.2975***	0.1355*	-0.0996	-0.2649**	-0.1167**
	(4.43)	(5.88)	(2.84)	(4.89)	(5.29)	(1.71)	(-0.74)	(-1.97)	(-2.02)
Post-split	-0.3136***	-0.1345***	-0.2299*	-0.2387*	-0.1105***	-0.0941	-0.1570	-0.0528	0.1235***
	(-2.73)	(-3.75)	(-1.96)	(-1.94)	(-2.87)	(-0.74)	(-1.02)	(-0.31)	(3.37)
Post-IPO	-0.7013***	-0.2127***	-0.0772	-0.4219***	-0.0681	0.0742	0.1250	0.1959	0.1354*
	(-5.26)	(-2.96)	(-0.60)	(-3.11)	(-0.86)	(0.57)	(0.53)	(0.87)	(1.69)
Post-SEO	-0.9031***	-0.6015***	-0.4105***	-0.9939***	-0.6393***	-0.1473	0.1220	0.4004***	0.2451***
	(-10.53)	(-11.81)	(-4.73)	(-11.16)	(-11.55)	(-1.63)	(1.11)	(3.36)	(10.92)
Post-MA	-0.1345*	-0.1932***	-0.0731	-0.1599*	-0.1842***	-0.0441	0.1310	0.1470	0.0328
	(-1.66)	(-4.91)	(-0.92)	(-1.82)	(-4.44)	(-0.51)	(1.38)	(1.42)	(1.58)
Post-rep	0.5418***	0.2665***	0.2358***	0.5276***	0.2590***	0.1319	0.0828	-0.0189	-0.1034***
	(6.49)	(7.73)	(2.74)	(5.82)	(6.79)	(1.41)	(0.73)	(-0.16)	(-4.51)
Constant	0.0028	0.1103***	0.1522***	0.0593**	0.1264***	0.1223***			
	(0.10)	(7.78)	(5.17)	(2.02)	(9.20)	(4.12)			
Region FE	Y	Y	Y	Y	Y	Y			
Month FE	Y	Y	Y	Y	Y	Y			
Observations	6,177,896	6,161,811	6,177,896	4,620,048	4,611,384	4,620,048			
R-squared	0.1250	0.0002	0.1340	0.1269	0.0003	0.1348			
AAC	0.4977	0.2799	0.2118	0.4580	0.2598	0.1045	0.1196	0.1792	0.1262
Joint 6, p-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.1812	0.3764	0.0167	0.0000

This table reports coefficients estimated from pooled OLS regressions on six post-event dummies, which take the value of one during 36 months after the event and zero otherwise. We estimate the regressions using all stocks in the Compustat Global database over the period from Jan. 1996 to Dec. 2020 with available predicted log return based on the five-characteristic model (C5) (columns 1-3) or the fourteen-characteristic model (C14) (columns 4-6). The dependent variable in columns (1) and (4) is the realized monthly log return. In the other columns, the dependent variable is the realized monthly log return less the benchmark log return. In columns (2) and (5), the benchmark is the realized log return to the size-and-book-to-market matched firm. In columns (3) and (6), the benchmark is the predicted log return obtained from the regression of month t log returns on month t-1 characteristics specified in Table 1: the five-characteristic model (C5) or the fourteen-characteristic model (C14). The predicted log return for the stocks in each country is obtained from the regression of month t log returns on month t-1 characteristics specified in Table 1 using all available stocks in this country. The predicted log return for month t is the average regression intercept over the prior twelve months plus the sum of products of average slope coefficients over the prior twelve months and month t-1 characteristics. See Appendix I for definitions of the characteristics. AAC indicates the average absolute coefficient on the six post-event dummies. The last row reports the p-value of the joint test that the coefficients on all the six post-event dummies (or all the six coefficient differentials across models) are zero. We control for region and month fixed effects and cluster the standard errors by firm and month following the suggestion of Petersen (2009). T-statistics are reported in parentheses. Superscripts ***, ** and * correspond to statistical significance at the one, five and ten percent levels, respectively.

Table A7
Post-event stock returns using characteristics-based benchmark: Results for different geographic and economic regions

Panel A: Asia Developed and Asia Emerging

	Asia Developed			Asia Emerging		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C14	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.1212	0.2304**	0.3287**	0.0417	0.0145	-0.2167
	(0.81)	(2.18)	(2.03)	(0.21)	(0.09)	(-1.06)
Post-split	-0.5015***	0.0082	0.0251	-0.2452	-0.0246	-0.3608
	(-3.03)	(0.10)	(0.15)	(-1.19)	(-0.23)	(-1.62)
Post-IPO	-0.3126	-0.1381	0.1048	-0.4454	-0.1228	-0.1869
	(-1.17)	(-0.74)	(0.32)	(-0.93)	(-0.45)	(-0.41)
Post-SEO	-0.9026***	-0.5239***	0.0144	-0.6798***	-0.3964***	-0.0392
	(-4.13)	(-5.47)	(0.06)	(-4.33)	(-5.20)	(-0.24)
Post-MA	-0.1706	0.0060	0.1777	-0.1075	-0.1283	0.1748
	(-1.20)	(0.06)	(1.51)	(-0.54)	(-0.91)	(0.83)
Post-rep	0.3355**	0.0751	0.1527	0.5729	0.1170	0.9537*
	(2.28)	(1.29)	(0.95)	(1.37)	(0.28)	(1.82)
Constant	0.0138	0.0901***	0.0687	-0.0344	0.1598***	-0.0380
	(0.03)	(3.10)	(0.17)	(-0.06)	(2.63)	(-0.07)
Observations	1,804,072	1,802,516	1,804,072	1,086,703	1,085,523	1,086,703
R-squared	0.0112	0.0020	0.0105	0.0197	0.0040	0.0194
Number of months	300	300	300	294	294	294
AAC	0.3907	0.1636	0.1339	0.3488	0.1339	0.3220
Joint 6, p-value	0.0000	0.0000	0.2857	0.0010	0.0001	0.2442

Panel B: Australasia and Canada

	Australasia			Canada		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C14	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.3646	0.2134	0.0738	0.9072***	0.6460***	0.1533
	(1.61)	(0.74)	(0.35)	(4.81)	(3.07)	(0.84)
Post-split	-0.5904***	-0.3599	-0.1401	0.6003**	-0.0149	0.2800
	(-3.01)	(-1.25)	(-0.73)	(2.52)	(-0.07)	(1.34)
Post-IPO	-0.3628	0.2004	-0.2435	-0.5162	-1.0424*	-0.5278
	(-1.21)	(0.59)	(-0.85)	(-1.02)	(-1.90)	(-1.10)
Post-SEO	-0.9620***	-0.7123***	-0.1054	-0.4394***	-0.6469***	-0.1027
	(-5.15)	(-4.34)	(-0.61)	(-2.97)	(-3.71)	(-0.72)
Post-MA	-0.1538	-0.3283**	0.0079	0.0961	-0.3741***	0.1037
	(-1.10)	(-2.05)	(0.05)	(0.92)	(-2.71)	(0.96)
Post-rep	0.9884***	0.7023***	0.4113**	1.1446***	0.7009***	0.1706
	(5.33)	(3.34)	(2.33)	(5.15)	(4.25)	(0.86)
Constant	-0.1043	0.2696***	0.0871	-1.0750*	-0.0323	0.2894
	(-0.20)	(3.00)	(0.16)	(-1.72)	(-0.55)	(0.46)
Observations	251,388	251,082	251,388	290,213	290,165	290,213
R-squared	0.0162	0.0109	0.0152	0.0132	0.0066	0.0120
Number of months	300	300	300	271	271	271
AAC	0.5703	0.4194	0.1637	0.6173	0.5709	0.2230
Joint 6, p-value	0.0000	0.0000	0.3074	0.0000	0.0000	0.4379

Panel C: Europe Developed and Europe Emerging

	Europe Developed			Europe Emerging		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C14	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.4058***	0.4346***	0.0993	0.0665	0.1257	0.0080
	(4.31)	(3.92)	(1.14)	(0.27)	(0.33)	(0.03)
Post-split	-0.2050*	-0.3487***	0.0195	-0.5506*	-0.4768*	-0.4870
	(-1.77)	(-3.71)	(0.19)	(-1.65)	(-1.72)	(-1.11)
Post-IPO	-0.8250***	-0.3034*	-0.1470	-0.6171	-0.0690	0.3861
	(-4.03)	(-1.94)	(-0.83)	(-1.60)	(-0.15)	(0.71)
Post-SEO	-1.0443***	-0.8786***	-0.2772**	-0.5831**	-0.7396**	-0.1589
	(-7.23)	(-7.16)	(-2.21)	(-2.08)	(-2.58)	(-0.48)
Post-MA	0.0183	-0.1483**	-0.0749	-0.8519***	-0.3957	-0.0953
	(0.26)	(-2.52)	(-1.06)	(-3.54)	(-1.36)	(-0.40)
Post-rep	0.5236***	0.1680**	0.0809	0.6143	1.3261	0.3729
	(5.80)	(2.31)	(0.90)	(1.37)	(1.59)	(0.90)
Constant	0.0414	0.2082***	0.1869	0.3626	0.2784**	0.5123
	(0.11)	(3.95)	(0.45)	(0.53)	(2.38)	(0.75)
Observations	884,229	880,760	884,229	126,707	126,205	126,707
R-squared	0.0093	0.0039	0.0076	0.0321	0.0243	0.0310
Number of months	300	300	300	243	243	243
AAC	0.5037	0.3803	0.1165	0.5473	0.5222	0.2514
Joint 6, p-value	0.0000	0.0000	0.1865	0.0007	0.0316	0.8147

Panel D: Latin America and Middle East & Africa

	Latin America			Middle East & Africa		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C14	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	-0.1286	-0.8312	-0.2287	-0.0029	0.4692	-0.1554
	(-0.42)	(-1.57)	(-0.62)	(-0.01)	(0.94)	(-0.44)
Post-split	-0.3100	-0.1263	-0.0801	-0.5124*	-0.4314	-0.1213
	(-0.79)	(-0.32)	(-0.16)	(-1.80)	(-0.96)	(-0.38)
Post-IPO	0.4963	0.7499	0.5068	0.0258	-0.0117	-0.0942
	(1.36)	(1.55)	(0.96)	(0.06)	(-0.02)	(-0.23)
Post-SEO	-0.6436***	-0.5404**	0.0062	-0.3648	-0.1606	0.3508
	(-3.01)	(-2.48)	(0.02)	(-1.23)	(-0.51)	(0.90)
Post-MA	0.1901	0.2924	0.3047	-0.6972***	-0.8771***	-0.5104*
	(0.64)	(0.87)	(0.82)	(-2.68)	(-3.43)	(-1.97)
Post-rep	0.0176	0.3037	-0.3076	0.0589	-0.3767	0.0647
	(0.07)	(1.11)	(-0.94)	(0.21)	(-0.92)	(0.25)
Constant	0.3716	0.0948	0.0914	0.0612	0.1091	0.1177
	(0.73)	(1.23)	(0.16)	(0.13)	(1.45)	(0.27)
Observations	39,321	38,887	39,321	137,415	136,246	137,415
R-squared	0.0539	0.0407	0.0501	0.0274	0.0213	0.0274
Number of months	211	211	211	286	286	286
AAC	0.2977	0.4740	0.2390	0.2770	0.3878	0.2161
Joint 6, p-value	0.0635	0.0451	0.8221	0.0654	0.0253	0.5283

This table reports coefficients estimated from Fama-MacBeth regressions on six post-event dummies for eight geographic and economic regions: Asia Developed, Asia Emerging, Australasia, Canada, Europe Developed, Europe Emerging, Latin America, and Middle East & Africa. The post-event dummies take the value of one during 36 months after the event and zero otherwise. We estimate the regressions using all stocks in the Compustat Global database over the period from Jan. 1996 to Dec. 2020 with available predicted log return based on the fourteen-characteristic model (C14). The dependent variable in the first and fourth columns is the realized monthly log return. In the other columns, the dependent variable is the realized monthly log return less the benchmark log return. In the second and fifth columns, the benchmark is the realized log return to the size-and-book-to-market matched firm. In the third and sixth columns, the benchmark is the predicted log return obtained from the regression of month t log returns on month t-1 C14 characteristics specified in Table 1. The predicted log return for the stocks in each country is obtained from the regression of month t log returns on month t-1 characteristics specified in Table 1 using all available stocks in this country. The predicted log return for month t is the average regression intercept over the prior twelve months plus the sum of products of average slope coefficients over the prior twelve months and month t-1 characteristics. AAC indicates the average absolute coefficient on the six post-event dummies. The last row reports the p-value of the joint test that the coefficients on all the six post-event dummies are zero. We estimate each model for each month from January 1996 to December 2020, stack all the coefficients on the six post-event dummies, and regress them on six corresponding event dummies in an OLS regression (without a constant). We then conduct the F-test that all the six coefficients are jointly zero. See Appendix I for definitions of the characteristics. The Fama-MacBeth standard errors for all columns are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. T-statistics are reported in parentheses. Superscripts ***, ** and * correspond to statistical significance at the one, five and ten percent levels, respectively.

Table A8
Post-event stock returns using characteristics-based benchmark: Robustness to firm size and time periods

Panel A: Results based on firm size

	Large firms			Small firms		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C14	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.1596	0.1479**	0.1233	0.5248***	0.5019***	0.1591
	(1.53)	(1.98)	(1.25)	(5.22)	(4.71)	(1.62)
Post-split	-0.3598***	-0.1494**	-0.1668	-0.2713**	-0.0743	0.0240
	(-3.30)	(-2.52)	(-1.50)	(-2.00)	(-0.84)	(0.19)
Post-IPO	-0.6877***	-0.2746**	-0.2029	-0.5652***	-0.1012	0.1208
	(-4.23)	(-1.99)	(-1.35)	(-2.94)	(-0.64)	(0.64)
Post-SEO	-0.7542***	-0.5979***	-0.1941*	-1.1998***	-0.8306***	-0.0908
	(-6.57)	(-7.30)	(-1.78)	(-7.85)	(-7.83)	(-0.60)
Post-MA	-0.0767	-0.1023**	0.1076*	-0.6112***	-0.4632***	-0.2503**
	(-1.25)	(-2.18)	(1.78)	(-4.81)	(-4.82)	(-2.23)
Post-rep	0.4983***	0.2320***	0.2246**	0.4332**	0.1957**	0.1505
	(5.14)	(4.75)	(2.18)	(2.59)	(2.22)	(0.90)
Constant	-0.1330	0.1176***	0.0260	0.0448	0.0665**	0.1352
	(-0.34)	(4.19)	(0.07)	(0.10)	(2.05)	(0.32)
Region FE	Y	Y	Y	Y	Y	Y
Observations	2,480,643	2,474,253	2,480,643	2,139,405	2,137,131	2,139,405
R-squared	0.0675	0.0028	0.0679	0.0555	0.0031	0.0549
Number of months	300	300	300	300	300	300
AAC	0.4227	0.2507	0.1699	0.6009	0.3612	0.1326
Joint 6, p-value	0.0000	0.0000	0.0119	0.0000	0.0000	0.1655

Panel B: Results over sub-periods

	1996-2007			2008-2020		
	(1)	(2)	(3)	(4)	(5)	(6)
Benchmark	None	Match	C14	None	Match	C14
Dependent var.	Log return – Benchmark log return					
Post-DI	0.5318***	0.3722***	0.2354*	0.1972**	0.2498***	0.0143
	(3.89)	(4.30)	(1.71)	(2.18)	(3.51)	(0.17)
Post-split	-0.5057***	-0.1828*	-0.1751	-0.1123	-0.0666*	-0.0466
	(-3.33)	(-1.85)	(-1.17)	(-0.74)	(-1.69)	(-0.30)
Post-IPO	-0.9828***	-0.4246*	-0.1010	-0.3100***	-0.0037	0.0001
	(-3.26)	(-1.88)	(-0.36)	(-2.67)	(-0.04)	(0.00)
Post-SEO	-0.8564***	-0.6872***	-0.2084	-0.9836***	-0.6633***	-0.1146
	(-4.20)	(-5.02)	(-1.09)	(-6.88)	(-6.74)	(-0.78)
Post-MA	-0.1251	-0.1870**	0.0209	-0.1232	-0.1659***	-0.0322
	(-1.44)	(-2.58)	(0.25)	(-1.19)	(-2.83)	(-0.34)
Post-rep	0.4613***	0.1423**	0.1475	0.6072***	0.3292***	0.1704
	(2.79)	(2.15)	(0.81)	(4.32)	(6.02)	(1.17)
Constant	-0.2524	0.0614	-0.0218	0.1197	0.1131***	0.1855
	(-0.38)	(1.57)	(-0.03)	(0.25)	(3.28)	(0.36)
Region FE	Y	Y	Y	Y	Y	Y
Observations	1,323,547	1,320,443	1,323,547	3,296,501	3,290,941	3,296,501
R-squared	0.0738	0.0025	0.0718	0.0411	0.0012	0.0424
Number of months	144	144	144	156	156	156
AAC	0.5772	0.3327	0.1481	0.3889	0.2464	0.0630
Joint 6, p-value	0.0000	0.0000	0.3925	0.0000	0.0000	0.8992

This table reports coefficients estimated from Fama-MacBeth regressions on six post-event dummies, which take the value of one during 36 months after the event and zero otherwise. In Panel A, we estimate the regressions using large firms (the first three columns) or small smalls (the last three columns) in the Compustat Global database over the period from Jan. 1996 to Dec. 2020 with available predicted log return based on the fourteen-characteristic model (C14). Large (small) firms have market capitalizations above (below) the country median. In Panel B, we estimate the regressions using all firms in the Compustat Global database with available predicted log return based on the fourteen-characteristic model (C14) over the 1996-2007 period (the first three columns) or over the 2008-2020 period (the last three columns). The dependent variable in the first and fourth columns is the realized monthly log return. In the other columns, the dependent variable is the realized monthly log return less the benchmark log return. In the second and fifth columns, the benchmark is the realized log return to the size-and-book-to-market matched firm. In the third and sixth columns, the benchmark is the predicted log return obtained from the regression of month t log returns on month t-1 C14 characteristics specified in Table 1. The predicted log return for the stocks in each country is obtained from the regression of month t log returns on month t-1 characteristics specified in Table 1 using all available stocks in this country. The predicted log return for month t is the average regression intercept over the prior twelve months plus the sum of products of average slope coefficients over the prior twelve months and month t-1 characteristics. AAC indicates the average absolute coefficient on the six post-event dummies. The last row reports the p-value of the joint test that the coefficients on all the six post-event dummies are zero. We estimate each model for each month, stack all the coefficients on the six post-event dummies, and regress them on six corresponding event dummies in an OLS regression (without a constant). We then conduct the F-test that all the six coefficients are jointly zero. See Appendix I for definitions of the characteristics. The Fama-MacBeth standard errors for all columns are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. T-statistics are reported in parentheses. Superscripts ***, ** and * correspond to statistical significance at the one, five and ten percent levels, respectively. See Appendix I for definitions of the characteristics. The Fama-MacBeth standard errors for all columns are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. T-statistics are reported in parentheses. Superscripts ***, ** and * correspond to statistical significance at the one, five and ten percent levels, respectively.

Table A9
Post-event stock returns for individual countries

ISO3	# events	Match							C14						
		Post-DI	Post-split	Post-IPO	Post-SEO	Post-MA	Post-rep	p-value	Post-DI	Post-split	Post-IPO	Post-SEO	Post-MA	Post-rep	p-value
AUS	26,836	0.214	-0.288	0.314	-.744***	-.311*	.698***	0.000***	0.147	-0.127	-0.284	-0.121	-0.001	.423**	0.303
JPN	14,349	.413**	.324*	0.466	-.276*	.257*	.168**	0.002***	.384**	0.207	0.102	-0.078	.277***	0.119	0.022**
CHN	13,992	-.747**	.305**	0.073	-0.031	0.194	0.141	0.073*	-0.305	0.086	-0.227	-0.258	0.129	0.133	0.526
GBR	11,933	.609**	-0.106	-.587**	-1.062***	-.239**	0.119	0.000***	0.15	0.218	-.597**	-.463***	-.165*	-0.071	0.006***
CAN	10,728	.646***	-0.015	-1.042*	-.647***	-.374***	.701***	0.000***	0.153	0.28	-0.528	-0.103	0.104	0.171	0.438
KOR	9,509	0.135	0.078	0.557	-1.196***	-0.167	-0.084	0.105	.52**	-0.085	0.383	0.446	0.648	.518*	0.036*
HKG	6,925	-0.081	-.851***	-1.029	-.600***	-0.262	-0.199	0.001***	0.377	-0.341	0.056	-0.028	-0.133	-0.077	0.564
TWN	5,506	0.019	-.634***	-0.22	-0.053	-0.01	-0.014	0.198	-0.072	-.549*	-0.055	.368*	0.186	0.028	0.232
MYS	4,590	0.22	.216*	-0.013	-.610***	-0.072	0.298	0.003***	-0.019	-0.085	-0.277	0.147	0.063	0.183	0.755
IND	4,383	.574*	-.687***	-.779*	-1.083***	-0.184	0.457	0.000***	0.065	-.59***	-.535*	-.754**	0.31	0.089	0.002***
FRA	3,341	.517*	-0.11	0.149	-.334**	-0.171	0.233	0.116	-0.111	0.064	0.564	0.035	0.037	0.057	0.814
SGP	2,776	0.417	-0.018	-.956*	-.744***	-.507*	-0.088	0.006***	.548**	0.138	-0.606	-0.011	-0.04	-0.599	0.154
DEU	2,696	.898***	0.033	-0.718	-1.195***	-0.35	0.088	0.000***	.503**	0.079	-0.441	-0.188	-0.098	0.07	0.194
SWE	2,531	0.397	-.622***	-0.404	-1.111***	-0.073	.67**	0.000***	0.187	0.221	0.521	-0.158	0.022	0.028	0.778
NOR	1,459	0.889	-0.497	-0.712	-1.909***	0.368	-0.179	0.001***	0.908	0.07	-0.662	-.835***	-0.004	-0.214	0.049**
THA	1,419	-0.343	-.518*	-0.09	0.133	-0.976	-0.162	0.476	-0.399	-0.273	-0.036	0.365	-0.36	0.655	0.398
POL	1,151	-0.002	-0.708	1.151	-0.521	-.659**	1.332	0.069*	-0.266	-0.129	0.188	0.144	-0.371	0.498	0.499
ITA	1,145	0.689	-1.244***	0.111	-0.172	-0.071	0.101	0.062*	0.146	-0.12	-0.284	0.069	-0.077	0.152	0.927
VNM	992	0.224	0.318	0.578	-0.344	-0.837	1.126	0.185	0.021	0.155	-0.31	-0.033	-0.133	0.8	0.814
IDN	982	-0.808	-0.375	0.069	-0.356	1.115	0.254	0.552	-0.438	-0.018	0.247	0.29	-0.046	0.547	0.763
ESP	901	0.184	-.62*	0.688	-0.132	0.359	0.24	0.243	-0.025	-0.154	0.104	0.035	-0.004	-0.017	0.997
CHE	865	0.049	-0.175	-0.515	-0.289	-.717**	0.19	0.191	0.395	0.244	0.452	0.14	-0.091	0.079	0.622
TUR	835	-0.563	-.409*	-1.202	-.933***	-0.105	-0.018	0.047**	0.888	-.771**	0.19	-0.234	1.238	-0.09	0.072*
NLD	823	0.814	-0.425	-0.416	-.662**	.749**	0.086	0.052**	0.507	-0.43	0.32	-0.107	.768**	0.064	0.312
NZL	714	0.445	-0.814	-.897*	-0.162	-0.775	.712*	0.075*	-0.156	-0.509	0.441	0.311	-0.386	0.268	0.626
FIN	675	0.184	-.644*	0.396	-.638*	0.122	0.209	0.199	-0.295	-0.237	0.041	-0.02	-0.098	0.473	0.693
ZAF	666	0.889	-0.844	0.089	-0.119	-1.025***	-0.37	0.035**	0.231	-0.09	-0.089	0.428	-.543*	0.013	0.597
DNK	632	0.269	-0.146	-0.903	-.911***	-0.597	.551*	0.011**	-0.082	-0.289	-0.588	0.069	0.119	0.103	0.852
PHL	562	-0.825	-0.11	0.314	-0.087	-0.133	0.034	0.959	-0.49	-0.082	0.203	-0.238	-0.558	0.557	0.546
BRA	548	0.659	-0.527	0.494	-.680*	0.279	0.018	0.354	0.347	-0.159	0.241	-0.051	0.179	0.063	0.973
GRC	428	-0.512	0.181	0.15	-1.087**	1.711**	-0.217	0.081*	-0.141	0.306	0.287	-0.422	1.323*	0.37	0.38
BEL	386	0.311	-0.285	-0.318	-.754*	-0.533	-0.084	0.382	-0.219	-0.482	1.074	-0.169	0.146	-0.454	0.499
EGY	345	-0.805	0.142	1.645**	-0.784	-0.642	-0.629	0.117	-0.307	-0.203	1.193	-0.289	-1.287**	-0.15	0.218
ISR	304	0.47	-1.952**	-0.9	-.978**	-1.028*	0.704	0.017***	-0.074	-0.198	-0.981	0.087	-0.658	.682*	0.411
% with joint test p-value<0.05								47%							12%
Average p-value								0.136							0.473
Average p-value (weighted by no. of events)								0.050							0.324

This table reports coefficients estimated from Fama-MacBeth regressions on six post-event dummies, which take the value of one during 36 months after the corresponding corporate event and zero otherwise, for 34 countries with at least 300 corporate events. We estimate the regression for each country using all stocks in the Compustat Global database over the period from Jan. 1996 to Dec. 2020 with available predicted log returns based on the fourteen-characteristic model (C14). The dependent variable is the realized monthly return less the benchmark return, which is the realized return to the size-and-book-to-market matched firm in the left half of the table and is the predicted returns obtained from the regression of month t returns on month t-1 fourteen-characteristic model (C14) in the right half of the table. We also report the p-value of the joint test that the coefficients on all six post-event dummies are zero. The bottom three rows report the fraction of countries with joint test p-value<0.05, the average p-value across countries, and the average p-value weighted by the number of events across countries. The Fama-MacBeth standard errors for all columns are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. Superscripts ***, **, and * correspond to statistical significance at the one, five and ten percent levels, respectively. Results are based on log returns.

Table A10
Post-event stock returns using different benchmarks: Allowing for different sensitivity of event firm returns to characteristics

Panel A: Allowing for different sensitivity of event firm returns to characteristics

Dep. Var.	Log return						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	ALL	DIV_I	Split	IPO	SEO	MA	Repurchase
Log size× event	-0.0233	-0.3137***	-0.1905***	0.0668	0.0300	0.0749	0.1439**
	(-0.54)	(-3.93)	(-2.95)	(0.32)	(0.41)	(1.16)	(2.52)
Log Book-to-market× event	-0.0833*	-0.1050	-0.0280	0.0250	-0.2032***	-0.1609***	-0.1019*
	(-1.71)	(-1.27)	(-0.33)	(0.12)	(-3.40)	(-3.04)	(-1.77)
Momentum× event	0.1255***	0.1582*	-0.0049	0.1908	0.1055**	0.2075***	-0.0839
	(3.46)	(1.73)	(-0.09)	(1.64)	(2.34)	(3.90)	(-1.63)
ROA× event	-0.0411	-0.0914	0.0974*	0.0369	-0.0957*	-0.1107*	-0.0561
	(-1.07)	(-0.70)	(1.86)	(0.31)	(-1.85)	(-1.93)	(-0.85)
Asset growth× event	-0.0230	0.1889***	-0.0013	-0.0160	-0.0522	0.0227	0.0779
	(-0.90)	(3.42)	(-0.03)	(-0.16)	(-1.44)	(0.71)	(1.50)
Beta× event	0.0471	0.0229	0.1475**	0.2801**	0.0489	-0.0381	-0.0099
	(1.05)	(0.36)	(2.25)	(2.48)	(1.03)	(-0.67)	(-0.16)
Accrual× event	0.0016	0.0251	-0.0207	-0.2325*	0.0086	0.0024	0.0076
	(0.07)	(0.42)	(-0.68)	(-1.71)	(0.28)	(0.06)	(0.19)
Dividend× event	0.0238	-0.0335	-0.0381	0.2184	0.0453	-0.0159	-0.0048
	(0.81)	(-0.51)	(-1.02)	(1.37)	(0.96)	(-0.31)	(-0.14)
LR return× event	-0.0314	-0.1061	-0.0292	0.1008	-0.0489	0.0006	-0.1359***
	(-0.67)	(-1.54)	(-0.46)	(0.46)	(-0.83)	(0.01)	(-2.62)
Idio risk× event	-0.2809***	0.1676*	-0.2569***	-0.2597	-0.3274***	-0.2920***	0.0479
	(-5.24)	(1.82)	(-3.24)	(-0.77)	(-4.50)	(-3.11)	(0.50)
Illiquidity× event	0.1143**	-0.0407	-0.0890	0.1310	0.1906**	0.1519	0.1774
	(2.41)	(-0.55)	(-1.16)	(0.48)	(2.58)	(1.47)	(0.99)
Turnover× event	-0.0185	0.0203	-0.0516	0.0718	-0.0365	0.0324	0.0733
	(-0.49)	(0.38)	(-1.03)	(0.59)	(-0.86)	(0.54)	(1.21)
Leverage× event	-0.0519	0.1601	0.0177	0.2518	-0.0617	0.0392	0.0170
	(-1.44)	(1.00)	(0.26)	(0.90)	(-1.18)	(0.48)	(0.22)
Sales/price× event	0.0230	-0.1551*	0.0276	0.0246	0.0803*	-0.0294	-0.0923
	(0.80)	(-1.97)	(0.34)	(0.16)	(1.75)	(-0.48)	(-1.51)
Observations	4,620,048	4,620,048	4,620,048	4,620,048	4,620,048	4,620,048	4,620,048
R-squared	0.0349	0.0296	0.0340	0.0305	0.0345	0.0310	0.0301
Number of months	300	300	300	300	300	300	300

Panel B: Post-event stock returns using C5-based benchmark returns allowing for different sensitivity of event firm returns to characteristics

	(1)	(2)	(3)	(4)	(5)
Benchmark	None	Match	C5	C5_Diff	(4) – (3)
Dependent var.			Log return – Benchmark log return		
Post-DI	0.3667***	0.2914***	0.1750**	-0.1822	-0.3572
	(4.61)	(6.09)	(2.34)	(-0.61)	(-1.23)
Post-split	-0.3570***	-0.1298***	-0.2220**	-0.1354	0.0866***
	(-3.35)	(-2.69)	(-2.22)	(-1.32)	(5.51)
Post-IPO	-0.7156***	-0.2321**	-0.1628	-0.0366	0.1261***
	(-3.90)	(-2.14)	(-1.06)	(-0.23)	(6.49)
Post-SEO	-0.8725***	-0.6358***	-0.4202***	-0.2216*	0.1985***
	(-7.46)	(-8.77)	(-3.67)	(-1.87)	(7.95)
Post-MA	-0.0984	-0.1792***	-0.0534	0.0299	0.0833***
	(-1.50)	(-4.18)	(-0.90)	(0.50)	(6.63)
Post-rep	0.5527***	0.2555***	0.2540**	0.3111***	0.0571***
	(5.45)	(6.41)	(2.47)	(3.02)	(2.88)
Constant	-0.0786	0.0789***	0.1200	0.0655	
	(-0.19)	(4.02)	(0.29)	(0.16)	
Region FE	Y	Y	Y	Y	
Observations	6,177,896	6,161,811	6,177,896	6,177,896	
R-squared	0.0533	0.0013	0.0532	0.0522	
Number of months	300	300	300	300	
AAC	0.5192	0.2873	0.2146	0.1528	0.1515
Joint 6, p-value	0.0000	0.0000	0.0000	0.0222	0.0000

Panel C: Post-event stock returns using C14-based benchmark returns allowing for different sensitivity of event firm returns to characteristics

	(1)	(2)	(3)	(4)	(5)
Benchmark	None	Match	C14	C14_Diff	(4) – (3)
Dependent var.			Log return – Benchmark log return		
Post-DI	0.3578***	0.3085***	0.1204	0.0580	-0.0624
	(4.29)	(5.50)	(1.49)	(0.46)	(-0.57)
Post-split	-0.3011***	-0.1224**	-0.1083	-0.0651	0.0432
	(-2.73)	(-2.35)	(-1.00)	(-0.53)	(0.84)
Post-IPO	-0.6330***	-0.2057*	-0.0484	-0.0290	0.0195
	(-3.89)	(-1.69)	(-0.34)	(-0.16)	(0.30)
Post-SEO	-0.9226***	-0.6747***	-0.1596	-0.0669	0.0927**
	(-7.50)	(-8.12)	(-1.34)	(-0.51)	(2.14)
Post-MA	-0.1241*	-0.1760***	-0.0067	-0.0248	-0.0181
	(-1.83)	(-3.81)	(-0.11)	(-0.30)	(-0.40)
Post-rep	0.5372***	0.2395***	0.1594	0.0979	-0.0614*
	(4.97)	(5.43)	(1.37)	(0.78)	(-1.83)
Constant	-0.0589	0.0883***	0.0860	0.0568	
	(-0.14)	(3.37)	(0.21)	(0.14)	
Region FE	Y	Y	Y	Y	
Observations	4,620,048	4,611,384	4,620,048	4,375,169	
R-squared	0.0568	0.0018	0.0565	0.0522	
Number of months	300	300	300	300	
AAC	0.4793	0.2878	0.1005	0.0570	0.0496
Joint 6, p-value	0.0000	0.0000	0.3228	0.9604	0.0003

Each month, we estimate cross-sectional regressions of monthly log stock returns (percentage returns based on stock prices converted to US dollars) on 14 firm characteristics measured at the end of the preceding month and the interaction variables between the 14 characteristics and an event firm dummy. In columns (2) to (7), the event dummy takes the value of 1 for firm-months corresponding to the 36 months after an individual corporate event, and zero otherwise. In column (1), the event dummy takes the value of 1 for firm-months corresponding to the 36 months after any of the six corporate events, and zero otherwise. Panel A presents the average coefficients on the 14 characteristics and the post-event dummy over the sample period from January 1996 to December 2020. Coefficient estimates on the 14 characteristics are not presented for brevity. Firm characteristics are winsorized within each country-month at the upper and the lower 1% and are normalized by subtracting the mean and dividing by the standard deviation. The Fama-MacBeth standard errors are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. The associated t -statistics are reported in the parentheses below each coefficient. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

Panels B-C reports coefficients estimated from Fama-MacBeth regressions on six post-event dummies, which take the value of one during the 36 months after the event and zero otherwise. We estimate the regressions using all stocks in the Compustat Global database over the period from Jan. 1996 to Dec. 2020 with available predicted log return based on the five-characteristic model (C5; Panel B) or the fourteen-characteristic model (C14; Panel C). The dependent variable in column (1) is the realized monthly return. In the other columns, the dependent variable is the realized monthly return less the benchmark return. C5_Diff and C14_Diff are the predicted returns from C5 and C14 models after allowing for different loadings on characteristics for event firms in the 36 months after the event. AAC indicates the average absolute coefficient on the six post-event dummies. The last row reports the p-value of the joint test that the coefficients on all the six post-event dummies (or all the six coefficient differentials across models) are zero. We estimate each model for each month from January 1996 to December 2020, stack all the coefficients on the six post-event dummies (or all the six coefficient differentials across models), and regress them on six corresponding event dummies in an OLS regression (without a constant). We then conduct the F-test that all of the six coefficients are jointly zero. See Appendix I for definitions of the characteristics. The Fama-MacBeth standard errors for all columns are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. T-statistics are reported in parentheses. Superscripts ***, ** and * correspond to statistical significance at the one, five and ten percent levels, respectively.

Table A11
Coefficients on firm characteristics, country-by-country regression results

	AUS	BEL	BGD	BRA	CAN	CHE	CHL	CHN	DEU	DNK
Log size	-.404***	0.082	-.922***	-0.073	-.305***	-0.06	-.262*	-.588***	.167*	0.079
Log Book-to-market	.383***	.511***	-.34**	0.079	.301***	0.086	0.164	0.063	0.127	-0.033
Momentum	.954***	.661***	.529***	.834***	.929***	.655***	.347**	0.141	.952***	.804***
ROA	0.129	.335*	.196*	0.873	.251**	.253**	0.462	.135**	.206**	0.163
Asset growth	-.371***	-.327**	0.033	-0.312	-.273***	-.377***	0.056	-0.006	-.361***	-0.093
Beta	-0.276	0.112	0.037	0.257	-.271**	-0.08	0.25	-0.401	0.012	-0.091
Accrual	-.167***	-.173*	-.149**	-0.337	-0.045	-.161**	-0.116	-0.063	-0.06	-.23**
Dividend	.134**	1.629	.276**	-0.055	-0.051	-0.013	0.116	0.036	-0.021	0.107
LR return	-0.073	0.149	0.102	.311*	-0.15	0.023	-0.112	-.171**	0.049	-0.004
Idio risk	-1.008***	-.624***	-.578***	-.791***	-1.821***	-.719***	-.422**	-0.048	-1.408***	-.806***
Illiquidity	0.031	0.268	-0.17	0.138	.446***	.58**	1.408*	-0.213	.478***	0.234
Turnover	-.315***	-.355***	-.662***	-.595***	-.326***	-0.157	-.25**	-.414***	-.403***	-0.035
Leverage	-.309***	-.761**	0.096	-0.011	-.571***	-0.413	0.267	-.224**	-1.02*	-1.061***
Sales/price	0.094	0.301	0.001	0.326	0.017	0.156	-0.173	0.1	-0.146	.423**
R2	0.085	0.312	0.260	0.307	0.078	0.254	0.345	0.183	0.146	0.297
Observations	231985	20407	15187	11107	290213	39656	15457	349260	121507	23215

Table A11, continued

	EGY	ESP	FIN	FRA	GBR	GRC	HKG	IDN	IND	ISR
Log size	-.621**	-0.129	-0.161	0.103	0.036	-0.062	-0.168	0.168	-0.132	0.004
Log Book-to-market	0.127	0.058	.428**	.329***	0.125	.505***	.26**	.392**	0.13	.442***
Momentum	-0.256	.6***	.607***	.75***	.739***	0.047	.525***	.512***	.549***	.799***
ROA	.323***	0.134	.287*	0.137	.22***	.845***	0.114	.496***	.21***	0.869
Asset growth	-0.039	.312***	-0.12	-.214***	-.226***	-0.113	-.214***	-0.161	-.244***	-.295**
Beta	-0.088	0.151	-0.101	-0.097	-0.047	-0.139	0.135	-.422**	0.003	-0.075
Accrual	-0.095	-.182**	-0.048	-0.076	-.158***	0.004	-.151***	-0.26	-.169***	-0.054
Dividend	.321**	0.22	-0.025	.131***	.176**	0.03	.137**	0.132	.24***	0.052
LR return	-0.09	0.08	0.001	0.062	0.018	0.001	-0.086	0.076	.163*	.447***
Idio risk	-0.279	-.568***	-.492***	-.411***	-.867***	-0.265	-.721***	-0.295	-.655***	-.575**
Illiquidity	-0.348	-0.011	0.126	0.095	0.027	-0.41	.446***	0.14	-.200*	1.157
Turnover	-.382*	-0.117	-0.101	-.192***	-0.035	-.549***	-.468***	-.386***	-.383***	-.556***
Leverage	-0.139	0.031	-.36**	-.229*	-.385***	0.465	-.141**	-0.103	-0.168	-0.435
Sales/price	.61***	0.224	-0.072	0.081	.166**	.19**	.314***	.461***	.317***	0.086
R2	0.317	0.303	0.282	0.125	0.069	0.228	0.113	0.206	0.120	0.200
Observations	13800	26497	25581	131058	277225	34812	210609	43641	304665	35005

Table A11, continued

	ITA	JOR	JPN	KOR	KWT	LKA	MEX	MYS	NLD	NOR
Log size	-0.033	-.449**	-0.088	-.801***	-0.161	-.358***	0.201	-0.194	0.012	-.398**
Log Book-to-market	.289***	0.167	.185***	.39***	.558***	.222*	0.178	.311***	.272*	0.112
Momentum	.654***	0.014	0.106	.398***	0.255	.358**	0.268	.413***	.812***	1.014***
ROA	.211**	.686***	.167***	.381***	0.187	.167*	0.246	.177***	.958***	.432**
Asset growth	-0.084	-0.106	-0.041	-.191***	-0.147	-0.116	-0.201	-0.046	-.405**	-0.194
Beta	0.012	-0.012	0.089	0.129	-0.122	-0.065	-0.168	-0.048	-0.071	-0.262
Accrual	-.181**	-0.041	-.068***	-.268***	-.339***	-.212***	-0.119	-0.072	-0.205	-0.041
Dividend	0.006	-0.073	.157***	0.031	0.145	0.132	0.203	.195***	-0.093	-0.13
LR return	0.023	0.057	-.128**	0.082	0.085	0.077	0.029	0.063	0.171	0.024
Idio risk	-.689***	-0.127	-.433***	-1.323***	-0.136	-.364***	0.003	-.618***	-1.092***	-1.203***
Illiquidity	0.089	0.186	.141***	-10.347	-0.222	-0.123	-0.152	.29***	.559**	-0.031
Turnover	-.192**	-.507**	-.342***	-.542***	-.568***	-.286**	-0.162	-.552***	-0.21	-.324**
Leverage	-0.146	-.245*	-0.038	-.29**	0.01	0.015	-.699**	-.278***	0.883	-0.044
Sales/price	0.076	0.035	.09***	.255***	0.133	0.2	0.641	.164***	0.018	0.021
R2	0.203	0.291	0.092	0.103	0.300	0.211	0.347	0.127	0.331	0.256
Observations	47918	10323	891683	325933	10401	23255	11043	171963	28971	32399

	NZL	PAK	PHL	POL	RUS	SAU	SGP	SWE	THA	TUR	TWN	VNM	ZAF
Log size	-0.007	-0.103	-.407*	-.376**	-0.638	-0.143	-.281**	-0.02	-0.2	-.593***	-0.106	-0.1	0.325
Log Book-to-market	0.08	0.086	0.224	.235*	-0.257	0.177	.382***	.242*	.286*	.38***	.36***	.406**	.594***
Momentum	.905***	.383**	0.288	.974***	0.777	0.172	.617***	.877***	.413***	0.067	.464***	.328**	.933***
ROA	1.2**	0.2	0.184	0.122	1.192*	0.165	.223***	0.177	0.089	.35***	.346***	.204**	0.000
Asset growth	-0.041	0.094	-0.286	-0.098	-0.157	0.016	-0.072	-.349***	-.183**	-0.06	-0.016	.151*	-.178*
Beta	-0.047	-0.22	-0.177	0.081	-1.121	-0.151	-.182*	-0.198	0.007	-0.045	0.134	0.161	-.318*
Accrual	0.004	-.2**	-0.151	-.216**	-0.516	-0.109	-.105**	-.159**	-.201**	-0.113	-.14**	-0.155	-0.076
Dividend	-0.195	.586**	1.047	0.107	0.642	-0.1	0.074	0.041	0.093	1.016	-0.041	.3***	.26**
LR return	-0.092	-0.125	0.011	-0.001	-0.709	-0.048	.204***	.158*	-0.06	-0.121	-0.035	-.237**	0.17
Idio risk	-.55**	-0.043	-1.202	-.917***	-1.727	-.472**	-.902***	-1.066***	-.326***	-.569***	-.645***	-.357***	-.379*
Illiquidity	0.42	-0.204	0.081	0.055	1.942	-2.634	.347***	.297**	0.085	-1.61	0.205	-0.079	-0.013
Turnover	-0.144	-0.16	-0.351	-.612***	-10.044	0.084	-.564***	-.344***	-.55***	-.446***	-.175*	-.841***	-0.001
Leverage	0.212	0.028	-0.049	0.004	2.465	-0.066	-0.066	-.656***	-0.219	-0.153	-.247**	-.425***	-0.162
Sales/price	-.326**	.343**	.369**	0.204	-1.742	0.148	.241***	0.151	.326***	.166**	.154*	.242**	-0.007
R2	0.337	0.239	0.265	0.183	0.326	0.318	0.140	0.171	0.173	0.144	0.161	0.144	0.209
Observations	19403	38057	19409	61403	13022	14806	107159	73178	84846	40607	268688	36420	46348

Each month, we estimate cross-sectional regressions of monthly log stock returns (percentage returns based on stock prices converted to US dollars) on the 14 firm characteristics measured at the end of the preceding month for each country. We report the results for countries with at least 10,000 observations. This table presents the average coefficients over the sample period from January 1996 to December 2020 for each country. Firm characteristics are winsorized within each country-month at the upper and the lower 1% and are normalized by subtracting the mean and dividing by the standard deviation. The Fama-MacBeth standard errors are based on the time-series variability of the estimates, incorporating a Newey-West correction with four lags. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A12
IPCA analysis based on 14 firm characteristics

		Managed Portfolios		Individual Stocks	
		Total R^2	Pred. R^2	Total R^2	Pred. R^2
Two latent risk factors	Unrestricted Model	89.0%	3.1%	12.1%	0.5%
	Restricted Model	62.9%	1.6%	1.4%	0.1%
Three latent risk factors	Unrestricted Model	92.5%	3.1%	12.4%	0.5%
	Restricted Model	83.0%	1.8%	1.7%	0.1%
Four latent risk factors	Unrestricted Model	97.6%	3.3%	12.6%	0.5%
	Restricted Model	89.7%	4.9%	1.9%	0.1%
Five latent risk factors	Unrestricted Model	98.3%	3.4%	12.7%	0.5%
	Restricted Model	92.0%	4.9%	2.0%	0.1%

We estimate the restricted and unrestricted IPCA model constructed by Kelley, Pruitt, and Su (2019) using the 14 firm characteristics in our sample. We estimate country-level IPCA models using observations in each country. We present the total and predictive R^2 for the restricted and unrestricted models based on all the international stocks in our sample. The restricted model does not include constant/intercept in the estimations. The unrestricted model includes constant/intercept in the estimations. Managed portfolios are portfolios formed based on the 14 characteristics as testing assets. Individual stocks indicate individual stocks as the testing assets. Total R^2 is the fraction of return variance explained by both the dynamic behavior of conditional loadings (and intercept in the unrestricted model), as well as by the contemporaneous factor realizations, aggregated over all assets and all time periods. Predictive R^2 is the fraction of realized return variation explained by the model's description of conditional expected returns. Namely, we hold estimated risk prices constant and predictive information enters return forecasts only through the instrumented loadings.