Follow the assets: Is the US listing gap 'real'?*

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Abstract

Does the sharp post-1996 decline in the US listing count signify declining public-market competitiveness? We present an acquisition-based 'real' listing count that accurately tracks movements of real assets to and from public companies. This real count hardly peaks and it does *not* exhibit a listing gap vis-a-vis real counts in other countries. Moreover, nominal listing peaks followed by sharp declines are common internationally. Importantly, while the US decline in large part reflects movement of real assets between public firms, declines elsewhere instead tunnel assets *out of* public markets, pointing to a US real listing advantage.

JEl classification: G15, G34

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"When...our most exciting young companies...raise private capital rather than go public, retail investors are left out of a significant part of the Nation's economic growth"
—SEC Commissioner Robert J. Jackson Jr., *The Middle-Market IPO Tax*, 2018.

1 Introduction

Since 1996, the number of firms listed on the three major US stock exchanges (NASDAQ in particular) has dropped by about 50%, opening a significant gap in the US listing count vis-a-vis a portfolio of stock markets around the world (Doidge et al., 2017). Not only are there fewer initial public offerings (IPOs) in the US over the past two decades, firms going public are also older and more mature, in part supported by greater access to private equity capital.[1] Much as in the above quote by SEC Commissioner Jackson Jr., the deeper concern is that the substantial decline in US listings signals "an eclipse...of the public markets as the place where young successful American companies seek their funding" (Doidge et al., 2018, p.8). Ewens and Farre-Mensa (2019) express a similar concern: "[M]any ordinary stock-market investors...do not hold in their portfolios an increasing number of the fastest growing firms in the economy" (p.31). Moreover, Ljungqvist et al. (2018) suggest that the shrinking number of listed firms may ultimately trigger long-term reductions in aggregate investment, real productivity, and employment.

Notwithstanding the above concerns, we argue that changes in the *nominal* listing count is not a reliable metric for gauging *real* stock market competitiveness or economic growth. By 'real', we do not mean market value—it would instantly rank US stock markets as 'best in class'—but rather the extent to which real corporate assets are channelled into or out of public companies. To accurately measure this channel, we construct a 'real' listing count that literally follows the assets as various corporate transactions reallocate these between public firms and between public and private companies. In the nominal listing count, such transactions include IPOs, uplists from over-the-counter markets, mergers between public firms, divisional sales, and spinoffs. Our real count treats some of these differently than the nominal count, and it accounts for the acquisition by public companies of private targets, as if they represent (counterfactual) new lists. Essentially, our real listing count adjusts the nominal count so that it changes *if and only if* a transaction causes corporate assets to flow into or out of the stock market.

To illustrate how the nominal and real listing counts differ, consider the case where a particular public firm acquires another public company (we call this a public-to-public merger). While the nominal listing

[1] Doidge et al. (2013), Gao et al. (2013), Ewens and Farre-Mensa (2019) and Lattanzio et al. (2019).

count is reduced by one, our real count remains unchanged in recognition of the fact that the assets of both firms remain under the management of the public acquirer. Furthermore, suppose the same public firm also acquires a private company that is large enough to be a (counterfactual) stand-alone listed firm (we call this a private-to-public acquisition). While the nominal count does not change, our real count treats this acquisition as the addition of a new firm to the public markets. Moreover, the difference between the nominal and real counts does not stop there. Suppose the public company is delisted for reasons other than being purchased by another public firm. While the nominal listing count declines by one, the real count in this particular case is reduced by *three*: the public firm plus the cumulation of its past two acquisitions—effectively eliminating all previously recorded acquisitions from the real count. In this manner, the real count records the transaction-induced ebb and flow of real assets under management by public companies.

We use real listing counts around the world to examine whether there exists a US 'real' listing gap. The paper closest to ours in terms of its motivation is Lattanzio et al. (2019). While our real listing count approach adjusts the *dependent* variable in the type of nominal listing gap regression pioneered by Doidge et al. (2017), Lattanzio et al. (2019) instead add aggregate merger volume involving public targets as an explanatory variable in the gap regression. In conjunction with other regressors such as private equity investments and US market capitalization, they report a significant reduction in the nominal US listing gap originally reported by Doidge et al. (2017). However, notwithstanding the impressive explanatory power of their additional regressors, the nominal listing gap that they report remains negative and statistically significant. As summarized below, our alternative approach, which accounts for all relevant corporate transactions at a granular level (and without adding estimation error), not only eliminates the listing gap *entirely* but also produces new insights about the fundamental nature of the listing gap itself.

We present four main empirical findings. Focusing first on the complete anatomy of US nominal and real listing changes, we show that *the US real listing count hardly peaks*. Specifically, accounting for the number of real new lists and delists, there is only a negligible net real outflow of firms between 1997–2017: a decrease of 4% in the real count versus the 52% decline in the nominal count after 1996. Moreover, weighting the real listing activity with transaction values, the net value inflow in the 1997–2017 period is roughly equivalent to that of the 1980-1996 period: $1.13 and $1.23 trillion, respectively. This evidence highlights the importance of tracking the full anatomy of transactions that channel real corporate assets into and out of public firm management when assessing the fundamental economic role played by US stock

markets. We also show that, at the extensive margin, the real propensity for a qualified firm to be publicly listed stays roughly unchanged from 1996–2017, only changing from 2.1% to 1.8%. In comparison, and consistent with the evidence in Doidge et al. (2013), the nominal listing propensity drops from 1.3% to 0.6%.

Second, *there is no statistically significant real US listing gap* vis-a-vis other advanced and developing/emerging economies around the world. In fact, backfilling the nominal listing count by public-to-public mergers around the world is by itself sufficient to eliminate the significantly negative listing gaps in Doidge et al. (2017) and Lattanzio et al. (2019). This finding is robust to a variety of alternative regression specifications and whether we also adjust for private-to-public merger activity using domestic and foreign mergers in the Thomson Reuters SDC Platinum Mergers and Acquisitions database.[2] Thus, notwithstanding the surge in private equity capital over the past two decades (Ewens and Farre-Mensa, 2019; Lattanzio et al., 2019), it is not necessary to appeal to this surge in order to explain the decline in the number of listed US firms relative other countries. Rather, the US market for corporate control is the major channel driving the nominal listing gap. This also includes acquisitions of private firms by public companies which complements IPOs in channeling corporate resources into public markets to an extent not previously documented.

Third, *the US nominal listing pattern—a peak followed by a rapid decline—is common internationally.* Like in the US, nearly three-quarters of advanced economies and about half of developing/emerging countries have substantially fewer publicly listed companies in 2017 than in the past—with the number of listed firms in advanced economies down by roughly one-half. Also interesting, the country-specific peak-listing counts occur at different points in time, both before and after the US peak in 1996, and are roughly evenly distributed over 1985–2017. For example, Denmark (1986), New Zealand (1986), Luxembourg (1987), Portugal (1988), and Austria (1992) all peak *before* the US, alongside five developing/emerging countries. Thirty-one countries spanning every populated continent peak contemporaneously or after the US. Other major countries have not yet peaked (including Australia, Italy, Japan, South Korea, and Sweden), and a few countries have more than a single peak (Mexico, Belgium, Norway). Moreover, also as in the US, the pre-peak listing increase post-peak decline are most concentrated in the five years on

[2]While SDC may cover US M&A activity better than foreign M&As, the absence of a US listing gap holds even if we conservatively triple foreign public-to-public mergers or double all public-to-public and private-to-public mergers outside the US. In other words, our main result is robust to SDC missing as much as two-thirds of the merger activity among public companies in foreign stock markets, which is highly unlikely.

each side of the peak.

Fourth, *examining the listing decline over the five-year post-peak period, US acquisitions tend to move assets between public firms while, elsewhere, they tend to tunnel assets out of public markets.* We support this intriguing finding in two ways. First, we show that, in the US, accounting for public-to-public mergers in the five years after the nominal listing peak offsets (backfills) 85% of the decline compared to only 10% elsewhere. Second, we run cross-sectional regressions with the five-year post-peak listing decline as dependent variable. These regressions show that the US annual rate of decline (i) is higher than in other countries when the dependent variable uses the nominal listing count, and (ii) becomes significantly lower than in other countries after switching the dependent variable to the real listing count. Furthermore, we show this characteristic to be unique to the US among advanced economies. Overall, this apparent superior propensity of US markets to retain corporate assets under public management, which by extension preserves real investment opportunities for investors, points to a real advantage of the major US stock exchanges.

The rest of the paper is organized as follows. In Section 2, we present a complete anatomy of new lists and delists on the three major US stock exchanges. Section 3 shows how the US nominal count is transformed into a real listing count. This is followed by our real listing gap estimations in Section 4, which expands the analysis to include foreign countries. Section 5 documents the surprising frequency of nominal listing peaks around the world, both before and after the US peak year 1996, and compares real listing peaks in the US and abroad. Section 6 concludes the paper.

2 The anatomy of nominal listing changes

As documented by Doidge et al. (2017), the US nominal listing count peaks in 1996 for then to drop by roughly half by 2012 (the end of their sample period). The lowest curve in Figure 1 shows the CRSP-based count through 2017, with only a slight uptick of about 100 listings since 2012—an overall decline of 52.0% since 1996. We follow Doidge et al. (2017) and restrict the public firms to US-incorporated companies with common stock (CRSP share codes 10 or 11) that are listed on NYSE, AMEX, or NASDAQ (CRSP exchange codes 1, 2, 3, 31, 32, and 33), excluding investment funds and trusts (SIC codes 6722, 6726, and 6798–6799).[3] In this section, we present the full anatomy of new lists and delists that drive this

[3]In this paper, we use CRSP data to calculate the US listing count, while Doidge et al. (2017) base their main US listing count on data from the World Bank's World Development Indicators (WDI) and the World Federation of Exchanges (WFE)

nominal listing count pattern, 1981–2017. In the subsequent section we describe how this nominal count is translated into a real listing count.

2.1 Transactional components of nominal listing changes

In any given period, let $\Delta L_{Nominal}$ denote the annual net change in the nominal listing count (new lists minus delists). The following components fully describe $\Delta L_{Nominal}$ (all variables are summarized in Table 1):

$$\Delta L_{Nominal} = \begin{cases} Newlists: & IPO + Spin + Misc_{New} \\ Delists: & Merge_{Public-to-Public} + Merge_{Public-to-Private} + Misc_{Del} \end{cases} \quad (1)$$

Nominally, new lists arise from initial public offerings in period t (IPO), public company divisional spinoffs into new public companies ($Spin$), and miscellaneous new listings ($Misc_{New}$, details below). The latter includes new lists without raising capital (e.g. uplists from smaller exchanges and over-the-counter markets), relistings following leveraged buyouts and emergence from bankruptcy, the creation of a new public firm from the merger of two other companies and, finally, firms that change status from foreign-domiciled to US-domiciled.

Nominal delistings arise from mergers involving listed targets, as well as from miscellaneous other reasons. For merger-driven delistings, $Merge_{Public-to-Public}$ indicates that the public target is absorbed by a public bidder, while $Merge_{Public-to-Private}$ indicates that the bidder is private, foreign, or trades over-the-counter or on a minor exchange. $Misc_{Del}$ gathers miscellaneous other delistings, as specified by CRSP, and includes firms that delist voluntarily, for cause, or for unknown reasons. A delisting for cause occurs when a firm fails to uphold certain exchange-listing requirements, such as when the firm files for bankruptcy or its stock falls below a minimum price. Table 1 summarizes these variables.

2.2 Nominal new lists and delists

Using the definitions in Eq. (1) above, Panel A of Table 2 shows the total nominal new lists sorted by type of transaction, while Panel B shows the delists, 1981–2017. New lists are recorded when a firm (identified by PERMCO) first appears in the sample of CRSP public firms, or when it is relisted after at least two weeks off public markets (thus excluding SEC trading suspensions of a listed firm, which

databases. The findings in this paper are robust to the choice of either.

may last no more than ten days). Column (4) of Table 2 shows the IPOs. For a new list to be counted as IPO, it must appear as such in SDC or in data on Jay Ritter's web site. The new lists in columns (4)–(9) sum to 17,062, of which 10,020 or 58.7% are IPOs. The percentage of all new lists that are IPOs is lowest in year 2008 (25.0%) and highest in 2013 (74.6%).[4]

Column (5) shows $Spin$, the new listings that represent spinoffs from public US companies. These are identified using several sources. In CRSP, spinoffs are identified by the CRSP distribution code 3763 (Vijh, 1994). Using SDC, we also identify spinoffs (designated by the acquirer name "shareholders" or the SDC-provided spinoff dummy), split-offs, and carve-outs (found using SDC-provided dummies). For each spinoff new list, we match the parent company to a listed US firm at the time of listing. The total number of US public spinoffs represents 2.4% of all new lists in Table 2.

The remaining columns in Panel A of Table 2 show the four miscellaneous components in $Misc_{New}$: relistings, reorganizations, form changes, and uplists. Relistings, which account for 7.6% of the total (1,296 of 17,062), occur when a publicly listed firm is delisted for at least two weeks (not including suspension periods) and then reappears on the public exchange.[5]

Reorganizations, which account for 1.2% of the total, are cases where a merger between two public companies results in a simultaneous delisting of both companies and listing of a new entity (as defined by PERMCO). Form changes (0.9%) are cases in which one or more of the criteria for a firm to count as US public that were previously unfulfilled are met (for example, if a company relocates from another country to the US or changes the form of its listed equity to common stock). Finally, as much as 27.7% of the new lists are uplists from minor exchanges and over-the-counter markets. Unlike IPOs, uplists do not necessarily involve the issuance of new capital.[6]

Turning to delistings, Panel B of Table 2 shows the total and individual components of $Delists$. The two major categories are acquisitions of public targets and $Misc_{Del}$. The broad merger category is broken down according to the origin of the acquirer. Cases where the buyer is a US public firm ($Merge_{Public-to-public}$) are listed in Column (4), while the remaining cases ($Merge_{Public-to-Private}$) are shown in columns (5)–(8). These include cases where the buyer is a US private (or OTC) firm, a non-US public firm, a non-US private firm, or 'unknown' from either CRSP or SDC (here treated as private).

[4] If IPOs were somehow better-recorded in later years, we would expect to see a positive trend in the proportion of all new lists attributed to IPOs. There is no such trend.

[5] 94.1% of the 17,062 new lists are firms that are listed only once in the sample period. Of the remaining, 5.4% are relisted once and 0.5% relisted twice.

[6] For more information about uplists from over-the-counter markets, see Brüggeman et al. (2018) and Cole et al. (2018).

From 1981–2017, there are 9,648 delistings due to the acquisition of public targets, of which 5,958 (61.8%) are public-to-public mergers, and another 3,690 are public-to-private acquisitions. Within $Misc_{Del}$, there are a total of 6,899 delistings for cause (Column 9), while voluntary delistings and those for which the reason is unknown total 1,714 (columns 10–11). Overall, of the 18,263 delistings, 52.8% are the result of acquisitions of public targets, and 37.8% are for cause.

To arrive at these delisting counts, we follow Fama and French (2004) and use CRSP delisting codes: merger (delisting codes 200-399), cause (codes 400-569 and 574-999), and voluntary (codes 570-573). Delists classified as unknown are those for which no delisting code is present in CRSP.[7] We exclude firms that are only listed for one day (there are less than a dozen in the sample period).[8] For CRSP merger delistings, the acquiring firm is identified by PERMNO or PERMCO in 3,956 (38.4%) of the total of 9,648 merger cases. We are able to identify the acquirer for another 52.2% of the targets using SDC and 8.3% by hand using web searches. This leaves the 109 M&A delistings in Column (8), or 1.1% of all merger delists, for which no acquirer is identified (we assume here that the acquirer is not a US public firm).

3 The anatomy of real listing changes

In this section, we detail the transformation of the nominal US listing count to our real count. For illustrative purposes, we begin with a partial adjustment, represented by the middle curve in Figure 1. This middle curve is the nominal listing count (the lowest curve in the figure) adjusted for mergers between public companies (public-to-public mergers) only. This partial adjustment backfills the nominal count by one in response to each public-to-public merger and, as explained further below, lowers the count by the sum of all public targets acquired by a public firm that leaves the public market (for any reason other than being acquired by a US public company). This adjustment filters out delists that reshuffle listed firms instead of actually channeling them off the stock exchange. The third and highest curve is what we label the full US real listing count. It fully adjusts the nominal count for *all* relevant

[7] Delists are observed on the last day that a firm is publicly listed. In CRSP, every PERMNO has one and only one delisting code observation (if a PERMNO has never been delisted, it will have a delisting code of 100 on the last day of available CRSP data). This means that if a firm is delisted and later relisted, no delisting code is provided for the first delisting. Furthermore, no delisting code is provided if a PERMNO fails to uphold the Doidge et al. (2017) criteria to be considered public but still remains in CRSP.

[8] 93.3% of unknown delists last more than one month, 80.7% more than three months, and 60.2% more than a year. 11.5% are never relisted.

transactions—not just public-to-public mergers—that move corporate assets into and out of the public market, including movements of private (unlisted) firms.

The real listing count increases only when corporate transactions move more assets into than out of the three major US stock exchanges. When these two opposing channels balance out—as Figure 1 shows is the case for much of the sample period after 1996—the real count remains relatively flat, down by only 4.2% from the 1996-level by the end of 2017. Adjusting the nominal count for public-to-public mergers only (the middle curve) accounts for 52.8% of the decline in nominal listed firms since 1996. The remaining difference between the real and the nominal counts primarily reflects a net positive inflow of corporate assets into the public markets through private-to-public acquisitions. As shown below, much like IPOs, these acquisitions channel significant corporate resources into the management of public firms. In Section 4, we follow up with an analysis of the importance of this channel for the real US listing gap.

3.1 Transactional components of real listing changes

Let ΔL_{Real} denote the net change in the real listing count in a given period. It is the sum of the following six components:

$$\Delta L_{Real} = \begin{cases} Newlists: & IPO + Merge_{Private-to-Public} + Misc^{N}_{New} \\ Delists: & Merge^{N}_{Public-to-Private} + Divest_{Subsidiary-to-Private} + Misc^{N}_{Del} \end{cases} \tag{2}$$

To compute the difference between the nominal and real series—in particular, the difference between $Misc^{N}_{New}$ and $Misc_{New}$, $Merge^{N}_{Public-to-Private}$ and $Merge_{Public-to-Private}$, and $Misc^{N}_{Del}$ and $Misc_{Del}$—we follow each listed company's acquisition history. Specifically, in period t, we keep track of public company i's past number of acquisitions $N_{i,t-1}$ (since 1981). The acquisition index N_{it} is updated periodically as follows:

$$N_{it} = \begin{cases} N_{i,t-1} + 1 & \text{when target } j \text{ in period } t \text{ is a private firm} \\ N_{i,t-1} + 1 + N_{j,t-1} & \text{when target } j \text{ in period } t \text{ is a public firm} \end{cases} \tag{3}$$

where $N_{j,t-1}$ is the cumulative acquisition index in period $t-1$ of public target j and $+1$ represents the target itself. Thus, N_{it} tracks firm i's cumulative acquisitions of other listed firms, the cumulative

acquisitions accrued by these targets (and by the targets of the targets, and so on), and all private targets. For the public-to-public merger-adjusted listing count shown in Figure 1, only public targets are considered in the cumulation. In the listing gap estimation below, we also use two permutations of N_{it}: one that only counts public targets, and another that counts both public and private targets.

The acquisition index affects the real listing count when firm i delists in period t such that it falls out of public management, i.e. for reasons other than being acquired by another public company. In this case, the real count is reduced by $N_{it} + 1$ (firm i's index plus one for the delisting firm itself) via the channels $Merge^{N}_{Public-to-Private}$ and $Misc^{N}_{Del}$, and not just by 1 as in the nominal count delisting channels $Merge_{Public-to-Private}$ and $Misc_{Del}$. Furthermore, if a firm i that has acquired at least one other firm ($N_{it} > 0$) and delisted in real terms later relists, it brings back with it its cumulative acquisitions from its previous delisting—hence, $Misc^{N}_{New}$. This treatment preserves the internal consistency of the real count and allows us to track each and every firm during its time on public markets.

Returning to the real new lists in Eq. 2, we see that the real listing count is positively affected by IPO in the same way as the nominal count. Unlike the nominal count, however, $Newlists$ now excludes $Spin$ because a divisional spinoff into a separate public firm does not change corporate resources under public management. Also, since the acquisition of a private target by a public bidder results in corporate assets flowing *into* the public market, $Newlists$ now include $Merge_{Private-to-Public}$. The nominal count ignores this type of merger transaction. As detailed below, we impose a minimum size threshold for a private target to be counted as a real new list. Relists in $Misc^{N}_{New}$, as explained above, take into account the acquisition history of the relisting firm's previous tenure on the US stock market.

Turning to real delistings, $Delists$ in Eq. (2) now includes $Divest_{Subsiduary-to-Private}$, which are subsidiary divestitures in which the parent company is public and neither the acquirer nor the subsidiary are listed. For internal consistency, we compute $Divest_{Subsiduary-to-Private}$ using the same minimum firm size threshold as for $Merge_{Private-to-Public}$. The delisting counts in $Merge^{N}_{Public-to-Private}$ and $Misc^{N}_{Del}$ differ from those in Eq. (1) in that they also bring the delisting firms' accumulated acquisitions out of public management, as previously explained. Finally $Merge_{Public-to-Public}$ from Eq. (1) is not included, as mergers between public firms do not divert firm value out of public markets.

3.2 Real new lists and delists

The real listing count transforms the nominal new lists and delists in Table 2 using equations (2) and (3). To reiterate, this transformation involves cumulating the acquisition history of listed firms (identified by the acquisition index N_{it} in Eq. 3), identifying firm inflows not included in the nominal listing count (private-to-public mergers and N_{it}-weighted relists) and similar outflows (divestitures of subsidiaries and N_{it}-weighted real delists), and ignoring public-to-public mergers and spinoffs. In the following, we first define the size threshold for private-to-public mergers and subsidiary divestitures, and then provide the annual real listing numbers as well as values.

3.2.1 Size thresholds for non-public targets

We treat the acquisition of a minimum-sized private firm by a public acquirer ($Merge_{Private-to-Public}$) as a real firm inflow, and the sale of a certain minimum-sized public firm subsidiary to a private buyer as a real firm outflow. Again, these transactions are included because they track the actual movement of real corporate assets into and out of the public market. Our minimum size limit is the 1^{st} percentile of market cap of all publicly listed firms in the Fama-French 12 industry of the target in the acquisition year that are also listed in the following year. We impose this survivorship requirement to alleviate the tendency for failing firms to lower the minimum size threshold in the acquisition year.

Panel A of Figure 2 shows that the average annual time-series of our minimum size threshold upfront has two desirable properties: it is relatively stable—also during the recent financial crisis—and it is higher in the second half than in the first half of the sample period, even after adjusting for inflation. This reflects a general trend toward larger firm size. The figure also shows the average annual time-series of three alternative sets of size thresholds: IPOs, all new lists (i.e. IPOs plus uplists, relists, reorganizations, and form changes), and all listed firms without the follow-on-year survivorship requirement. As the time-series of the 1^{st} percentile of IPOs is highly volatile and shows a large spike during the financial crisis years, it makes a poor *bona fide* size threshold for our purposes. The all-new-lists threshold is also quite volatile, in particular after 1999.

Another relevant consideration is the relationship between IPOs and private-to-public mergers. As shown by Doidge et al. (2013) and Gao et al. (2013), the average size of IPOs has grown substantially over time. This is also the case for the 1^{st} IPO percentile in Figure 2. Ideally, in our real count, our

size-threshold series should not respond to such long-term trends in firms' choice between an IPO and an acquisition as a channel for entering the public market. Specifically, we want to avoid penalizing the imputed number of real new lists (through private-to-public acquisitions) due to the revealed preference for larger-sized IPOs. Using the market cap of listed firms addresses this concern. Finally, it is reassuring that the listed-firm threshold without the survivorship requirement closely mimics our chosen minimum-size threshold, indicating that these values are unlikely to be driven by firms close to default.

Panel B of Figure 2 shows the annual number of private-to-public mergers and subsidiary divestitures after imposing the minimum size threshold, as well as the remaining transactions that differentiate the US nominal and real listing counts: public-to-public mergers, spinoffs, and acquisition index N_it delists (net of relists). Notice first the large number of private-to-public mergers. This shows the degree to which the nominal listing count—by recording IPO and $Misc_{New}$ only—misses a substantial chunk of the flow of corporate assets into the public market. In fact, this flow is larger in number than $Merge_{Public-to-Public}$ in most (31 of 37) years. Note also that real delistings of private and public targets via the acquisition index N_{it} are substantial and lag $Merge_{Private-to-Public}$ and $Merge_{Public-to-Public}$ as the public acquirers are themselves eventually delisted. Next, we enumerate and expand upon these differences between the nominal and real listing counts.

3.2.2 Real listing count, new lists, and delists

Table 3 counts all real new lists and delists between 1981–2017. Column (2) shows the US real listing count at the end of each year, with 1980 as the base year (set equal to the nominal listing count). The real listing count is 11,790 firms in 1996—the nominal listing count peak year—and 11,292 firms at the end of the sample in 2017—a decline of only 4.2% versus the 52.0% decline in the nominal listing count. It briefly reaches a peak value of 13,082 firms in 2000, and returns to within 5% of the 1996 level within two years. Column (3) shows the total number of real new lists per year, further broken down by channel in columns (4)–(7). In total, there are 25,069 real new lists from 1981–2017 (8,007 more than the nominal new lists). IPOs are the single largest source, accounting for 40.0%. $Merge_{Private-to-Public}$ and $Misc^{N}_{New}$ contribute roughly equally to new listing numbers, with the former totalling 7,340 (29.3% of total) and the latter 7,709 (30.8% of total). Private targets make up most (82.3%) of the private-to-public new lists, with foreign targets constituting the remainder (17.7%).

Column (8) of Table 3 aggregates real delists, which number 18,493 in total—only 230 more than

the nominal number of delists. This results from two major differences in calculation of the real and nominal counts. Public-to-public merger delists ($Merge_{Public-to-Public}$), which number 5,958 in Panel B of Table 2, do not affect the real listing count, as they do not reflect an outflow of firms from public markets. The flip-side is that accumulated acquisitions need to be counted if a firm that has acquired one or more other firms (in Eq. 3, $N_{it} > 0$) eventually delists via a real channel. This increases the delists $Merge^{N}_{Public-to-Private}$ and $Misc^{N}_{Del}$ by a considerable margin relative to their nominal counterparts, $Merge_{Public-to-Private}$ and $Misc_{Del}$.

There are 5,861 more real delists in the N_{it}-adjusted real channels than in the nominal case—almost one-and-a-half times as many. In other words, 5,861 public and private firms are initially acquired by listed firms, but at some later point leave the public markets. 1,114 of these targets eventually relist, a 19.0% relisting rate, the difference of $Misc^{N}_{New}$ and $Misc_{New}$. Net of relistings, of the 7,340 $Merge^{N}_{Private-to-Public}$ new lists, 3,043 (41.5%) eventually exit the public market (and do not return). Between 1981 and 2017, a total of 1,704 public firms acquired by other public companies also permanently delist in real terms (28.6% of all public-to-public merger delists). The extent of these real delists, highlights the importance of *fully* tracking the inflows and outflows of firms, both before and after they are acquired.[9] Finally, two minor adjustments also reduce the real total number of listed firms: spinoffs from Table 2 (numbering 402) are not added to the real number of new lists, and divestitures of subsidiary firms (numbering 327, as shown in Column 10 of Table 3) count as real delists but not nominal delists. All in all, the entire sample period features 6,576 more real new lists than delists.

3.2.3 Real listing propensity

The real listing count can also be applied to find the overall propensity for firms to be listed. As highlighted by Doidge et al. (2017), the number of listed firms can decrease because the number of listable firms declines, or because their propensity to be listed does so. Propensity to be listed is calculated by

[9]Additional facts about the real acquisition index N from 1981–2017: 74.9% of unique firms (10,870/14,511) in the sample have an index N of zero, and 12.3% (1,784) an index value of one. Intuitively, the firms with the largest indexes are also some of the most likely to survive throughout the sample: 86 of the 100 highest-N firms are still listed as of 2017. Industry-wise, 43 of these 100 are high tech, 41 financial, 15 industrial (non-high tech), and 1 a utilities firm. The average N for these top 100 firms is 39. Bank of America has the highest recorded N: 215 direct and indirect acquisitions (124 listed US targets, 91 private or foreign). In terms of depth, 79.1% of unique acquirers (2,884 of 3,641) have only one layer of target acquisition indexing, and another 15.9% (579 of 3,641) two layers. The longest chain of acquisitions belongs to Symantec Corp and consists entirely of listed targets: six layers deep. The chain is as follows: Irwin Magnetic Systems bought by Cipher Data Products (1989); Cipher Data Products by Archive Corp (1990); Archive Corp by Conner Peripherals (1993); Conner Peripherals by Seagate Technology (1996); Seagate Technology by Veritas Software Corp (2000); and finally Veritas Software Corp was acquired by Symantec Corp (2005). Symantec Corp remains listed on NASDAQ as of 2017.

dividing the US nominal listing count by the number of listing-eligible firms. We follow their lead and use the number of US firms with 20 or more employees in the Longitudinal Business Database from the US Census Bureau as a proxy for all listing-eligible firms.

Appendix Figure 1 plots the nominal propensity to be listed for US firms, 1981–2017. Much as Doidge et al. (2017), we observe that this number declines from 1.3% in 1996 to 0.6% in 2017. That is, in nominal terms, listing-eligible US firms were half as likely to be listed in 2017 as in 1996. However, as emphasized above, there are several alternative avenues by which corporate resources may flow into (or out of) the public market—many unaccounted for by the nominal count. Appendix Figure 1 also plots the real propensity to listed: the real listing count divided by the number of listing-eligible US firms (plus any firms present in the real, but not nominal listing count). Unlike the nominal listing propensity, the real propensity to be listed does not decrease noticeably after 1996, declining only slightly from 2.1% to 1.8% by 2017. In other words, a listing-eligible firm was roughly as likely to end up on the public market in real terms in 2017 as in 1996.[10]

3.3 Value of real inflows and outflows

Figure 3 and Table 4 show the contribution of each of the real listing channels in terms of the transaction values (inflation-adjusted to 2017). The value of a new listing is the CRSP market cap on the day of the listing. If this value is unavailable, we use the earliest available market value within two weeks.[11] To estimate the value of a firm at delisting, we use the CRSP variable 'amount after delisting'. If this is missing or equal to zero, we use the CRSP delisting price instead.[12] If the delist is not marked in CRSP (i.e. an unspecified delist), or if both amount after delisting and delisting price are missing, we use market cap on the day of delisting. If no market cap data are available on that day, we use the closest available data no more than two weeks before the delisting.[13]

When tracking the real count using transaction *value*, there is no need to also track the *number* of past acquisitions (N_{it}) of public firms that delist. This is because the value at the time of the delisting itself

[10] While we would also like to compare the real and nominal listing propensities for different firm sizes (using different employee count thresholds), this is not possible as employment data at the time of the merger transaction are rarely provided in SDC.

[11] 99.9% of the new listings have market cap data on the day of listing. If a firm (as identified by PERMCO) has two or more US public PERMNOs (usually different share classes) simultaneously, we sum the value of these when calculating market cap.

[12] The 'amount after delisting' includes slightly more information than the delisting price (for instance, post-delisting distribution payments), which is why we prioritize it.

[13] 96.3% of unmarked delistings have market cap data on the day of delisting, and 98.6% within two days of delisting.

fully accounts for the acquisition history. Therefore, ΔV_{Real} is constructed using $Merge_{Public-to-Private}$ and not $Merge^{N}_{Public-to-Private}$. Column (3) of Table 4 shows a total real inflow of \$9.00 trillion from 1980–2017, and a total outflow of \$6.65 trillion in Column (6). The difference of \$2.35 trillion is also shown in the left-side vertical axis for the solid curve in Figure 3.[14] \$1.23 trillion of the net inflow is added between 1981-1996 and the remaining \$1.13 trillion is added *after* the nominal listing peak. As shown in Column (5) of Table 4, $Merge_{Private-to-Public}$ contribute much less than $IPOs + Misc_{New}$ to the total new listing value: 19.0% (\$1.71/9.00 trillion) versus 81.0%, respectively. On the delist side, $Merge_{Public-to-Private}$ accounts for 81.5% (\$5.42/6.65 trillion) of the total transaction value of real delistings. While not shown in Figure 3 or Table 4, the value of $Merge_{Public-to-Public}$—which reflects the reshuffling of assets *on* the exchange—is 1.7 times that of $Merge_{Public-to-Private}$ (\$9.35 trillion versus \$5.42 trillion).[15]

Figure 4 further breaks down net real listing value by industry, where high tech firms are identified by the American Electronic Association as in Eckbo et al. (2018). Panel A of the figure shows that, by far, the primary source of the net asset value inflow between 1980–2017 is the high tech industry from 1995 to 2000 (totalling \$1.38 trillion). The net inflows in the other three industries add up to just a quarter of this value (\$0.31 trillion) over the same period. Note that the relatively large number of defaults among high tech companies following the market crash in 2000 does little to drive down the net asset flow of the industry over the 2000–2002 period. This is because delists due to default have a near-zero transaction value. In contrast, a net outflow of transaction value within the high-tech sector starts in 2008 and continues thereafter (summing to \$0.65 trillion by 2017).

In Panel B of Figure 3, we further break down the high tech net asset flow into within-industry subcomponents. The six subcomponent industries, based on two-digit SIC codes, are: business services; communications; industrial and commercial machinery and computer equipment; chemicals and allied industries; electronics (excluding computer equipment); and measuring, analyzing and controlling equipment. Of these, business services and electronics are the destination of 70.0% (\$0.96 trillion) of the net

[14] From 1980–2017, NASDAQ experiences a net value inflow of \$2.66 trillion, AMEX a net inflow of \$0.06 trillion, and NYSE a new outflow of \$0.37 trillion.

[15] It is worth pointing out that the net inflow of real transaction value in Figure 3 and Table 4 amounts to only 10.1% of the total increase in the US market value over the same period (\$23.3 trillion). Furthermore, if one only considers real transactions that *immediately* impact aggregate market cap (which excludes private-to-public acquisitions and subsidiary divestitures, since these most often correspond to an equivalent and opposite flow of cash), only 3.6% of the increase in market value on NYSE, NASDAQ, and AMEX from 1980–2017 directly results from net new listing activity. The remaining 96.4% in value creation results from various corporate investment activities while listed.

inflow from 1995–2000. Chemicals and allied products account for most of the net outflow ($0.38 trillion or 58.8%) of corporate asset value since 2008. While not shown in the figure, when we break down this industry into further eight subcomponents based on three-digit SIC codes, almost all of the net outflow is concentrated in the pharmaceutical industry. 68.7% of the pharmaceutical delisting value comes from acquisitions by foreign listed firms or company relocation abroad.[16] In sum, the majority of the net high tech inflow between 1995–2000 is concentrated in business services and electronics and the majority of the outflow from 2008–2017 is concentrated in the pharmaceutical industry alone.

4 US listing gap estimation

In this section, we first estimate the nominal listing gap—much as in Doidge et al. (2017)—and then provide real listing gap estimates. In light of the novelty of our full real listing count adjustments in Eq. (2) and Eq. (3) above, and given the different levels of data availability in the US versus other sample economies, we develop the real listing gap estimation incrementally. This results in four increasingly complex versions of the listing gap estimates, which serve to clarify the marginal impact of key adjustments to the nominal listing count and to show that the main findings are robust to data issues. We begin by describing the basic regression specification, followed by a description of listing counts and merger activity around the world, and then report on the various listing gap estimates.

4.1 Basic regression specifications

Our basic listing gap regression has the following form:

$$ln(Y_{it}) = \alpha + \delta_i + \tau_t + \beta D_{US,t} + \Gamma(D_{US,t} \times \tau_t) + \lambda X_{it} + \epsilon_{it}, \tag{4}$$

where the dependent variable Y_{it} is country i's (nominal or real) listing count per capita or per GDP in year t, and δ_i and τ_t are country and year fixed effects, respectively. The regression period is 1990–2017. $D_{US,t}$ is a dummy variable that takes a value of one if country i is the US and zero otherwise. X_{it} is a vector of three country-specific control variables: country i's anti-self-dealing index (Djankov et al., 2008), log(GDP/capita) and GDP growth.

[16] In response, the Obama administration announced new regulation on April 4, 2016, specifically intended to discourage US pharmaceutical firms from relocating abroad due to tax reasons.

In the panel estimation to follow, we fix the right-hand side of Eq. (4) but alter the dependent variable $ln(Y_{it})$ so that it results in the following five alternative US listing gap definitions:

G1 *Nominal listing gap*

G2 *Partial public-to-public merger-adjusted listing gap*

G3 *Partial all-merger-adjusted listing gap*

G4 *Real listing gap without private targets*

G5 *Real listing gap*

To define G1–G5 more precisely, recall from equations (2) and (3) that changes in the real listing count reflect not only actual (nominal) new lists and delists but also acquisitions of private targets by public firms (private-to-public acquisitions) and the tracking of public firms' acquisition history through the cumulative index N_{it}. Let Y_{it}^{nom} denote the dependent variable in Eq. (4) when estimating the the nominal listing gap. We have that:

$$\text{Gap} \begin{cases} \text{G1:} & Y_{it} = Y_{it}^{nom} \\ \text{G2:} & N_{it} = 0 \text{ and } Y_{it}^{nom} \text{ is adjusted for public-to-public mergers only} \\ \text{G3:} & \text{G2, but } Y_{it}^{nom} \text{ is also adjusted for private-to-public mergers} \\ \text{G4:} & \text{G2 outside US. For US, eqs. (2) and (3) without private targets} \\ \text{G5:} & \text{G3 outside US. For US, eqs. (2) and (3) with all targets} \end{cases} \tag{5}$$

To reiterate, in G4, we fully trace inflows and outflows of listed firms on US public markets by allowing N_{it} to track all public targets and adjusting for spinoffs as in Eq. (2). Moreover, G5 fully tracks inflows and outflows of *all* firms—both public and private—to and from US public markets, using Eq. (2) and an acquisition index N_{it} that tracks both public and private targets. US, an adjustment that makes the presence of a real listing gap more likely, as explained below.

The acquisition index N_{it} is never applied to Y_{it} outside of the US. Charting the complete anatomy of new lists and delists (analogous to that shown in tables 2 and 3) is not possible for foreign countries. However, this fact does not weaken our listing gap analysis. This is because the additional adjustments

to the US in G4 and G5 can *only* decrease the US listing count relative to foreign countries. Thus, the listing gaps G4 and G5 provide *conservative* US listing gap estimates—biased towards finding large US listing gaps. As discussed below, our evidence of insignificant listing gaps under G4 and G5 is therefore of particular interest.

4.2 Listing counts and merger activity around the world

As detailed in Appendix Table 1, our international sample consists of 61 of the 217 countries and economies in the World Bank's WDI, plus Taiwan (which the WDI does not include). We add Taiwan because it ranks 22 on GDP in the world and has a substantial stock market listing (1,548 listed firms as of 2017). Although we start with the top 76 countries ranked by GDP as of 2017 (together constituting 98% of world GDP) we remove fifteen countries for which we find no data on the country's 2017 listing count from any of the data sources listed next.

For each country, the number of listed companies in a given country is defined as the number of domestically incorporated listed companies, plus foreign companies that are exclusively listed in that particular country. While, again, our US nominal listing count is from CRSP, foreign listing counts are from the the WDI and supplemented when necessary by data from the WFE or the stock exchanges themselves.[17] The choice of CRSP or WDI data for the US does not significantly affect any findings in this paper.

Each firm is counted only once: dual-listed firms are allocated to the count of the country where they are domiciled. Moreover, we count the number of listings in a country's *major* stock exchanges only, excluding firms listed on minor or regional exchanges or trading over-the-counter.[18] It is worth pointing out that excluding the number of lists on second-tier exchanges need not affect our analysis of major stock exchange listings: second-tier exchanges generally have lower listing standards and therefore do

[17]The non-WDI sources used in this paper for foreign listings are Borsa Italiana, Japan Exchange Group, Nairobi Securities Exchange, NASDAQ (for Denmark, Finland, Latvia, Lithuania, and Sweden), Pakistan Stock Exchange, Prague Stock Exchange, TMX Group (for Canada), and the World Federation of Exchanges (for Russia, Taiwan, and the United Kingdom).

[18]The WDI data source raises some issues due to the merging of smaller local stock exchanges within a country. For example, the WDI Canadian listings includes only the Toronto Stock Exchange (TSX) prior to 2003, and the sum of the TSX and TSX Venture Exchange (TSXV) afterward (resulting in a one-year jump in the number recorded listed firms from 1,252 to 3,578). The TSXV was formed in 1999 by combining regional Canadian stock exchanges (primarily Alberta and Vancouver). The firm population in these smaller regional stock exchanges is different from that of the country's major stock exchange(s): new ventures are typically smaller and more risky than the more established firms. Based on this population difference, and in order to preserve a consistent time series within any given country, we exclude changes in the WDI listing counts resulting from regional exchange consolidations. In the case of Canada, we therefore use the TSX listing count net of the TSXV. Similarly, for Japan, we exclude listings on the Osaka Exchange from the Japan Exchange Group (JPX) after the exchange merger in 2013.

not necessarily replace an otherwise major stock exchange listing (Bernstein et al., 2019). As before, we exclude investment companies, mutual funds, real estate investment trusts (REITs), and other collective investment vehicles.

For each country, we also identify mergers between domestic public companies using SDC. We start our international time series in 1990 to maximize the coverage of SDC data on non-US mergers (Doidge et al., 2017). We require SDC deals to be completed, result in 100% ownership by the acquirer, and take the deal form "merger" or "acquisition of remaining interest" (since the latter also results in delisting). Deals are required occur between firms listed on a country's major exchange(s) only. Since our data start in 1990, the adjusted listing counts in G2–G5 are set equal to the nominal listing count (G1) in 1990, and only merger transactions since 1990 are tracked by the acquisition index N_{it} in G4 and G5.

Table 5 shows the annual number and value of listed firms—and of mergers between domestic listed firms—for the US, other advanced economies, and developing/emerging economies between 1990–2017, classified by the International Monetary Fund (IMF) as of 2018. In a typical sample year, the US had 5,100 listed firms worth a total of $16.1 trillion, while the aggregation of other advanced (developing/emerging) economies had an average of 17,015 (13,130) firms worth $20.7 ($6.4) trillion. US merger activity between domestic listed firms far outpaces that of the rest of the world both in frequency and value, averaging 156 deals per year at $344 billion. By comparison, other advanced (developing/emerging) economies totalled 104 (17) domestic deals worth $91 ($9) billion in an average year. Moreover, in two-thirds of the sample years, the US sees more mergers between domestic public companies than the rest of the world combined. The difference in merger counts is largest from 1992–1998, with 2.1–2.8 times as many US mergers as the rest of the world each year.[19]

Figure 5 plots the annual global listing counts, both nominal (G1) in Panel A and partial public-to-public merger-adjusted (G2) in Panel B. Between 1996 and 2017, the US G2 listing count declines by 5%—considerably less than the 52% decline in the nominal count over the same period (recall that G2 does not consider eventual firm outflows via N_{it}). Adjusting the nominal listing counts around the world by domestic public-to-public mergers has a much smaller, but still noticeable, impact. For advanced economies, the G2 listing count in Panel B grows by 61% over 1996–2017, up from 45% in Panel A. For developing/emerging economies, the difference is even smaller: from 41% in Panel A to 45% in Panel B.

[19]While our public-to-public merger adjustment focuses on mergers between public companies in the same country, see Erel et al. (2012) and Fresard et al. (2017) for evidence on international cross-border acquisitions more generally.

Unlike our country-panel specification used in the listing gap estimation below, the non-US listing series in Figure 5 aggregate across countries and therefore smooth out country-differences. Nevertheless, these series give some early indication that adjusting for public-to-public mergers reduces the size of the US listing gap. We address this question via panel regressions next.

4.3 Listing gap estimates

Figures 6 and 7 plot the annual US listing gap estimates for all five gap definitions G1–G5 in Eq. (5) using the full set of 61 countries. A complete set of annual coefficient estimates for the gaps, each with four different specifications, is listed in tables 6 and 7. The corresponding gap estimates for the subsample of 28 advanced economies are relegated to appendix tables 2 and 3, as these lead to largely identical inferences.

4.3.1 The nominal listing gap (G1)

We begin the gap estimation with the US nominal listing gap, which for visual comparison purposes is included as the solid black line in all four panels of figures 6 and 7. The gray shaded area is the 90% confidence interval around the annual gap estimates. The coefficient estimates corresponding to the black line are shown in Column (2) of tables 6 and 7, where $ln(Y_{it})$ is the nominal listing count scaled by population and the regression includes country fixed effects. Columns (1) and (3)–(4) of the table give alternative regressor specifications for the nominal gap. The estimated nominal listing gap in year t is $L_{1990} \times \Gamma$, where $L_{1990} = 5,634$ is the number of US-listed companies in 1990 (see Table 5). Thus, the nominal listing gap in year 2012 is a statistically significant $5,634(-0.522)$ = -2,941.

While significantly negative, our year-2012 gap estimate of -2,941 firms is somewhat smaller than the year-2012 nominal gap estimate in Doidge et al. (2017) for two reasons: first, Doidge et al. (2017) do not include country fixed effects and, second, their sample period ends in 2012. Our estimate is closer to the significantly negative year-2012 US nominal listing gap estimate of approximately -3,080 reported by Lattanzio et al. (2019).[20] The latter study reports a significantly negative US nominal listing gap that is about 43% smaller than the gap in Doidge et al. (2017) after including country fixed effects. By the end of 2017, our nominal listing gap estimate is down only slightly to -2,885 listed firms, which is still large and statistically significant.

[20]This number is approximate since it is derived from graphs in Lattanzio et al. (2019).

4.3.2 The partial merger-adjusted listing gaps (G2, G3)

The broken line in Panel A of Figure 6 plots the annual partial public-to-public merger-adjusted listing gap G2, and the corresponding 90% confidence interval, 1990–2017. Recall from Eq. (5) that G2 adjusts the nominal listing count for public-to-public mergers *only*, and without cumulating the acquisition index N_{it}. We highlight this simple adjustment because it showcases the marginal effect of the type of merger transactions for which SDC coverage is internationally the most comprehensive: domestic mergers between firms listed on a country's major stock exchange(s). The corresponding G2 coefficient estimates are shown in Column (6) of Table 6.

It is interesting to compare our G2 listing gap estimates to those of Lattanzio et al. (2019). While G2 directly adjusts the dependent variable with domestic public-to-public mergers, they instead include measures of merger volume as regressors in a listing gap regression that is otherwise not unlike that of Column (6) in Table 6. Both studies examine the hypothesis that the nominal listing gap originally reported by Doidge et al. (2017) is reduced after accounting for major merger activity. In Lattanzio et al. (2019), the negative correlation between their aggregate merger-activity index and the nominal listing count (alongside private equity investments and US market cap) lowers the nominal listing gap by 60%—while remaining significantly negative. Our G2 listing gap, however, is neither statistically nor economically significant.[21]

In panel B of Figure 6, we plot the G3 listing gap series, 1990-2017. Recall from Eq. (5) that G3 adjusts each country's nominal listing count for *both* public-to-public and private-to-public acquisition (as for G2, in a non-cumulative fashion). The size threshold for the non-US private-to-public acquisitions is the same as in the US: the 1^{st} percentile of market value of industry-grouped listed firms, with a one-year survival requirement (Section 3.3 above). Interestingly, as confirmed by the G3 coefficient estimates in columns (9)–(12) of Table 6, these real new lists shift G3 to become significantly *positive*—a listing 'surplus'. Appendix Table 2 shows that G3 for the smaller subsample of 28 advanced economies, where SDC's coverage is likely more complete, is also not negative.

[21] As shown in columns (5)–(8) of Table 6, this conclusion holds whether or not our G2 regression includes country fixed effects.

4.3.3 The real listing gap (G4, G5)

The broken line in Panel A of Figure 7 (corresponding to coefficient estimates in Column 6 of Table 7) shows the listing gap G4. G4 employs the same public-to-public merger-adjusted listing gap G2 as in Figure 6 Panel A, with two additional adjustments to the US series: the exclusion of spinoff new lists and the inclusion of the acquisition index N_{it} from Eq. (3). Specifically, G4 tracks each listed firm's cumulative acquisitions of other US public firms—without private targets—starting in 1990. When a firm leaves the public markets (by delisting for any other reason than a public-to-public merger), it brings with it the directly and indirectly accumulated firms under its management. This reduces the US listing count relative other countries, but estimates of the US listing gap remain statistically insignificant. In other words, there is *no* evidence of a US listing gap when considering transactions that actually result in an *outflow* of listed firms from public markets—whether this outflow occurs immediately upon delisting or at some later point in time.

Panel B of Figure 7 (corresponding to coefficient estimates in Table 7's Column 10) shows our final version of the adjusted US listing gap: the fully-adjusted real US listing gap (G5). For the US, the real listing count is calculated in accordance with Eq. (2) using the base year 1990. The acquisition index N_{it} from Eq. (3) also starts counting in 1990 and includes both public and private targets (unlike G4). Foreign adjusted listing counts are the same as in G3 (Figure 6 Panel B). This entails three differences between the US and foreign series, all of which unambiguously reduce the US real listing count: the US series adjusts for indirect real delists of accumulated targets, ignores spinoff new lists, and counts the divestiture of subsidiaries as delists.

As a comparison of G3 in Figure 6 and G5 in Figure 7 shows, the difference in treatment has a considerable effect on the US series. The implementation of the acquisition index N_{it} results in an additional 3,469 real delists (1,112 of them listed targets and 2,357 private targets, net of any eventual relistings), and adjusting for spinoffs and subsidiary divestitures another 633 delists. This treatment is nontrivial: in the US 34.9% (2,357 of 6,744) of the targets in private-to-public mergers 1990–2017 eventually flow back out of public markets. The overall effect is such that any evidence of a US listing surplus from the simplified estimation in Table 6 disappears entirely. Despite the fact that no outflows of private-to-public merger targets are included in foreign countries, evidence of a real US listing gap is *still* completely absent.

To summarize, any one of the listing count adjustments G2–G5 is sufficient to entirely eliminate any evidence of a US listing gap. G4 in Panel A of Figure 7 and columns (5)–(8) in Table 6 shows that the US listing gap is absent when considering transactions that result in a *de facto* outflow of *listed firms* from public markets. G5 in Panel B and columns (9)–(12) of the same figure and table show that this also holds when considering *all* inflows and outflows of firms to and from the stock exchange—not just listed companies. Again, these findings hold whether or not the regression includes country fixed effects. Furthermore, these results are robust to using alternative specifications such as WDI listing count data for the US instead of CRSP, limiting the sample to advanced economies only (appendix tables 2 and 3), or including cross-border domestic-to-foreign acquisitions between public firms (which could be relevant if US exchanges were more isolated from outside merger activity than other countries). It is also worth noting that although SDC likely covers US M&A activity better than foreign M&As, the absence of a US listing gap G2–G5 holds even if we mechanically *triple* foreign public-to-public mergers or double all non-US mergers (both private and public targets).

The above results document the central role played by the extraordinarily active US market for corporate control in driving the US nominal listing gap originally estimated by Doidge et al. (2017). As shown in Appendix Figure 2, in a given year 1990–2017, a listed US firm has a 3.0% chance of being acquired by another domestic listed firm. The closest foreign countries are Sweden (1.3%), Canada (1.2%), Australia (1.1%), Japan (1.1%), and the UK (1.0%)—remaining countries have an average domestic public-to-public merger rate of only 0.3%.

Moreover, while not tabulated, the size of US merger deals—including mega-deals in the top size-decile—also dominate that of other advanced economies, and especially after the recent financial crisis. Overall, the ability to transact mega-mergers, which requires a a high level of capital market functionality in terms of contracting technology and legal protection of minority shareholders, likely provides US firms with a comparative advantage in terms of realizing scale economies through external growth strategies (de Bodt et al., 2019). While this acquisition activity lowers the number of US listed firms, our evidence demonstrates that the US market for corporate control is unique in its proclivity to reallocate corporate assets *within* the public markets so as to be managed by increasingly large public companies. Furthermore, the acquisition of private firms by public companies significantly complement IPOs and uplists from smaller markets in channeling corporate assets into the public sphere (Celikyurt et al., 2010).

5 The cross-section of listing peaks around the world

This section provides new evidence on the occurrence of listing peaks among advanced, developing, and emerging economies. We show that nominal listing peaks are common and occur evenly over time, both before and after the US peak in 1996. Moreover, we provide country-specific evidence on the level and change in the listing count over fixed event-windows surrounding the peak year event. The event-time analysis reveals that international nominal peaks are on average remarkably similar to the US, with a rapid pre-peak rise and post-peak decline. However, while the steep decline in the US channels real assets *between* public firms, we show that the declines elsewhere tunnel assets *out of* public markets—pointing to a US real listing advantage.

5.1 Listing peaks in calendar time

We define a country's listing peak year as the year with the highest nominal listing count between 1975 and 2017.[22] Figures 8 and 9 illustrate the listing count peaks per country and the frequency of international peaks over time, respectively, classified by each country's economic development level. As much as 70% (43 of 61) of all countries exhibit a listing peak. Table 8 provides peak listing details for the full set of 61 countries (95% of world GDP). Columns (1) and (2) show GDP and GDP rank (measured by the World Bank as of 2017 except for Taiwan, which is measured by the IMF), while columns (3)-(5) show the listing peak year (if present), the number of listed firms at peak, and the listing count in 2017 (the end of our sample period). Finally, columns (6) and (7) show the total percent change in the listing count between the peak year and 2017, and the annual percent change, i.e. Column (7) divided by the number of years since the peak.

Panels A and B of Table 8 reveal a number of interesting facts about these peaks for advanced economies. First, there are twenty-one countries in Panel A (countries with a peak) and only seven in Panel B (countries without a peak), which means that 75% of sampled advanced economies exhibit a listing peak. Second, as shown in Column (6), while the US experienced a 52.0% decline in the listing count from the peak year and until 2017, eight other advanced countries experienced even *greater* such

[22] When a country has two identical peak years, we use the year of the most recent peak. Two identical peak years occurs for Brazil in 1986 and 1989, Bulgaria in 2001 and 2008, Kenya 2014 and 2016, Nigeria 2005 and 2010, and Poland in 2014 and 2015. When a country has second peak at least ten years after the first, and it is within 95% of the first peak count, we use the the year of the second peak. This happens for Belgium (peaking in 1999 with 278 listings instead of 1975 with 290 listings), Mexico (1990 with 390 instead of 1976 with 410), and Norway (2008 with 209 instead of 1998 with 214).

declines (despite more than half of these peaking after the US). Third, while the annual percent decline in the number of lists since the peak year is 2.5% for the US, eleven of the 21 advanced countries in Panel A experience a *higher* annual percent decline in the listing count.

Fourth, the average peak year for advanced countries is 1999 with a standard deviation 10.2 years (not tabulated). The earliest advanced economies to peak in our sample are Denmark and New Zealand in 1986 and the most recent is Spain in 2015. Importantly, five advanced economies peak before the US, and fifteen peak concurrently or after. Figure 9 shows that these peaks seem to be distributed fairly evenly between 1985–2016. Fifth, the earlier in the sample period that a country peaks, the lower the 2017 listing count relative to the peak count. The correlation between number of years passed since the peak and the percent decline is 68.6%. This suggests that, on average, the loss of exchange listings since the peak-year is persistent over the post-peak sample period.

Turning to developing/emerging economies, Panel C of Table 8 shows that two-thirds (21 of 32) of these countries experience a nominal listing peak prior to 2017. Six of these economies have a greater annual listing count decline since the peak than does the US. Moreover, there is again a wide dispersion between peak years in this sample: the average year is 2000—almost the same as for advanced economies—with a standard deviation of 7.7 years. The first country to peak is South Africa in 1988, while Kenya peaks last in 2016.

In sum, country-specific listing peaks are common (70% of sampled countries) and observed across every populated continent. Peaks appear evenly spread over 1985–2017, with ten countries peaking *before* the US and another thirty-one peaking contemporaneously or after. Finally, many of the observed peaks exhibit *more* dramatic declines than the US by the end of the sample period in 2017.

5.2 Listing peaks in event time

So far in the paper, we have viewed the decline in US and international listed firms from a calendar-time perspective. As Figure 5 indicates, doing so may smooth out interesting country-specific listing peak patterns in the data. This is particularly true when individual countries experience listing peaks at different points in calendar time, as shown in Figure 9. To investigate this possibility, we condition the sample on the existence of a listing peak and examine how the time-series pattern of the nominal and real listing peaks on average develop in event time (where year zero is the peak year).

Figures 10 and 11 visualize these average conditional event-time patterns for the US, other advanced

economies, and developing/emerging economies from year -5 through +5 relative to the peak year. Surprisingly, Figure 10 shows that the *shapes* of the US and non-US nominal listing pattern—in terms of the speed of the pre-peak rise and post-peak decline—are quite similar. In contrast, Figure 11 shows substantial a divergence in real listing counts between the US and the rest of the world in the post-peak event period, which we report more on below. Section 5.3 also further analyzes this difference and shows that it represents a US-specific listing *advantage*.

Table 9 first enumerates the nominal listing count changes over fixed time periods relative to the peak year for each sampled country, including those in Figure 10. The table provides two event periods with a fixed number of years either leading up to the peak year (the pre-peak period), or following the peak year (the post-peak period). Focusing on the advanced countries in Panel A, Column (3) shows that the cross-country average percent increase in the number of lists over the pre-peak period (-10,0) is 24% for the US and 68% for advanced economies (where year 0 is the peak year). Over the shorter event period (-5,0), the averages are 29% and 44%, respectively. For all but three of the advanced economies, the runup in the number of listed firms over the (-5,0) period exceeds that of the (-10,-5) period.[23]

Turning to the post-peak event period in Panel A, the average listing count declines 23% over the period (0,5) and 32% by the end of the event window (0,10). These average rates of decline are similar to the US post-peak listing changes: 24% and 37%, respectively. Moreover, they indicate that the greatest drop in the listing count occurs over the first five years following the peak year. This is indeed the case for 84% of the sampled countries. In sum, the bulk of the listing change occurs relatively rapidly—within five years on each side of the peak year.

Panel B shows a remarkably similar overall pattern in developing/emerging economies. On average, the listing count grows by 96% in the (-10,0) period—faster than in advanced economies—and 46% in the (-5,0) period. The listing count decline in the (0,5) and (0,10) periods mirrors that of advanced economies, with -23% and -31% changes, respectively. In other words, the average listing peak shape is quite similar in developing/emerging economies as in advanced ones, barring this as a development-specific phenomenon.

Figure 11 shows the real listing count for the US and 23 other countries in event time. Panel A displays the real listing count without private targets (G4) and Panel B displays the real listing count with both public and private targets (G5), each defined in Eq. (5). Both real series show close similarities

[23]For robustness, these averages exclude the Czech Republic, Luxembourg, and Portugal.

in the pre-peak shape between the US and other countries. In the (-5,0) period, the G4 real listing count increases by 46% in the US and by 51% (44%) in other advanced (developing/emerging) economies. The G5 series, the corresponding pre-peak growth rates are 68% for the US and 62% (46%) for other advanced (developing/emerging) economies.

These similarities end in the post-peak event period, which sees a dramatic divergence between the US and other countries experiencing a nominal listing peak. Panel A shows that the G4 real count, which tracks inflows and outflows of listed firms, remains relatively flat in the US in the (0,5) period, declining by only 3.6%. In contrast, other advanced countries (developing/emerging countries) experience real listing losses of 19.5% (19.7%). In other words, the US peak is characterized by a reshuffling of listed assets *on* the exchange rather than an *outflow*, as is the case on average in other countries.

Panel B of Figure 11 adds further nuance, additionally tracking inflows and outflows of private targets via the full real listing count (G5). The graph shows that real firm assets actually continue to flow *onto* the US public markets on net in the (0,5) period (something we also showed in Section 3), ending with a 9.8% higher real listing count in event year +5 than in year 0. Other advanced countries still show minor real firm outflows on average, with a 7.2% lower real listing count from event year 0 to +5. Finally, developing/emerging economies still exhibit significant haemorrhaging of real assets, with a net firm outflow of 17.8% in the (0,5) period. These findings indicate that nominal peaks even in non-US advanced countries do not reflect the type of real firm net outflows suggested by the nominal decline—even if these outflows is still significantly faster than in the US, as we show next.

5.3 Determinants of the post-peak rate of decline

Figure 10, and the associated tables 8 and 9, underscore the remarkable observation that the decline in nominal listing counts following a listing peak is on average as rapid in other countries as in the US. That is, the rapid decline in the US listing count is the norm rather than the exception among both advanced and developing/emerging countries experiencing a listing peak. Moreover, Figure 11 leaves a strong visual impression that, while adjusting for public-to-public and private-to-public mergers has a significant impact on the US time series after the listing peak, it has a relatively smaller impact on the average post-peak slope of foreign countries.

The regression results reported in Table 10 confirm this visual impression from Figure 11. The

regression is specified as follows:

$$Decline_i = \alpha + \beta D_{US} + \lambda Z_i + \epsilon_i, \tag{6}$$

where $Decline_i$ is the average annual rate (percent) of decline in listed firms for country i in the five years (columns 1–2, 5–6, 9–10) or three years (columns 3–4, 7–8, 11–12) after that country's listing peak. $Decline_i$ is calculated using the same listing count series as in figures 10 and 11: the nominal listing count (G1) in columns 1–4, the real listing count excluding private targets (G4) in columns 5–8, and the full real listing count (G5) in columns 9–12. D_{US} is a dummy taking a value of one if the country is the US and zero otherwise. The sample starts with the list of countries that experience a peak between 1975 and 2016 (43 countries).[24] Odd-numbered columns use all available countries, while the even-numbered columns sample advanced economies only, which results in a small sample size but a high regression R^2 (ranging from 66–90%).

The vector Z_i is a set of pre-peak country-specific control variables using data from the World Bank and IMF. Each is an annual average value from the five or three years (depending on the sample) before the listing peak in country i. *Growth variables* measure the average percent growth in listing count (nominal or real, corresponding to $Decline_i$) and GDP from the start of the event period to the peak year. Trade and foreign direct investment (FDI) net inflows are scaled by GDP, where the former is the sum of exports and imports. Patent applications and GDP are scaled by population. Patent applications only include those made by residents, and are used because international patenting data are more consistently available than data on R&D expenditures.

The coefficients for *US dummy* in columns (3)–(4) of Table 10 show that the there is no statistically significant difference in the rate of post-peak nominal listing decline between the US and other economies when all variables are measured over the seven-year window centered on the peak year (-3,+3). Expanding the window to the 11-year period (-5,+5), the US post-peak decline is steeper overall (Column 1), but not steeper than in other advanced economies (Column 2). Also interesting, among the control variables (all measured as averages over the pre-peak period), trade and FDI net inflows receive statistically significant coefficients at the 1% level in Column (2), which is based on the 11-year event window and advanced economies. The coefficient signs indicate that trade is associated with a lower speed of nominal listing

[24]Several countries are dropped due to missing data. Additionally, Czech Republic, Luxembourg, and Portugal are excluded due to irregularities in the WDI data.

decline. In contrast, FDI net inflows are associated with higher speed of decline, possibly because FDI often takes the form of corporate acquisitions, sometimes involving listed firms.

Turning to columns (5)–(8) of Table 10, the dependent variable is the real post-peak rate of decline excluding private target acquisitions (G4). The US dummy is now negative and statistically significant at the 1% level for all regressions—implying a slower rate of decline—regardless of the country-sample or the length of the event window. Versus all countries, the US G4 real listing count declines at a 2.5–4.4 percentage point slower rate per year in the respective (1,5) and (1,3) periods, after controlling for related economic factors. Compared with advanced economies, the difference is even larger at 2.7–5.0 percentage points. This is compelling evidence that public-to-public mergers are a significantly stronger determinant of the post-peak *rate of decline* in the nominal listing count in the US than in other countries around the world. In other words, relative to other countries, the US real listing count is positively and uniquely assisted by public-to-public mergers—effectively mitigating the observed post-peak delistings in *real* (public-to-public merger adjusted) terms observed around the world. For robustness, it is also worth pointing out that the US post-peak G4 real listing decline is significantly slower than in the rest of the world even if we mechanically *double* foreign domestic public-to-public mergers.

Finally, columns (9)–(12) of Table 10 compare the post-peak rate of decline in the full real listing count G5, which also includes the flow of private firms into and out of public markets, between the US and other countries with a listing peak. As before, the US has a significantly slower rate of decline versus the rest of the world, with a 3.3 percentage point slower decline in the (1,5) period and 5.9 percentage points in the (1,3) period. While there is also a significant 6.7 percentage point difference compared to other advanced economies in the first three years after the peak, the evidence of a statistically significant difference is weak in the (1,5) period.

These findings have an important economic implication: while the steep decline in the US channels real firm assets *between* public firms (as shown in Figure 11), the declines elsewhere generally tunnel assets *out of* public companies, and at a significantly higher rate. Furthermore, Table 10 confirms that this trait is unique to the US. To further support this important finding, in untabulated results, we ran country-by-country regressions where we replace the US dummy D_{US} in Eq. (6) with a dummy for each respective non-US country. In the sample of advanced economies, this replacement fails to produce a significantly negative country dummy in columns such as (5)–(12) with one exception: Greece has a significant country-dummy coefficient of -4.9 in Column (6). In the sample of developing and

emerging economies, three countries—India, Morocco, and Pakistan—are also associated with negative and significant country dummies.

Moreover, the delisting pattern underlying Figure 11 and Table 10 further support the notion that the nominal listing-declines outside of the US tend to tunnel assets out of the stock markets. For example, in the five-year post-peak event period (1,5), a listed US firm is 3.4 times more likely to be delisted due to merger-related reasons (public or private) than is a foreign listed firm. Moreover, in the US a merger delisting is 2.3 times more likely to involve a domestic public acquirer. That is, 64% of US post-peak merger delists are public-to-public transactions versus 28% in other countries. In sum, rather than a US listing gap, the uniquely active US market for corporate control—with its ability to execute large mergers between listed firms—points to a real US listing advantage.

6 Conclusion

This paper provides a new perspective on the dramatic (roughly 50%) decline in the number of listed companies on the three major US stock exchanges (NYSE, AMEX, NASDAQ) since 1996 that has opened a significant nominal listing gap vis-a-vis other countries around the world. While this decline has raised concerns about the international competitiveness of US capital markets, we show that, on a more granular level, the flow of corporate assets into these public markets is *not* negative, whether measured in absolute terms or relative to foreign stock markets. Importantly, our results show that while the steep post-1996 listing decline in the US tends to channel real assets between public firms, the declines seen elsewhere tunnel assets out of public companies—suggesting the existence of a US real listing *advantage*.

Judging from the real asset flow, it appears that the major US stock exchanges—as a place to manage corporate assets—are no less competitive today than they were at the height of the nominal listing count. What we *do* observe, however, is a substantial increase in the average (optimal) size of US publicly traded companies—both established firms and new lists. While the increased size of new lists is helped by a growing supply of private equity capital, the major channel for the growth in the size of listed firms is the uniquely active US market for corporate control. With less active takeover markets, individual foreign countries tend to experience a real listing decline relative to the US in the years following a listing peak. In sum, the flip-side of the decline in the nominal listing count is a takeover market that may well have unlocked substantial real economic efficiency gains.

We arrive at this important conclusion after shifting the main focus from the nominal listing count to one that more closely follows the movement of real corporate assets into and out of US stock markets. Two main examples of why this real listing count differs from the nominal count are public-to-public mergers and acquisitions of private companies by listed firms. Public-to-public mergers lower the nominal but not the real count because no assets flow out of the management of public firms. The acquisition by a listed company of a private firm increases the real count but not the nominal count because real assets flow into the public sphere—effectively as a counterfactual new list rather than an actual IPO. These two examples are part of the complete anatomy driving the ebb and flow of real corporate assets between the public and private sectors, which we describe. Importantly, our findings hold whether using a simplified adjustment framework or comprehensively tracking *all* firms during their time under public management.

We present several new findings. First, in contrast to the nominal count, the real listing count hardly peaks over the sample period (1981–2017), and is only 4.2% lower in 2017 than in 1996. The two main drivers of this result are the (cumulative) adjustment of the nominal count for public-to-public mergers and private-to-public acquisitions. In this adjustment, the cumulative adjustment is such that when a firm delists from the exchange—for reasons other than being acquired by another public company—the real count declines with the *sum* of the delisting firm's prior acquisition activity (and the acquisition activities of its targets, and so on) plus one (for the firm itself). This cumulative adjustment demonstrates that new real lists dominate real delistings over the sample period. Furthermore, we show that real net new firm value inflows are positive and roughly equivalent before and after the peak (1980–1996 and 1997–2017), at \$1.23 and \$1.13 trillion, respectively. We also show that a listing-eligible US firm is almost as likely to publicly managed in 2017 as in 1996 (1.8% versus 2.1%) when considering real firm flows.

Second, adjusting the nominal listing count for domestic public-to-public mergers around the world is sufficient to eliminate the US listing gap. Further adjusting for real firm inflows and outflows also fails to provide evidence of a real US listing gap. This implies that there is no indication of a US listing gap when focusing on transactions that actually result in an *outflow* of firms. These findings are robust to subsample choice (all countries or only advanced economies) and data sources (CRSP or WDI), including incorporating domestic-to-foreign transactions between public firms. This highlights the comparative advantage of US stock markets in providing a regulatory and governance system that is necessary to execute large and frequent mergers. This comparative advantage appears as the real flip-side of the nominal US listing gap.

Third, we document that the US pattern of a listing peak followed by a sharp decline in the nominal listing count is the norm rather than the exception around the world, both in advanced and developing/emerging economies. As much as 70% of countries show a similar time-series pattern to the US, spread out roughly evenly in time both before and after 1996. The overall declines are dramatic: advanced countries had 47% fewer listed firms in 2017 than at peak and developing/emerging countries 33%. On average, the nominal listing count peak is characterized by rapid increases and declines concentrated in the five years before and after the peak.

Finally, while the nominal US listing peak is similar to that of other countries, adjusting for real firm flows reveals strikingly different delist mechanisms *behind* the peaks. Specifically, domestic public-to-public mergers play a much larger role in the five-year decline following the US nominal listing peak than in other countries, cancelling out real firm outflows observed elsewhere. We also show that the US post-peak real rate of decline is significantly lower than in other countries, and that this trait is unique to the US among advanced economies. These findings serve to further highlight the advantage of our focus on a real asset listing count, which largely avoids confounding changes in optimal firm size (through acquisitions) with the fundamental value of managing corporate assets under the umbrella of publicly listed companies. It also allows us to conclude that while the sharp post-peak nominal listing declines around the world channel real assets *out of* the respective domestic stock markets, these assets are instead reallocated *between* listed firms in the US, possibly reflecting a uniquely active and contractually efficient US market for corporate control.

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Figure 1: **Nominal, public-to-public merger-adjusted, and real US listing counts, 1981–2017**

This figure plots the (monthly) US nominal and real count of listed firms on NYSE, NASDAQ and AMEX. The change in the nominal listing count, $\Delta L_{Nominal}$ is the sum of the following six variables, all of which are defined in Table 1:

$$\Delta L_{Nominal} = \begin{cases} Newlists: & IPO + Spin + Misc_{New} \\ Delists: & Merge_{Public-to-Public} + Merge_{Public-to-Private} + Misc_{Del}. \end{cases}$$

IPO are initial public offerings, *Spin* are spinoffs, $Misc_{New}$ are miscellaneous new listings, and *Merge* are mergers where the subscript indicates the direction of the change in the public/private status of the target. The change in the real listing count, ΔL_{Real}, is:

$$\Delta L_{Real} = \begin{cases} Newlists: & IPO + Merge_{Private-to-Public} + Misc^{N}_{New} \\ Delists: & Merge^{N}_{Public-to-Private} + Divest_{Subsidiary-to-Private} + Misc^{N}_{Del}. \end{cases}$$

When public company i buys public company j ($Merge_{Public-to-Public}$) the delisting of j reduces the nominal listing counts by one, while it leaves ΔL_{Real} unchanged. Instead, in each period t, the real count keeps track of public company i's past number of acquisitions $N_{i,t-1}$ (since 1981), periodically updated as follows:

$$N_{it} = \begin{cases} N_{i,t-1} + 1 & \text{when target } j \text{ in period } t \text{ is a private firm} \\ N_{i,t-1} + 1 + N_{j,t-1} & \text{when target } j \text{ in period } t \text{ is a public firm} \end{cases}$$

where $N_{j,t-1}$ is the acquisition index of public target j. Thus, N_{it} tracks firm i's cumulative acquisitions of other listed firms (and the cumulative acquisitions accrued by these targets, and by the targets of the targets, and so on) as well as minimum-sized private targets. For the public-to-public merger-adjusted listing count, only public targets are considered. If firm i is itself delisted at time t for reasons other than being acquired by a public company, then the real count ($Merge^{N}_{Public-to-Private}$) is reduced by $1 + N_{it}$, in recognition that i's assets accumulated over N_{it} past acquisitions also leave the public market at that time. $Divest_{Subsiduary-to-Private}$ are divestitures in which the parent company is public and neither the acquirer not the subsidiary are public firms. The vertical dotted line indicates the date of the US nominal listing peak. Data are from CRSP and SDC.

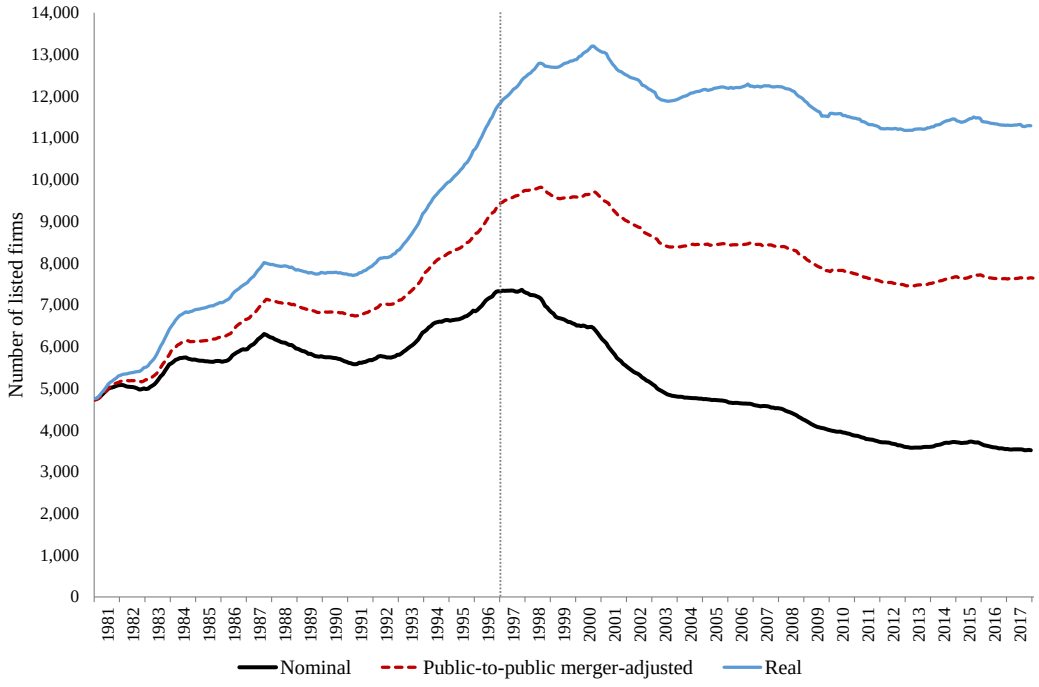
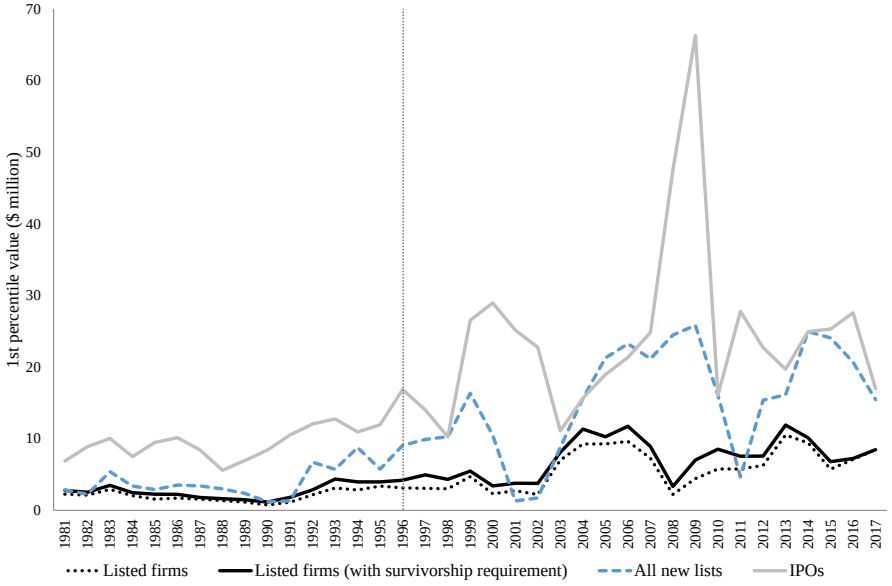


Figure 2: Firm size thresholds and transactions used to adjust for the real series

The transformation from nominal to a real listing count requires a firm size threshold for $Merge_{Private-to-Public}$ and $Divest_{Subsiduary-to-Private}$. While ignoring industry matching, Panel A shows the time series of four such alternative firm size thresholds (measured in 2017 USD million). These are the 1^{st} percentile market values of IPOs, all new lists (IPOs, uplists, relists, reorganizations, and form changes), all listed firms, and all listed firms that also survive over the following year. In the empirical analysis, the size threshold is the 1^{st} percentile of listed firms with survivorship requirement, matched with the Fama-French 12 industry classification of the firm. Panel B shows the annual count of the transactions that differentiate the nominal, public-to-public merger-adjusted, and real listing counts in Figure 1 after applying this size threshold. N_it net delists are delists of accumulated targets minus relists. Transactions are defined in Figure 1. The vertical dotted line indicates the date of the US nominal listing peak. Sample period 1981–2017. Data are from CRSP and SDC.

A: Firm size thresholds for private-to-public mergers and subsidiary divestitures



B: Transactions differentiating the real and nominal listing counts

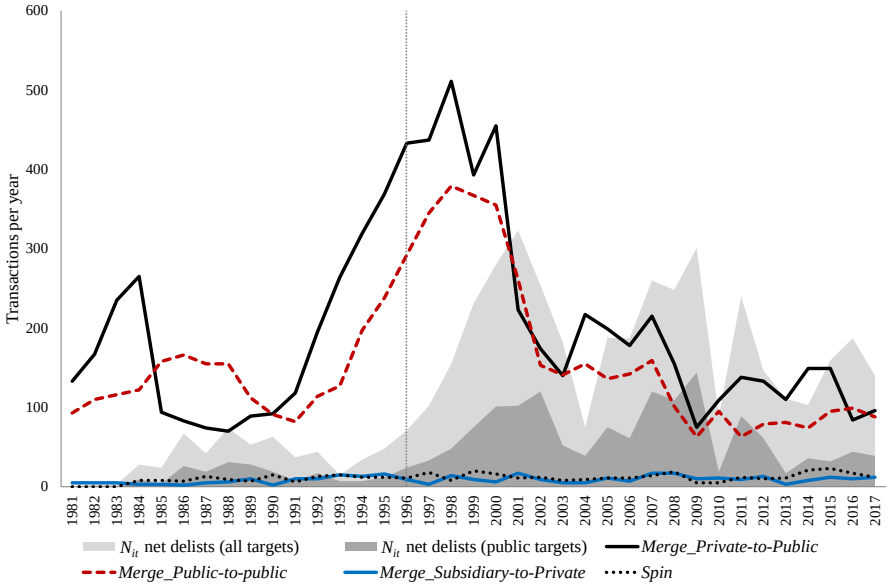


Figure 3: **Inflows and outflows of real listing value classified by (de)listing channel**

The figure shows the annual values (V_{Real}) of real corporate asset inflows (real new lists) and outflows (real delists) in US public markets. The annual change in V_{Real} (ΔV_{Real}) is measured using individual transaction values as follows:

$$\Delta V_{Real} = \begin{cases} Newlists: & IPO + Merge_{Private-to-Public} + Misc_{New} \\ Delists: & Merge_{Public-to-Private} + Divest_{Subsidiary-to-Private} + Misc_{Del} \end{cases}$$

The right axis shows annual values for each channel in 2017 USD billion (bars), while the left axis shows the cumulative net real listing value in 2017 USD trillion (line). The new lists and delists in Table 2 that have an effect on the nominal but not on the real listing count are not included. The vertical dotted line indicates the date of the US nominal listing peak. Variable definitions are as in Figure 1 except that, in this figure, each transaction is measured by its market value. Data are from CRSP and SDC.

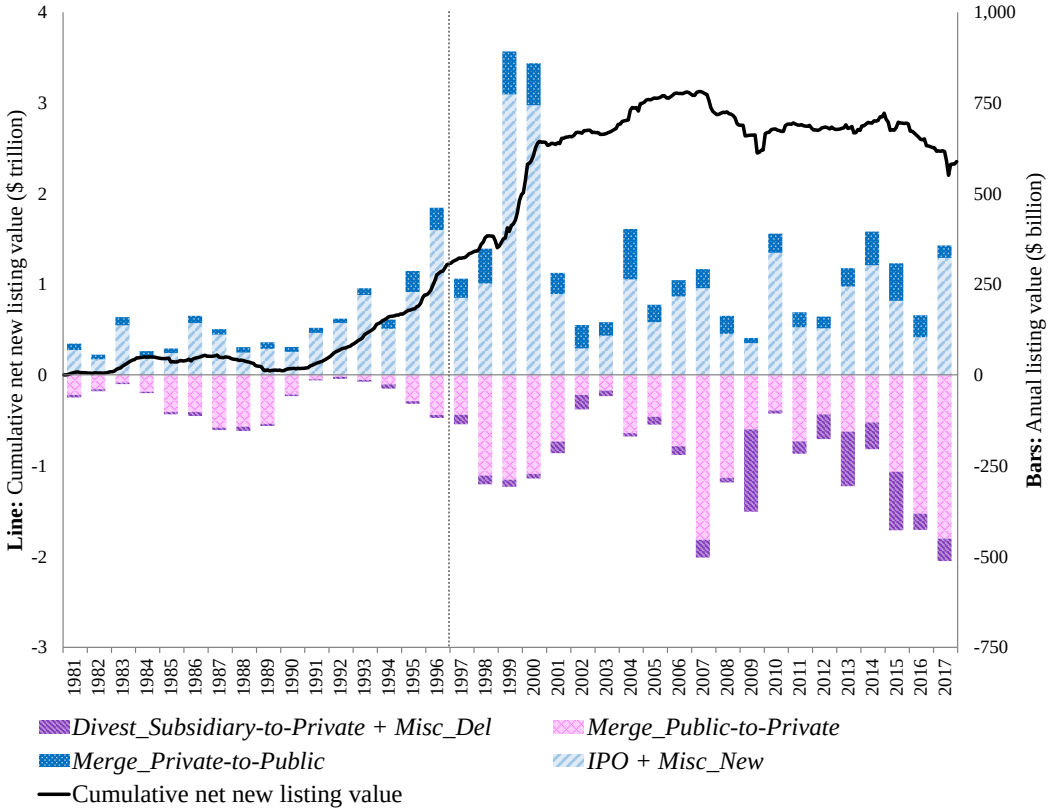


Figure 4: **Net inflows of real listing value by industry**

This graph breaks down the net real listing value in Figure 3 and Table 4 by industry according SIC codes. In Panel A, firms are divided into four categories. Financial firms are those with SIC codes 6000-6999 and utilities those with 4900-4999. High tech firms are defined by the American Electronic Association, as in Eckbo et al. (2018). Remaining non-government firms are classified as industrial (non-high tech). Panel B further breaks down high tech firms by two-digit SIC codes. All values are inflation-adjusted to 2017 USD. The vertical dotted line indicates the date of the US nominal listing peak.

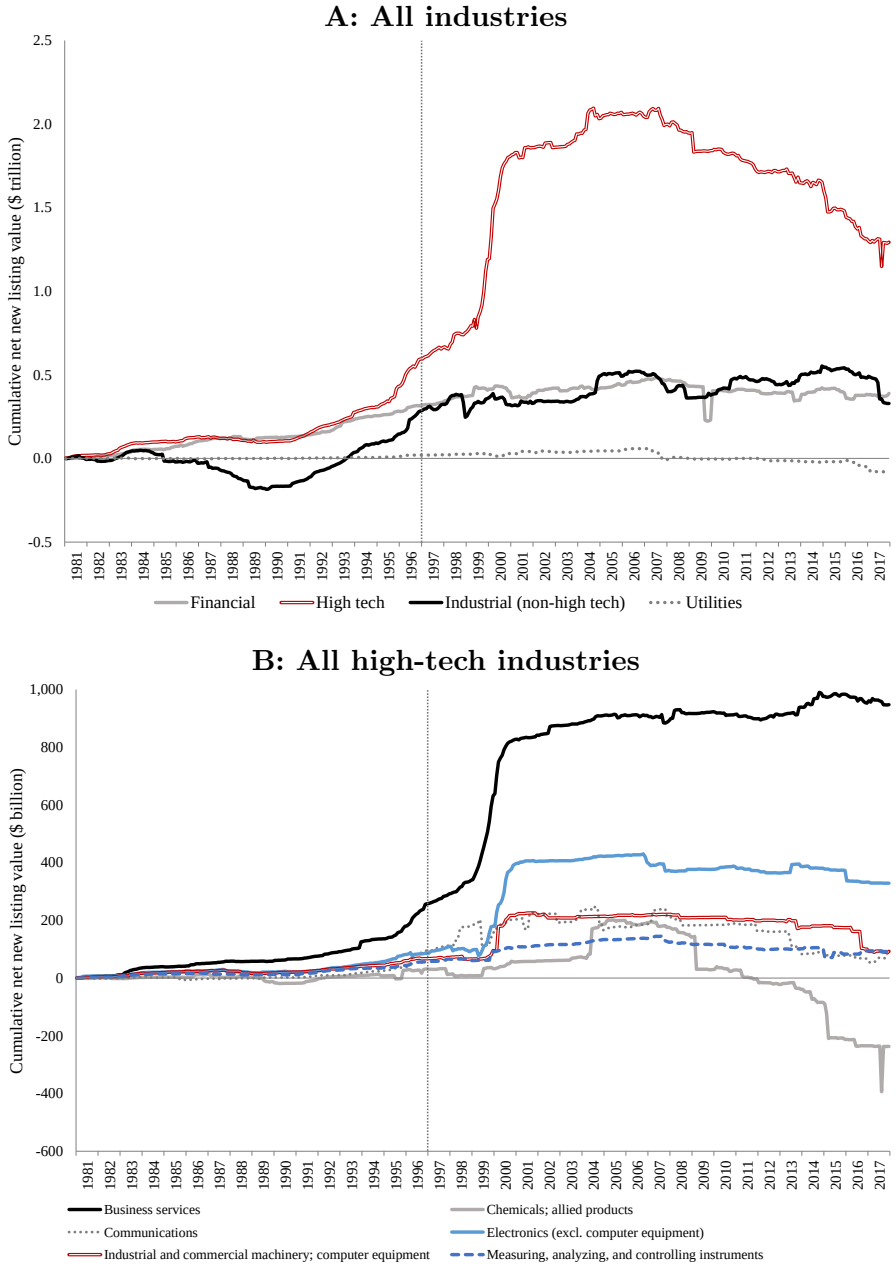


Figure 5: Nominal and public-to-public merger-adjusted listing counts around the world

This figure shows the total end-of-year number of domestic listed firms in the US, non-US advanced economies, and developing/emerging economies. Panel A shows nominal listing counts (G1). Panel B adjusts nominal listing counts by adding back domestic public-to-public mergers in sampled countries, starting in 1990 (G2). G1 and G2 are defined in Eq. (5). The US listing count is from CRSP and those of foreign countries are from WDI or individual stock exchange homepages. Investment companies, mutual funds, REITs, and other collective investment vehicles are excluded. Merger data are from SDC. The time series starts in 1990 since SDC data on non-US mergers are incomplete for earlier years. Advanced and developing/emerging economies are classified by the IMF as of 2018. Additionally adjusting for acquisitions of domestic public firms by foreign public firms has a negligible impact on the series in Panel B. The vertical dotted line indicates the date of the US nominal listing peak.

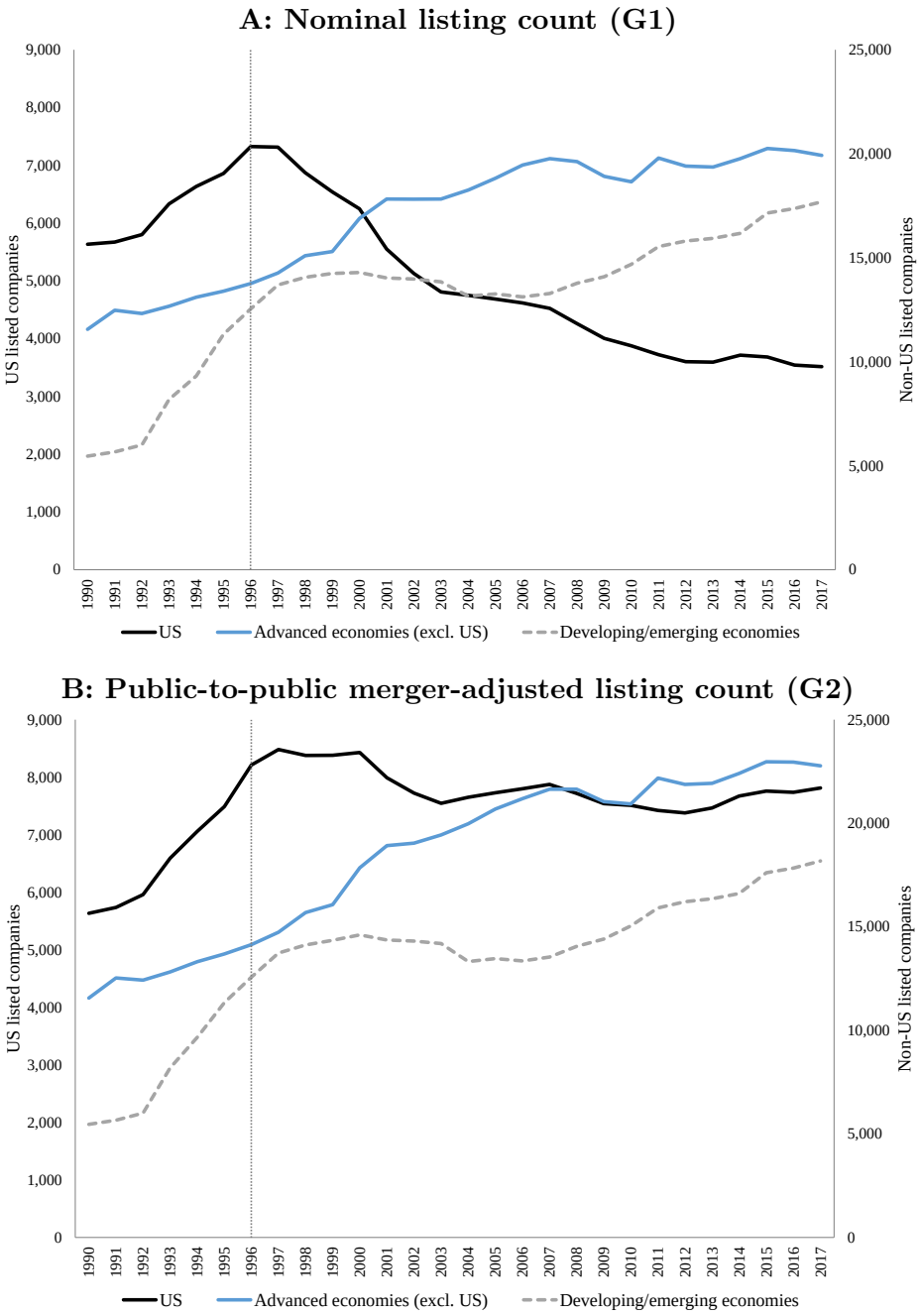


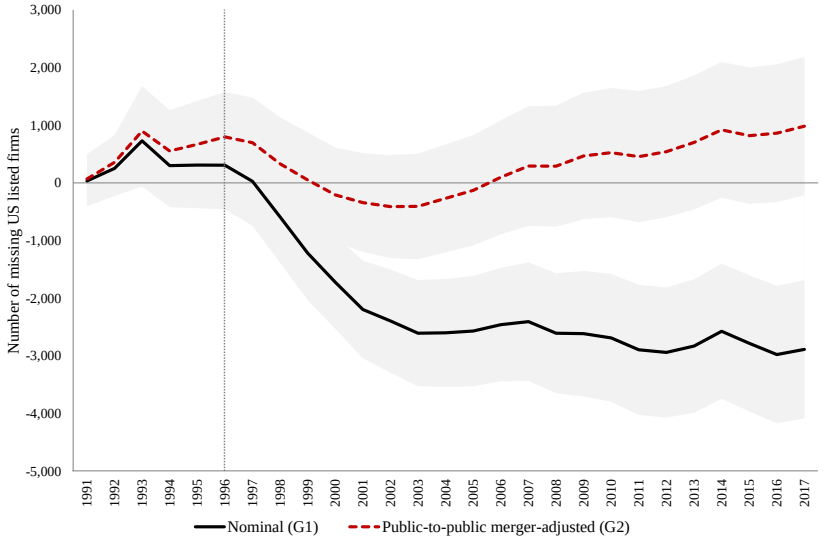
Figure 6: Nominal and partial merger-adjusted listing gaps

This figure shows the nominal (G1, black line) and two partial merger-adjusted US listing gaps, estimated as follows:

$$ln(L/capita_{it}) = \alpha + \delta_i + \tau_t + \beta D_{US,t} + \Gamma(D_{US,t} \times \tau_t) + \lambda X_{it} + \epsilon_{it}.$$

$ln(L/capita_{it})$ is the natural logarithm of the nominal or merger-adjusted listing count of country i in year t, scaled per capita and specified as follows. In Panel A, the listing count is adjusted by adding back one for each domestic public-to-public merger (G2, broken red line). In Panel B, the listing count is adjusted by adding one to the listing count for each public- and minimum-sized private-to-public merger (G3, blue line). G1, G2, and G3 are defined in Eq. (5). δ_i and τ_t are country and year fixed effects, respectively. $D_{US,t}$ is a dummy variable that takes a value of one if country i is the US and zero otherwise, and X_{it} is a vector of three country-specific control variables: country i's anti-self-dealing index, log(GDP/capita) and GDP growth. Standard errors are robust and clustered at the country-level. The US listing gap in year t is calculated by multiplying the US nominal listing count in 1990 (5,634 firms) by the year-t estimate in the coefficient vector Γ. The sample consists of 61 countries and covers 1990–2017. US listing data are from CRSP, non-US listing data are from WDI and exchange homepages, and merger data are from SDC. The vertical dotted line indicates the date of the US nominal listing peak. The shaded grey area displays 90% confidence intervals.

A: Public-to-public merger-adjusted listing gap (G2)



B: Private- and public-to-public merger-adjusted listing gap (G3)

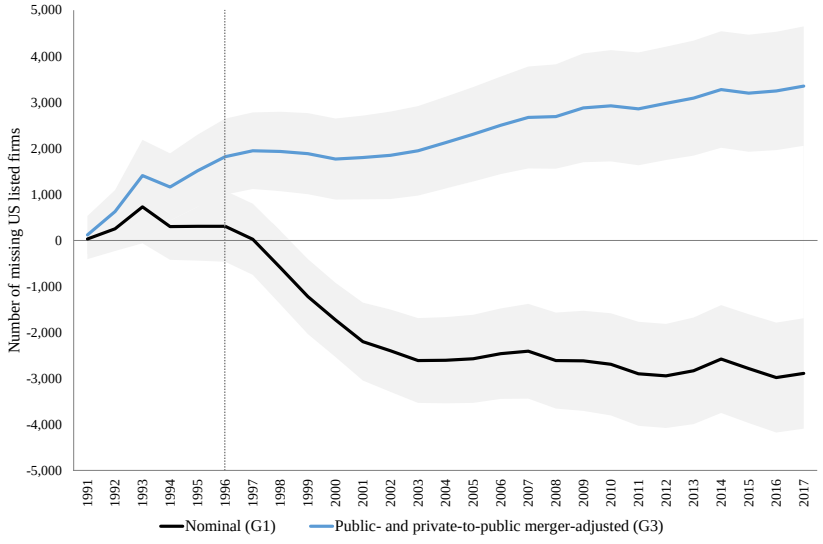


Figure 7: Nominal and real US listing gaps

This figure shows the nominal (G1, black line) and two real US listing gaps, estimated as follows:

$$ln(L/capita_{it}) = \alpha + \delta_i + \tau_t + \beta D_{US,t} + \Gamma(D_{US,t} \times \tau_t) + \lambda X_{it} + \epsilon_{it}.$$

$ln(L/capita_{it})$ is the natural logarithm of the nominal or real listing count of country i in year t, scaled per capita and specified as follows. Non-US listing counts are the same as in the corresponding panels of Figure 6 (A: G2, B: G3). The US uses the real listing count, calculated as:

$$\Delta L_{Real} = \begin{cases} Newlists: & IPO + Merge_{Private-to-Public} + Misc^N_{New} \\ Delists: & Merge^N_{Public-to-Private} + Divest_{Subsidiary-to-Private} + Misc^N_{Del}. \end{cases}$$

In Panel A, the US real listing count excludes private targets (G4, broken red line). In Panel B, all targets, both private and public, are included (G5, blue line). G1–G5 are defined in Eq. (5). Variable definitions are as in Figure 1. Remaining details are as in Figure 6.

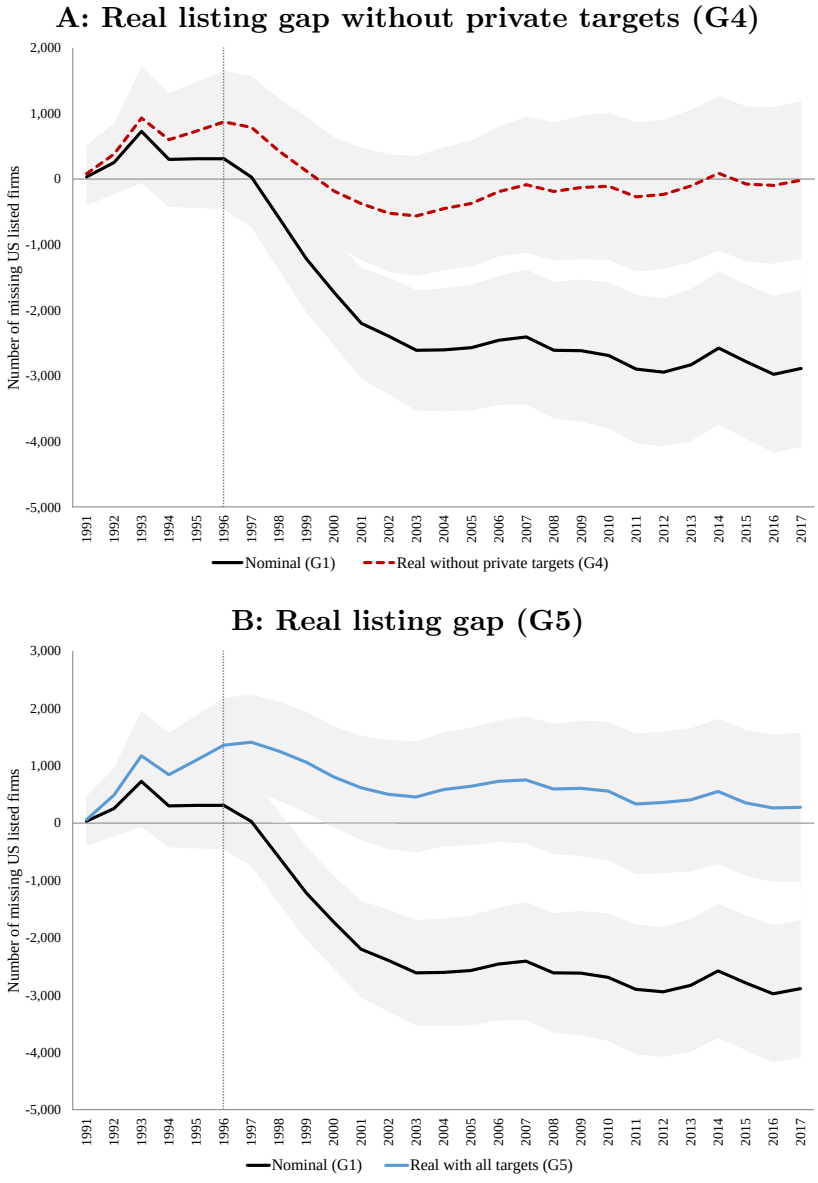
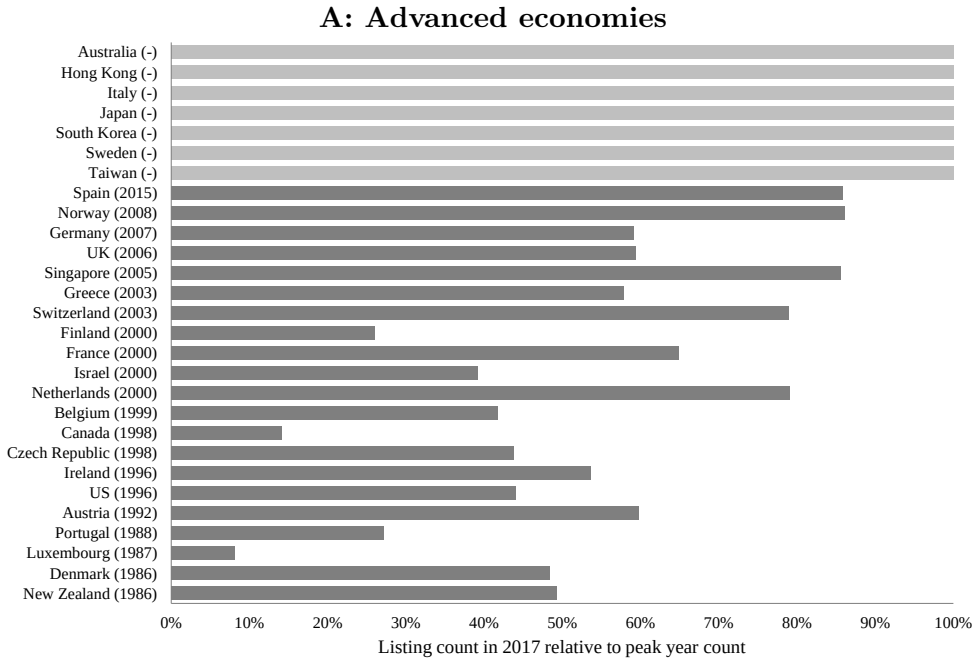


Figure 8: **Country-specific listing peak years and subsequent listing count decline, 1975–2017**

This figure shows the decline in the number of nominal listed firms from the listing peak year to 2017. Light bars are countries that have not experienced a peak, and dark bars indicate countries that have peaked (i.e. have fewer listed firms in 2017 than at peak). The listing peak year is shown in parentheses. 61 countries are sampled: 28 advanced (Panel A) and 33 developing/emerging (Panel B). Data from CRSP, WDI, and stock exchange homepages. Advanced and developing/emerging economies are classified by the IMF as of 2018.



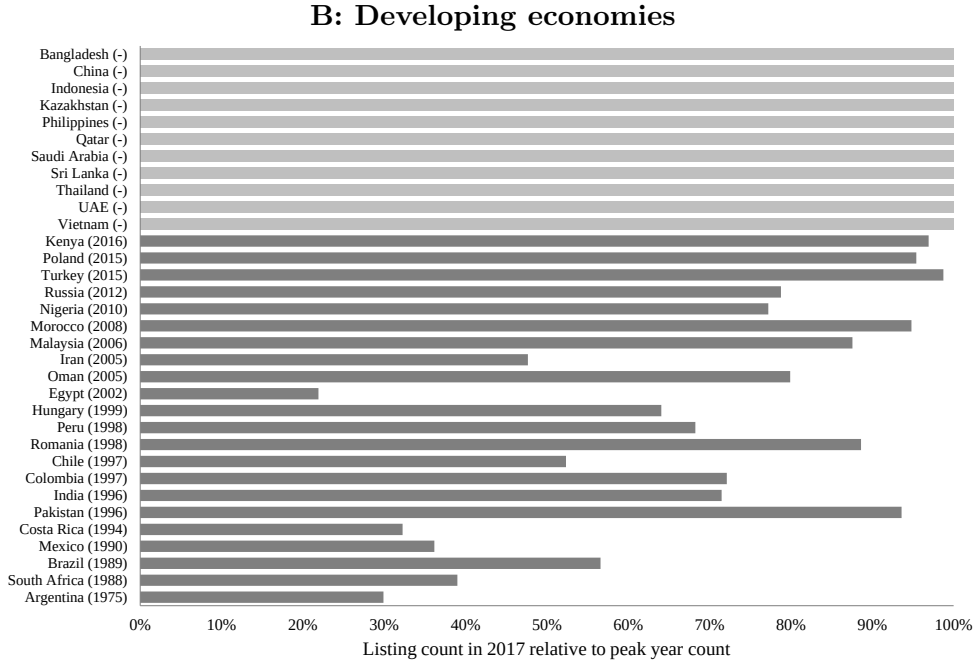


Figure 9: **Annual number of global listing peaks, 1985–2017**

This figure shows the annual number of listing peaks around the world. The full sample includes one peak before 1985 (Argentina in 1975), but it is not shown here. The vertical dotted line indicates the date of the US nominal listing peak. Data from CRSP, WDI, and stock exchange homepages.

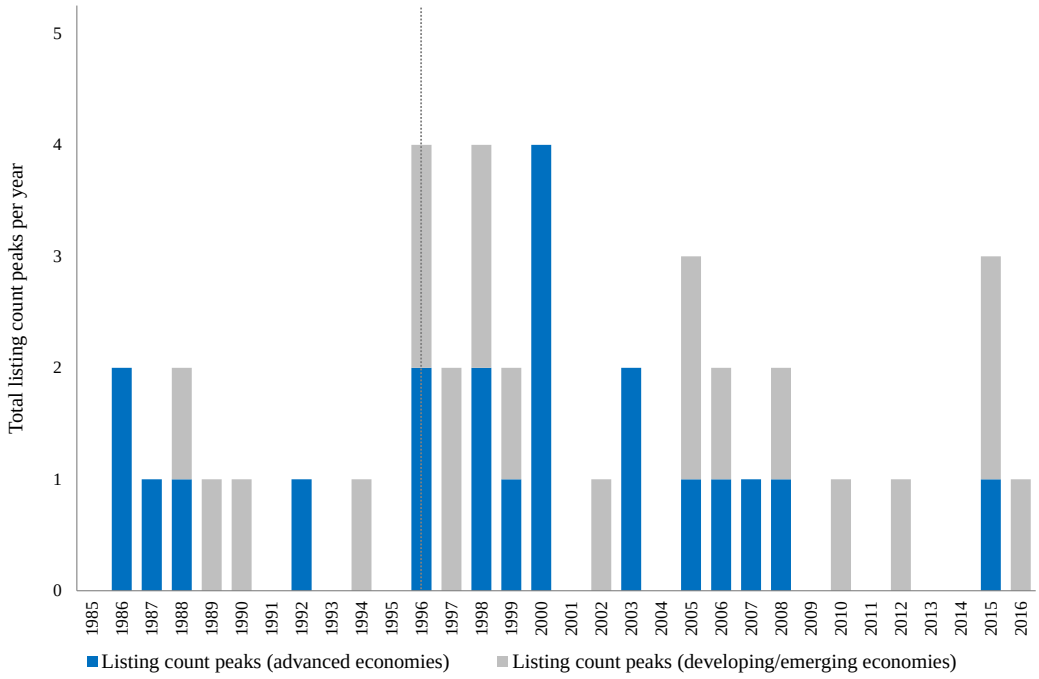


Figure 10: **Global nominal listing peaks in event time, 1980–2017**

This figure shows the nominal listing count (G1) for the US (black line) and equal-weighted portfolios of 14 advanced (blue line) and 15 developing/emerging (broken grey line) economies over an eleven-year event period centered on the peak year (year 0, indicated by the vertical dotted line). G1 is defined in Eq. (**??**). All countries in this graph are constrained to have experienced a peak in 2012 or earlier, and to have reliable stock market listing data for the entire event period. Economic development is classified by the IMF as of 2018. Data are from CRSP, WDI, stock exchange homepages, and SDC.

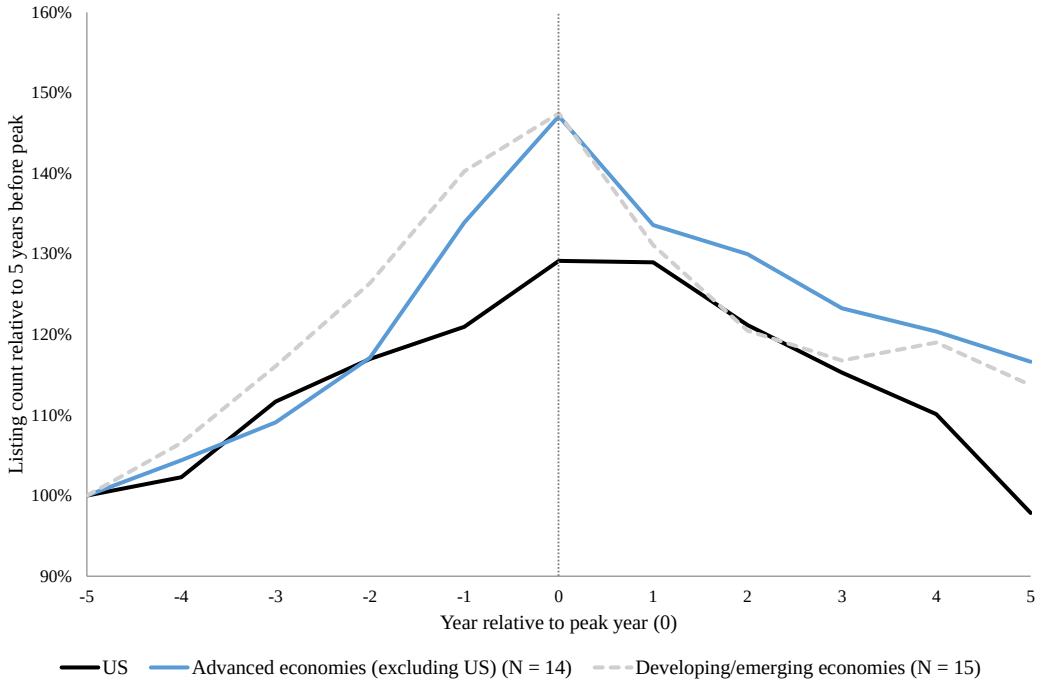
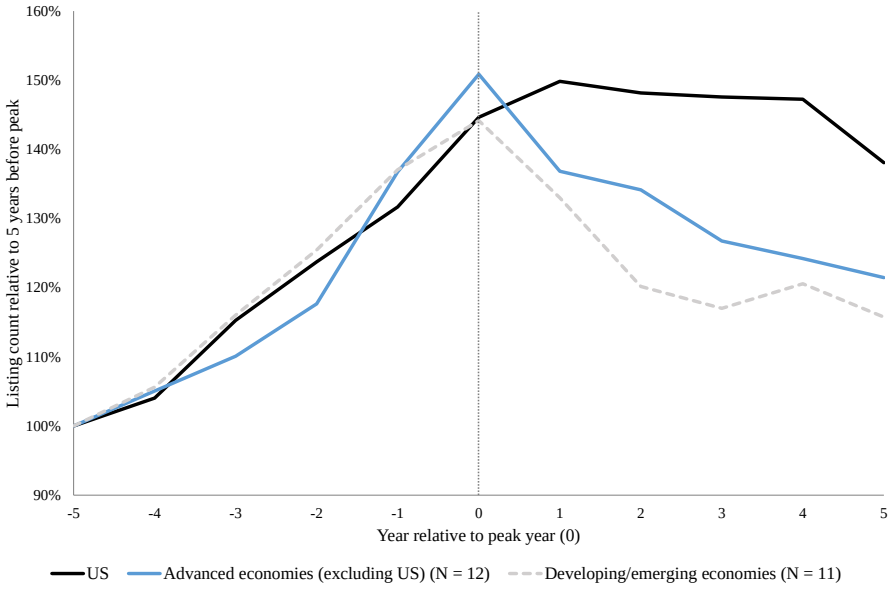


Figure 11: **Global real listing peaks in event time, 1990–2017**

Panel A shows the real listing count excluding movements of private targets (G4) for the US (black line) and equal-weighted portfolios of 14 advanced (blue line) and 15 developing/emerging (broken grey line) economies over an eleven-year event period centered on the peak year (year 0, indicated by the vertical dotted line). In Panel B, the real listing count including both public and private targets (G5) is shown. G4 and G5 are defined in Eq. (5). All countries in this graph are constrained to have experienced a peak in 2012 or earlier, and to have reliable stock market listing data for the entire event period. Unlike Figure 10, this figure further restricts the sample period to 1990–2017 to maximize merger data coverage, resulting in a loss of two advanced and four developing/emerging economies. Using the same sample from this figure in Figure 10 has a negligible impact on results. Economic development is classified by the IMF as of 2018. Data are from CRSP, WDI, stock exchange homepages, and SDC.

A: Real listing count without private targets (G4)



B: Real listing count (G5)

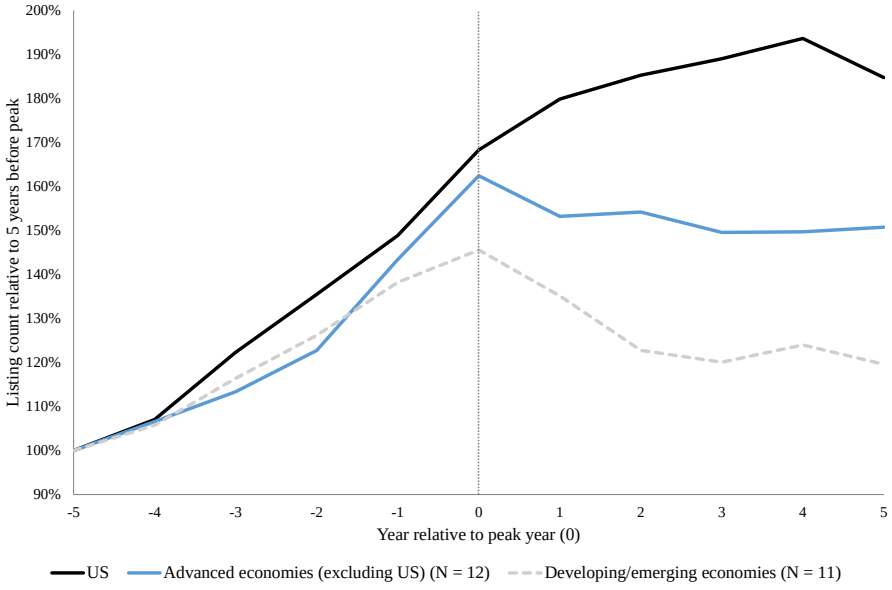


Table 1: **Stock exchange new lists and delists: variable definitions**

Definition	Data sources
A: New lists	
IPO Initial public offering on NYSE, AMEX, or NASDAQ.	Matched to IPO data from SDC and Jay Ritter's webpage.
Spin Divisional spin-off from a US public company.	Identified in CRSP (distribution code 3763) and SDC (acquirer name 'shareholders'). Spin-off parent is confirmed as US public using CRSP.
$Misc_{New}$ Relist, uplist, CRSP reorganization (when a merger of equals results in the creation of a new firm), CRSP form change (to US common stock and/or US incorporation), or unidentified new list.	Relists, reorganizations, and form changes are identified in CRSP. Remaining new lists are classified as uplists, and verified when possible using OTC data from WRDS, SDC (by identifying 'follow-on' listings that occur simultaneously with a new listing), and manual web searches.
$Merge_{Private-to-Public}$ Private-to-public merger: acquisition in which a US public company acquires a foreign, private, or OTC firm.	Mergers are identified in SDC. Targets must have a greater market value than the first percentile of same-industry (using Fama-French 12 industry definitions) firms that remain listed one year later. Percentiles are determined using data from CRSP.
B: Delists	
$Merge_{Public-to-Public}$ Public-to-public merger: a merger between two publicly listed US companies.	Merger delistings are identified in CRSP (delisting codes 200-399). Acquirer identity is found in CRSP, SDC, manually with web searches, and using data from Vijh & Yang (2013).
$Merge_{Public-to-Private}$ Public-to-private merger: merger in which a US public firm is acquired by a foreign, private, or OTC firm.	Same as above.
$Misc_{Del}$ Delist due to cause, voluntary, or for unknown reasons.	Cause delists are identified in CRSP using delisting codes 400-569 and 574-999, and voluntary delists with codes 570-573. Unknown delistings are not marked in CRSP by a delisting code, but occur when the firm leaves the CRSP sample of US public firms for more than two weeks for reasons other than trading suspensions.
$Divest_{Subsidiary-to-Private}$ Subsidiary-to-private divestiture: acquisition of a US public-owned subsidiary by a private, foreign, or OTC firm.	Takeovers are identified in SDC (excludes deals with acquirer name 'shareholders'). Minimum target size threshold is calculated using CRSP and is the same as that of $Merge_{Private-to-Public}$. Subsidiary parent is confirmed as US public using CRSP. The subsidiary itself must not be publicly listed.

Table 2: Nominal new lists and delists in the US by type, 1981–2017

This table shows the total annual (year-end) number of new lists (Panel A) and delists (Panel B) on NYSE, NASDAQ and AMEX. The change in the nominal listing count, $\Delta L_{Nominal}$ is the sum of the following six variables, all of which are defined in Table 1:

$$\Delta L_{Nominal} = \begin{cases} Newlists: & IPO + Spin + Misc_{New} \\ Delists: & Merge_{Public-to-Public} + Merge_{Public-to-Private} + Misc_{Del} \end{cases}$$

IPO are initial public offerings, $Spin$ are spinoffs, and $Misc_{New}$ are miscellaneous new listings. $Misc_{Del}$ are miscellaneous delists. The subscript in $Merge$ indicates the direction of the change in the target's public/private status.

A: $Newlists = IPO + Spin + Misc_{New}$

					$Misc_{New}$			
Year	Total lists (L)	$Newlists$	IPO	$Spin$	Uplists	Relist	Reorg.	Form
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1981	5,073	646	309	0	315	14	4	4
1982	4,999	326	105	0	181	35	4	1
1983	5,571	944	629	0	264	42	5	4
1984	5,691	621	314	8	246	47	4	2
1985	5,652	570	291	8	213	49	4	5
1986	5,930	984	601	7	296	66	1	13
1987	6,222	828	446	13	294	69	5	1
1988	5,955	437	191	9	180	47	8	2
1989	5,770	419	181	7	169	56	3	3
1990	5,634	414	156	15	177	52	7	7
1991	5,672	529	345	6	124	45	3	6
1992	5,801	650	464	13	141	25	2	5
1993	6,334	894	588	15	232	52	4	3
1994	6,634	747	495	12	212	24	3	1
1995	6,861	796	514	12	219	39	8	4
1996	7,325	1,028	746	11	220	31	14	6
1997	7,315	709	490	18	167	21	8	5
1998	6,873	523	299	8	175	22	11	8
1999	6,539	633	467	20	102	30	12	2
2000	6,246	585	347	16	152	47	18	5
2001	5,550	196	75	10	58	38	6	9
2002	5,129	170	69	10	49	32	8	2
2003	4,807	192	67	8	68	44	4	1
2004	4,750	320	172	9	67	55	7	10
2005	4,684	320	160	10	95	47	6	2
2006	4,616	304	163	10	86	36	4	5
2007	4,524	349	194	14	93	41	4	3
2008	4,259	144	36	19	44	33	4	8
2009	4,005	126	44	5	52	18	2	5
2010	3,874	194	99	5	56	27	3	4
2011	3,721	150	87	11	25	23	2	2
2012	3,601	161	116	10	24	5	2	4
2013	3,594	232	173	11	31	12	4	1
2014	3,713	317	224	21	41	24	5	2
2015	3,681	219	140	23	30	21	4	1
2016	3,542	155	84	17	37	14	1	2
2017	3,515	230	139	11	58	13	5	4
Total		17,062	10,020	402	4,993	1,296	199	152
Average	5,234	461	271	11	135	35	5	4

Continued on next page

Table 2: Continued (page 2 of 2)

B: $Delists = Merge_{Public-to-Public} + Merge_{Public-to-Private} + Misc_{Del}$

				$Merge_{Public-to-Private}$						
Year	Total lists (L)	$Delists$	$Merge_{Pub-to-Pub}$	Acq. by US priv.	Acquired by non-US public	Acquired by non-US private	Acq. by unknown	$Misc_{Del}$ Cause	$Misc_{Del}$ Voluntary	$Misc_{Del}$ Unknown
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1981	5,073	290	97	40	10	11	12	96	1	23
1982	4,999	397	114	51	8	8	10	162	1	43
1983	5,571	373	121	53	0	3	7	144	4	41
1984	5,691	501	127	95	9	4	4	201	15	46
1985	5,652	607	161	78	10	4	10	263	12	69
1986	5,930	708	167	96	23	2	16	317	10	77
1987	6,222	535	160	68	25	4	12	204	9	53
1988	5,955	704	163	146	36	10	13	275	15	46
1989	5,770	605	116	103	33	4	5	280	16	48
1990	5,634	550	97	57	26	5	8	307	7	43
1991	5,672	491	86	20	6	1	1	325	13	39
1992	5,801	520	115	16	2	0	1	328	21	37
1993	6,334	361	131	32	5	1	4	151	9	28
1994	6,634	449	200	28	19	0	1	157	9	35
1995	6,861	567	247	46	21	1	1	204	11	36
1996	7,325	565	305	57	25	4	0	152	6	16
1997	7,315	719	353	76	37	3	2	217	4	27
1998	6,873	967	392	98	47	7	0	368	5	50
1999	6,539	965	377	92	80	6	0	333	7	70
2000	6,246	879	373	109	74	5	0	273	8	37
2001	5,550	892	267	87	49	10	0	395	25	59
2002	5,129	590	161	50	15	4	0	286	28	46
2003	4,807	515	145	68	16	2	0	217	24	43
2004	4,750	376	162	67	14	2	0	94	17	20
2005	4,684	389	142	53	23	6	0	110	30	25
2006	4,616	369	146	82	23	7	1	76	7	27
2007	4,524	441	163	120	40	12	0	85	7	14
2008	4,259	410	105	71	40	3	0	143	25	23
2009	4,005	380	66	38	17	0	0	181	49	29
2010	3,874	326	97	71	22	3	0	105	18	10
2011	3,721	303	65	90	26	5	0	90	8	19
2012	3,601	282	81	76	16	4	0	84	5	16
2013	3,594	239	85	65	13	8	0	48	7	13
2014	3,713	197	79	41	18	3	0	36	6	14
2015	3,681	251	99	35	33	4	0	54	9	17
2016	3,542	293	100	57	27	13	0	84	2	10
2017	3,515	257	93	52	32	11	0	54	8	7
Total		18,263	5,958	2,484	920	180	108	6,899	458	1,256
Average	5,234	494	161	67	25	5	3	186	12	34

Table 3: Real new lists and delists in the US by type, 1981–2017

This table shows the total annual (year-end) number of real new lists and delists on NYSE, NASDAQ and AMEX. The change in the real listing count, ΔL_{Real} is the sum of the following six variables, all of which are defined in Table 1:

$$\Delta L_{Real} = \begin{cases} Newlists: & IPO + Merge_{Private-to-Public} + Misc_{New} \\ Delists: & Merge^{N}_{Public-to-Private} + Divest_{Subsidiary-to-Private} + Misc^{N}_{Del} \end{cases}$$

IPO are initial public offerings and $Misc^{N}_{New}$ are miscellaneous new listings. $Misc^{N}_{Del}$ are miscellaneous delists. The subscript in $Merge^{(N)}$ and $Divest$ indicates the direction of the change in the target's public/private status.

				$Merge_{Priv-to-Pub}$						
	Total real			US priv.	Non-US			$Merge^{N}$	$Divest$	
Year	Lists (L_R)	$Newlists$	IPO	target	target	$Misc^{N}_{New}$	$Delists$	$_{Pub-to-Priv}$	$_{Sub-to-Priv}$	$Misc^{N}_{Del}$
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1981	5,295	784	309	132	1	342	205	80	5	120
1982	5,495	496	105	167	0	224	296	82	5	209
1983	6,412	1,184	629	234	1	320	267	68	5	194
1984	6,879	882	314	261	4	303	415	141	3	271
1985	7,056	670	291	92	2	285	493	129	3	361
1986	7,505	1,064	601	81	2	380	615	177	2	436
1987	7,967	908	446	72	2	388	446	159	5	282
1988	7,835	510	191	61	9	249	642	278	6	358
1989	7,779	508	181	77	12	238	564	177	10	377
1990	7,742	521	156	84	8	273	558	150	2	406
1991	7,927	669	345	107	11	206	484	40	10	434
1992	8,299	841	464	170	25	182	469	28	10	431
1993	9,178	1,163	588	238	26	311	284	59	15	210
1994	9,933	1,065	495	285	34	251	310	65	13	232
1995	10,693	1,171	514	316	53	288	411	106	16	289
1996	11,790	1,485	746	375	58	306	388	153	9	226
1997	12,438	1,149	490	370	67	222	501	198	3	300
1998	12,705	1,055	299	401	110	245	788	242	14	532
1999	12,871	1,041	467	312	81	181	875	312	9	554
2000	13,082	1,070	347	378	77	268	859	365	6	488
2001	12,518	419	75	174	49	121	983	261	17	705
2002	12,150	370	69	128	46	127	738	101	9	628
2003	11,913	373	67	109	31	166	610	152	5	453
2004	12,138	592	172	165	52	203	367	171	5	191
2005	12,193	540	160	151	48	181	485	222	11	252
2006	12,243	521	163	132	46	180	471	287	7	177
2007	12,233	584	194	166	49	175	594	413	17	164
2008	11,939	303	36	107	48	112	597	282	17	298
2009	11,507	213	44	55	20	94	645	143	10	492
2010	11,474	419	99	62	47	211	452	237	11	204
2011	11,261	316	87	89	49	91	529	347	9	173
2012	11,182	298	116	92	41	49	377	191	13	173
2013	11,240	384	173	61	49	101	326	205	3	118
2014	11,451	489	224	109	40	116	278	156	8	114
2015	11,469	394	140	104	45	105	376	189	12	175
2016	11,300	264	84	56	28	96	433	267	10	156
2017	11,292	354	139	67	29	119	362	240	12	110
Total		25,069	10,020	6,040	1,300	7,709	18,493	6,873	327	11,293
Average	10,082	660	264	159	34	203	487	181	9	297

Table 4: **Transaction values of US real corporate asset inflows and outflows, 1981–2017**

This table shows the annual values (V_{Real}) of real corporate asset inflows (real new lists) and outflows (real delists) in US public markets. The annual change in V_{Real} (ΔV_{Real}) is measured in 2017 USD billion using individual transaction values as follows:

$$\Delta V_{Real} = \begin{cases} Newlists: & IPO + Merge_{Private-to-Public} + Misc_{New} \\ Delists: & Merge_{Public-to-Private} + Divest_{Subsidiary-to-Private} + Misc_{Del} \end{cases}$$

The new lists and delists in Table 2 that have an effect on the nominal but not on the real listing count are not included.

		Value of real new lists (*Newlists*)			**Value of real delists (*Delists*)**			
Year	ΔV_{Real}	Total	IPO_t $+Misc_{New}$	$Merge_{Priv-to-Pub}$	Total	$Merge_{Pub-to-Priv}$	$Divest_{Sub-to-Priv}$	$Misc_{Del}$
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1981	25.5	86.9	69.5	17.4	61.5	54.1	2.1	5.3
1982	12.5	56.8	43.8	13.0	44.4	38.6	1.1	4.7
1983	135.1	159.9	137.0	22.9	24.9	20.4	0.1	4.3
1984	17.0	66.4	51.2	15.2	49.4	45.7	0.5	3.2
1985	-34.2	73.7	61.0	12.8	107.9	101.7	1.6	4.7
1986	50.8	163.6	143.5	20.0	112.8	101.7	1.1	10.0
1987	-24.0	127.1	111.8	15.3	151.2	144.6	1.9	4.7
1988	-77.0	77.1	62.1	15.0	154.1	142.1	6.3	5.7
1989	-49.7	90.5	72.6	17.9	140.2	133.5	2.4	4.3
1990	20.2	77.7	64.4	13.3	57.5	53.0	1.8	2.7
1991	115.7	130.3	116.4	13.9	14.6	11.3	0.9	2.3
1992	145.7	155.8	144.0	11.8	10.1	4.2	4.0	2.0
1993	221.5	239.5	220.8	18.6	18.0	12.5	2.0	3.5
1994	115.9	153.1	127.8	25.3	37.2	25.0	9.3	2.8
1995	208.8	287.4	229.5	57.9	78.6	71.5	3.7	3.5
1996	343.7	461.4	399.9	61.5	117.8	109.4	0.6	7.7
1997	130.7	266.2	213.0	53.2	135.5	108.8	1.2	25.5
1998	47.9	348.6	252.4	96.2	300.7	276.4	10.8	13.5
1999	584.6	892.0	774.0	118.0	307.4	287.9	2.3	17.2
2000	574.8	859.4	744.0	115.4	284.5	271.7	1.6	11.3
2001	66.8	281.9	223.4	58.4	215.0	182.9	12.9	19.2
2002	44.0	138.3	73.8	64.5	94.3	54.1	6.3	33.9
2003	88.3	146.2	108.7	37.5	57.9	42.3	1.4	14.2
2004	234.3	403.0	263.9	139.0	168.6	159.8	1.2	7.7
2005	57.8	193.9	146.2	47.7	136.1	114.7	2.0	19.4
2006	41.5	261.6	216.8	44.8	220.0	195.6	2.1	22.4
2007	-210.0	292.3	239.4	52.9	502.3	453.2	16.0	33.2
2008	-131.9	163.6	113.8	49.8	295.5	282.6	2.3	10.7
2009	-274.1	102.4	88.3	14.1	376.4	149.0	2.6	224.8
2010	284.3	390.2	337.3	52.9	106.0	97.2	2.3	6.4
2011	-43.1	173.4	132.1	41.3	216.6	182.2	1.8	32.6
2012	-14.9	161.3	129.1	32.2	176.2	107.7	13.0	55.5
2013	-10.9	295.2	244.5	50.7	306.1	155.6	0.3	150.2
2014	191.5	395.7	302.5	93.2	204.1	130.3	7.1	66.7
2015	-119.0	308.2	205.2	103.0	427.2	265.9	15.3	146.0
2016	-261.0	165.3	104.8	60.5	426.3	381.6	15.3	29.4
2017	-155.1	357.4	323.2	34.2	512.5	450.2	35.0	27.3
Total	2,354	9,003	7,292	1,712	6,649	5,419	192	1,038
Average	63.6	243.3	197.1	46.3	179.7	146.5	5.2	28.1

Table 5: Counts and values of listings and mergers in the US and around the world

This table reports the year-end number of publicly listed firms and their combined value (aggregate market capitalization) in the US and foreign countries. The table also shows the total number of mergers between publicly listed domestic firms, and the aggregate value of these deals. Monetary values are measured in 2017 USD billion. Economic development is classified by the IMF (2018). Data on US listings are from CRSP, foreign listings from WDI and stock exchange homepages, and mergers from SDC.

	US				**Advanced economies ex. US**				**Dev./eme. economies**			
Year	Listing count	Listed value	Merger count	Merger value	Listing count	Listed value	Merger count	Merger value	Listing count	Listed value	Merger count	Merger value
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1990	5,634	5,156	80	59	11,558	11,139	60	71	5,461	469	0	0
1991	5,672	6,679	64	53	12,473	11,657	57	42	5,662	773	0	0
1992	5,801	7,191	94	46	12,318	9,701	45	42	6,002	873	0	0
1993	6,334	7,917	100	74	12,669	12,543	48	10	8,187	1,537	0	0
1994	6,634	7,656	165	113	13,104	13,559	57	10	9,316	1,409	3	0
1995	6,861	10,151	205	154	13,392	14,486	86	78	11,327	1,540	6	4
1996	7,325	12,000	258	309	13,760	15,156	81	164	12,541	1,761	12	2
1997	7,315	15,294	280	429	14,271	14,870	89	100	13,696	1,276	14	4
1998	6,873	18,456	338	879	15,100	17,390	122	128	14,060	980	25	11
1999	6,539	23,211	337	890	15,299	25,352	183	100	14,246	1,528	25	9
2000	6,246	20,377	341	1,193	16,892	20,689	188	417	14,293	1,438	20	5
2001	5,550	17,516	258	793	17,824	16,063	141	124	14,026	1,182	21	1
2002	5,129	13,419	155	218	17,814	14,317	126	73	13,976	1,144	11	4
2003	4,807	17,104	145	172	17,824	19,156	109	88	13,839	2,786	16	3
2004	4,750	18,519	160	363	18,253	22,119	113	53	13,152	3,489	18	3
2005	4,684	18,526	144	415	18,820	24,317	143	166	13,258	4,206	32	10
2006	4,616	19,889	139	510	19,456	29,413	144	79	13,114	6,457	35	12
2007	4,524	19,477	166	328	19,765	33,045	143	211	13,280	13,220	20	47
2008	4,259	11,319	111	179	19,621	16,989	144	175	13,775	5,907	20	7
2009	4,005	14,139	74	276	18,911	24,528	114	72	14,089	12,116	36	11
2010	3,874	16,268	102	221	18,654	26,651	146	53	14,686	14,578	40	30
2011	3,721	15,293	64	148	19,795	22,275	106	45	15,535	11,641	24	17
2012	3,601	16,766	77	211	19,409	24,404	83	31	15,809	12,879	24	6
2013	3,594	21,637	93	157	19,361	28,627	99	36	15,933	12,967	14	9
2014	3,713	23,299	90	222	19,763	26,788	74	36	16,173	14,585	18	5
2015	3,681	22,229	118	488	20,254	25,568	74	63	17,149	15,520	22	13
2016	3,542	23,577	118	387	20,151	25,380	69	34	17,370	15,439	7	1
2017	3,515	27,229	102	345	19,922	32,351	65	41	17,690	18,644	25	27
Total			4,378	9,634			2,909	2,539			488	239
Average	5,100	16,082	156	344	17,015	20,662	104	91	13,130	6,441	17	9

Table 6: Estimates of US nominal and merger-adjusted listing gaps: all countries

The table reports coefficient estimates from the following regression specification:

$$ln(Y_{it}) = \alpha + \delta_i + \tau_t + \beta D_{US,t} + \Gamma(D_{US,t} \times \tau_t) + \lambda X_{it} + \epsilon_{it},$$

where the dependent variable for country i in year t (Y_{it}) varies by column: nominal listing count (G1) per capita (1–2) or per GDP (3–4), the public-to-public merger-adjusted listing count (G2) per capita (5–6) or per GDP (7–8), or the public- and private-to-public merger-adjusted listing count (G3) per capita (9–10) or per GDP (11–12). G1, G2, and G3 are defined in Eq. (5). δ_i and τ_t are country and year fixed effects, respectively. Country fixed effects are only included in the even-numbered columns below. $D_{US,t}$ is a dummy variable taking a value of one if the country is US and zero otherwise, and X_{it} is a set of country-specific control variables (anti-self-dealing index, log(GDP/capita) and GDP growth) in year t. For each year after 1990, the size of the listing gap in year t is measured as $L_{1990} * \Gamma$, where L_{1990} is the number of US listed companies in 1990. The regressions are run on the full sample of 61 countries. US listing count data are from CRSP, foreign listing count data are from WDI and exchange homepages, and merger data are from SDC. Parentheses display country-clustered robust standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

	Y_{it}: **Nominal listing count (G1)**				Y_{it}: **Public-to-public merger-adjusted listing count (G2)**				Y_{it}: **Priv- and pub-to-pub merger-adjusted listing count (G3)**			
	Per capita		Per GDP		Per capita		Per GDP		Per capita		Per GDP	
Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Constant	-0.395	-0.474	-1.307***	-0.143*	-0.452	-0.356	-1.309***	-0.163*	-0.623	0.251	-1.305***	-0.213**
	(0.375)	(0.633)	(0.301)	(0.086)	(0.377)	(0.638)	(0.296)	(0.085)	(0.390)	(0.684)	(0.290)	(0.092)
Anti-self-dealing index	1.859***		1.662***		1.913***		1.731***		1.981***		1.835***	
	(0.436)		(0.467)		(0.426)		(0.457)		(0.420)		(0.444)	
Log(GDP/capita)	0.702***	1.139***			0.721***	1.081***			0.777***	0.805***		
	(0.093)	(0.269)			(0.093)	(0.271)			(0.094)	(0.290)		
GDP growth	0.012	-0.007*	0.055*	-0.006*	0.006	-0.007*	0.046	-0.007**	-0.002	-0.007*	0.030	-0.008**
	(0.023)	(0.004)	(0.029)	(0.003)	(0.022)	(0.004)	(0.028)	(0.003)	(0.022)	(0.004)	(0.027)	(0.003)
US dummy	-0.331**		-0.478***		-0.366**		-0.503***		-0.437***		-0.546***	
	(0.163)		(0.155)		(0.161)		(0.153)		(0.156)		(0.148)	
US 1991 dummy	0.016	0.006	0.066	0.002	0.016	0.012	0.064	0.010	0.032	0.021	0.070	0.026
	(0.057)	(0.047)	(0.063)	(0.047)	(0.056)	(0.046)	(0.060)	(0.046)	(0.055)	(0.045)	(0.056)	(0.044)
US 1992 dummy	-0.000	0.045	-0.120	0.039	0.038	0.064	-0.076	0.060	0.119	0.111**	0.028	0.119**
	(0.081)	(0.052)	(0.099)	(0.050)	(0.079)	(0.051)	(0.095)	(0.049)	(0.077)	(0.051)	(0.089)	(0.048)
US 1993 dummy	0.105	0.129	0.022	0.125	0.147	0.159*	0.069	0.157*	0.264***	0.250***	0.202**	0.256***
	(0.092)	(0.085)	(0.104)	(0.081)	(0.090)	(0.084)	(0.100)	(0.080)	(0.088)	(0.084)	(0.094)	(0.078)
US 1994 dummy	-0.015	0.053	-0.174	0.049	0.050	0.098	-0.106	0.096	0.191**	0.206**	0.067	0.212***
	(0.098)	(0.078)	(0.135)	(0.074)	(0.093)	(0.076)	(0.129)	(0.073)	(0.094)	(0.078)	(0.125)	(0.074)
US 1995 dummy	0.005	0.055	-0.127	0.050	0.079	0.119	-0.046	0.116	0.260***	0.269***	0.161	0.275***
	(0.086)	(0.081)	(0.119)	(0.077)	(0.086)	(0.081)	(0.117)	(0.077)	(0.088)	(0.084)	(0.115)	(0.080)
US 1996 dummy	0.075	0.055	-0.090	0.051	0.176	0.142*	0.021	0.140*	0.392***	0.323***	0.269*	0.327***
	(0.111)	(0.083)	(0.145)	(0.081)	(0.109)	(0.084)	(0.142)	(0.082)	(0.110)	(0.089)	(0.139)	(0.086)
US 1997 dummy	0.011	0.005	-0.193	0.002	0.150	0.124	-0.042	0.122	0.412***	0.346***	0.259*	0.351***
	(0.120)	(0.083)	(0.164)	(0.082)	(0.118)	(0.084)	(0.160)	(0.082)	(0.120)	(0.090)	(0.154)	(0.087)
US 1998 dummy	-0.135	-0.105	-0.462**	-0.105	0.063	0.059	-0.244	0.059	0.396**	0.343***	0.151	0.343***
	(0.164)	(0.086)	(0.221)	(0.086)	(0.163)	(0.087)	(0.215)	(0.087)	(0.165)	(0.093)	(0.209)	(0.093)

Continued on next page

Table 6: Continued (page 2 of 2)

	Y_{it}: Nominal listing count (G1)				Y_{it}: Public-to-public merger-adjusted listing count (G2)				Y_{it}: Priv- and pub-to-pub merger-adjusted listing count (G3)			
	Per capita		Per GDP		Per capita		Per GDP		Per capita		Per GDP	
Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
US 1999 dummy	-0.238	-0.216**	-0.514**	-0.215**	0.029	0.009	-0.238	0.010	0.390**	0.335***	0.177	0.331***
	(0.143)	(0.088)	(0.194)	(0.088)	(0.146)	(0.089)	(0.192)	(0.090)	(0.150)	(0.095)	(0.187)	(0.096)
US 2000 dummy	-0.296**	-0.306***	-0.473***	-0.305***	0.015	-0.037	-0.165	-0.035	0.388***	0.314***	0.245	0.310***
	(0.118)	(0.087)	(0.156)	(0.087)	(0.120)	(0.088)	(0.153)	(0.089)	(0.125)	(0.095)	(0.151)	(0.096)
US 2001 dummy	-0.387***	-0.390***	-0.537***	-0.390***	-0.017	-0.061	-0.162	-0.060	0.384***	0.320***	0.269*	0.318***
	(0.119)	(0.091)	(0.155)	(0.092)	(0.118)	(0.092)	(0.150)	(0.093)	(0.123)	(0.098)	(0.147)	(0.098)
US 2002 dummy	-0.414***	-0.425***	-0.570***	-0.426***	-0.035	-0.073	-0.184	-0.073	0.391***	0.328***	0.273*	0.329***
	(0.122)	(0.096)	(0.154)	(0.097)	(0.118)	(0.096)	(0.146)	(0.096)	(0.124)	(0.102)	(0.145)	(0.102)
US 2003 dummy	-0.461***	-0.463***	-0.642***	-0.464***	-0.051	-0.072	-0.222	-0.073	0.399***	0.346***	0.263*	0.348***
	(0.128)	(0.099)	(0.163)	(0.099)	(0.125)	(0.099)	(0.156)	(0.098)	(0.131)	(0.105)	(0.155)	(0.104)
US 2004 dummy	-0.436***	-0.462***	-0.594***	-0.464***	-0.018	-0.048	-0.159	-0.050	0.437***	0.377***	0.325**	0.381***
	(0.122)	(0.101)	(0.152)	(0.100)	(0.121)	(0.101)	(0.147)	(0.100)	(0.128)	(0.107)	(0.147)	(0.106)
US 2005 dummy	-0.437***	-0.456***	-0.602***	-0.460***	0.002	-0.023	-0.147	-0.026	0.468***	0.409***	0.350**	0.415***
	(0.128)	(0.103)	(0.157)	(0.102)	(0.127)	(0.103)	(0.153)	(0.102)	(0.135)	(0.111)	(0.153)	(0.108)
US 2006 dummy	-0.411***	-0.436***	-0.496***	-0.443***	0.048	0.017	-0.031	0.013	0.504***	0.444***	0.441***	0.453***
	(0.122)	(0.106)	(0.141)	(0.104)	(0.122)	(0.107)	(0.139)	(0.104)	(0.129)	(0.114)	(0.140)	(0.111)
US 2007 dummy	-0.415***	-0.427***	-0.460***	-0.437***	0.067	0.052	0.025	0.046	0.523***	0.474***	0.490***	0.489***
	(0.124)	(0.111)	(0.140)	(0.108)	(0.124)	(0.112)	(0.138)	(0.108)	(0.129)	(0.119)	(0.139)	(0.115)
US 2008 dummy	-0.473***	-0.463***	-0.539***	-0.477***	0.050	0.052	-0.011	0.043	0.522***	0.478***	0.473***	0.498***
	(0.121)	(0.112)	(0.137)	(0.107)	(0.120)	(0.113)	(0.135)	(0.108)	(0.128)	(0.122)	(0.138)	(0.116)
US 2009 dummy	-0.483***	-0.464***	-0.598***	-0.481***	0.082	0.083	-0.026	0.073	0.573***	0.511***	0.486***	0.536***
	(0.128)	(0.117)	(0.147)	(0.111)	(0.128)	(0.118)	(0.145)	(0.111)	(0.138)	(0.127)	(0.150)	(0.120)
US 2010 dummy	-0.495***	-0.477***	-0.592***	-0.496***	0.093	0.093	0.002	0.082	0.583***	0.519***	0.511***	0.546***
	(0.127)	(0.120)	(0.146)	(0.113)	(0.127)	(0.121)	(0.144)	(0.113)	(0.137)	(0.130)	(0.148)	(0.122)
US 2011 dummy	-0.525***	-0.514***	-0.611***	-0.535***	0.087	0.081	0.006	0.068	0.582***	0.507***	0.517***	0.537***
	(0.130)	(0.122)	(0.148)	(0.115)	(0.129)	(0.123)	(0.146)	(0.115)	(0.138)	(0.132)	(0.149)	(0.123)
US 2012 dummy	-0.603***	-0.522***	-0.778***	-0.544***	0.046	0.096	-0.118	0.083	0.564***	0.528***	0.433**	0.560***
	(0.144)	(0.122)	(0.171)	(0.114)	(0.143)	(0.123)	(0.168)	(0.114)	(0.154)	(0.133)	(0.171)	(0.123)
US 2013 dummy	-0.564***	-0.502***	-0.696***	-0.525***	0.088	0.125	-0.036	0.111	0.591***	0.549***	0.492***	0.580***
	(0.140)	(0.125)	(0.163)	(0.117)	(0.139)	(0.125)	(0.160)	(0.117)	(0.148)	(0.135)	(0.162)	(0.125)
US 2014 dummy	-0.535***	-0.457***	-0.679***	-0.480***	0.112	0.163	-0.023	0.150	0.611***	0.582***	0.503***	0.614***
	(0.145)	(0.126)	(0.169)	(0.118)	(0.144)	(0.127)	(0.166)	(0.117)	(0.152)	(0.136)	(0.168)	(0.126)
US 2015 dummy	-0.566***	-0.494***	-0.717***	-0.517***	0.101	0.145	-0.040	0.132	0.605***	0.568***	0.492***	0.600***
	(0.149)	(0.127)	(0.179)	(0.119)	(0.147)	(0.128)	(0.175)	(0.119)	(0.155)	(0.137)	(0.175)	(0.127)
US 2016 dummy	-0.617***	-0.528***	-0.742***	-0.552***	0.115	0.153	-0.001	0.139	0.617***	0.576***	0.525***	0.610***
	(0.141)	(0.129)	(0.160)	(0.120)	(0.144)	(0.129)	(0.160)	(0.120)	(0.152)	(0.139)	(0.163)	(0.129)
US 2017 dummy	-0.575***	-0.512***	-0.692***	-0.537***	0.136	0.175	0.026	0.160	0.636***	0.595***	0.548***	0.630***
	(0.146)	(0.129)	(0.165)	(0.121)	(0.145)	(0.129)	(0.162)	(0.120)	(0.153)	(0.140)	(0.165)	(0.129)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
R^2	0.592	0.950	0.244	0.922	0.606	0.951	0.233	0.918	0.638	0.950	0.222	0.903
N	1,361	1,506	1,361	1,506	1,373	1,518	1,373	1,518	1,373	1,518	1,373	1,518

Table 7: Estimates of US nominal and real listing gaps: all countries

The table reports coefficient estimates from the following regression specification:

$$ln(Y_{it}) = \alpha + \delta_i + \tau_t + \beta D_{US,t} + \Gamma(D_{US,t} \times \tau_t) + \lambda X_{it} + \epsilon_{it},$$

where the dependent variable for country i in year t (Y_{it}) varies by column: nominal listing count (G1) per capita (1–2) or per GDP (3–4), the real listing count without private targets (G4) per capita (5–6) or per GDP (7–8), or the real listing count with all targets (G5) per capita (9–10) or per GDP (11–12). G1, G4, and G5 are defined in Eq. (5). δ_i and τ_t are country and year fixed effects, respectively. Country fixed effects are only included in the even-numbered columns below. $D_{US,t}$ is a dummy variable taking a value of one if the country is US and zero otherwise, and X_{it} is a set of country-specific control variables (anti-self-dealing index, log(GDP/capita) and GDP growth) in year t. For each year after 1990, the size of the listing gap in year t is measured as $L_{1990} * \Gamma$, where L_{1990} is the number of US listed companies in 1990. The regressions are run on the full sample of 61 countries. US listing count data are from CRSP, foreign listing count data are from WDI and exchange homepages, and merger data are from SDC. Parentheses display country-clustered robust standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

	Y_{it}: **Nominal listing count (G1)**				Y_{it}: **Real listing count without private targets (G4)**				Y_{it}: **Real listing count with all targets (G5)**			
	Per capita		Per GDP		Per capita		Per GDP		Per capita		Per GDP	
Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Constant	-0.395	-0.474	-1.307***	-0.143*	-0.452	-0.356	-1.309***	-0.163*	-0.623	0.251	-1.305***	-0.213**
	(0.375)	(0.633)	(0.301)	(0.086)	(0.377)	(0.638)	(0.296)	(0.085)	(0.390)	(0.684)	(0.290)	(0.092)
Anti-self-dealing index	1.859***		1.662***		1.913***		1.731***		1.981***		1.835***	
	(0.436)		(0.467)		(0.426)		(0.457)		(0.420)		(0.444)	
Log(GDP/capita)	0.702***	1.139***			0.721***	1.081***			0.777***	0.805***		
	(0.093)	(0.269)			(0.093)	(0.271)			(0.094)	(0.290)		
GDP growth	0.012	-0.007*	0.055*	-0.006*	0.006	-0.007*	0.046	-0.007**	-0.002	-0.007*	0.030	-0.008**
	(0.023)	(0.004)	(0.029)	(0.003)	(0.022)	(0.004)	(0.028)	(0.003)	(0.022)	(0.004)	(0.027)	(0.003)
US dummy	-0.331**		-0.478***		-0.366**		-0.503***		-0.437***		-0.546***	
	(0.163)		(0.155)		(0.161)		(0.153)		(0.156)		(0.148)	
US 1991 dummy	0.016	0.006	0.066	0.002	0.019	0.015	0.066	0.012	0.021	0.011	0.059	0.016
	(0.057)	(0.047)	(0.063)	(0.047)	(0.056)	(0.046)	(0.060)	(0.046)	(0.055)	(0.045)	(0.056)	(0.044)
US 1992 dummy	-0.000	0.045	-0.120	0.039	0.042	0.068	-0.072	0.064	0.094	0.087*	0.004	0.094*
	(0.081)	(0.052)	(0.099)	(0.050)	(0.079)	(0.051)	(0.095)	(0.049)	(0.077)	(0.051)	(0.089)	(0.048)
US 1993 dummy	0.105	0.129	0.022	0.125	0.153*	0.165*	0.075	0.163**	0.223**	0.208**	0.161*	0.214***
	(0.092)	(0.085)	(0.104)	(0.081)	(0.090)	(0.084)	(0.100)	(0.080)	(0.088)	(0.084)	(0.094)	(0.078)
US 1994 dummy	-0.015	0.053	-0.174	0.049	0.058	0.107	-0.097	0.104	0.134	0.150*	0.011	0.155**
	(0.098)	(0.078)	(0.135)	(0.074)	(0.093)	(0.076)	(0.129)	(0.073)	(0.094)	(0.078)	(0.125)	(0.074)
US 1995 dummy	0.005	0.055	-0.127	0.050	0.090	0.130	-0.035	0.127	0.186**	0.195**	0.086	0.201**
	(0.086)	(0.081)	(0.119)	(0.077)	(0.086)	(0.081)	(0.117)	(0.077)	(0.088)	(0.084)	(0.115)	(0.080)
US 1996 dummy	0.075	0.055	-0.090	0.051	0.189*	0.155*	0.034	0.153*	0.310***	0.241***	0.187	0.245***
	(0.111)	(0.083)	(0.145)	(0.081)	(0.109)	(0.084)	(0.142)	(0.082)	(0.110)	(0.089)	(0.139)	(0.086)
US 1997 dummy	0.011	0.005	-0.193	0.002	0.166	0.140	-0.026	0.138*	0.316**	0.250***	0.163	0.255***
	(0.120)	(0.083)	(0.164)	(0.082)	(0.118)	(0.084)	(0.160)	(0.082)	(0.120)	(0.090)	(0.154)	(0.087)
US 1998 dummy	-0.135	-0.105	-0.462**	-0.105	0.080	0.076	-0.227	0.076	0.275	0.223**	0.030	0.222**
	(0.164)	(0.086)	(0.221)	(0.086)	(0.163)	(0.087)	(0.215)	(0.087)	(0.165)	(0.093)	(0.209)	(0.093)

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Table 7: Continued (page 2 of 2)

	Y_{it}: Nominal listing count (G1)				Y_{it}: Real listing count without private targets (G4)				Y_{it}: Real listing count with all targets (G5)			
	Per capita		Per GDP		Per capita		Per GDP		Per capita		Per GDP	
Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
US 1999 dummy	-0.238	-0.216**	-0.514**	-0.215**	0.041	0.022	-0.225	0.023	0.244	0.188*	0.031	0.185*
	(0.143)	(0.088)	(0.194)	(0.088)	(0.146)	(0.089)	(0.192)	(0.090)	(0.150)	(0.095)	(0.187)	(0.096)
US 2000 dummy	-0.296**	-0.306***	-0.473***	-0.305***	0.019	-0.032	-0.160	-0.031	0.217*	0.143	0.074	0.139
	(0.118)	(0.087)	(0.156)	(0.087)	(0.120)	(0.088)	(0.153)	(0.089)	(0.125)	(0.095)	(0.151)	(0.096)
US 2001 dummy	-0.387***	-0.390***	-0.537***	-0.390***	-0.023	-0.067	-0.168	-0.066	0.174	0.109	0.058	0.108
	(0.119)	(0.091)	(0.155)	(0.092)	(0.118)	(0.092)	(0.150)	(0.093)	(0.123)	(0.098)	(0.147)	(0.098)
US 2002 dummy	-0.414***	-0.425***	-0.570***	-0.426***	-0.055	-0.092	-0.203	-0.092	0.152	0.089	0.033	0.090
	(0.122)	(0.096)	(0.154)	(0.097)	(0.118)	(0.096)	(0.146)	(0.096)	(0.124)	(0.102)	(0.145)	(0.102)
US 2003 dummy	-0.461***	-0.463***	-0.642***	-0.464***	-0.079	-0.100	-0.249	-0.101	0.134	0.081	-0.002	0.083
	(0.128)	(0.099)	(0.163)	(0.099)	(0.125)	(0.099)	(0.156)	(0.098)	(0.131)	(0.105)	(0.155)	(0.104)
US 2004 dummy	-0.436***	-0.462***	-0.594***	-0.464***	-0.050	-0.080	-0.191	-0.082	0.164	0.104	0.051	0.108
	(0.122)	(0.101)	(0.152)	(0.100)	(0.121)	(0.101)	(0.147)	(0.100)	(0.128)	(0.107)	(0.147)	(0.106)
US 2005 dummy	-0.437***	-0.456***	-0.602***	-0.460***	-0.041	-0.066	-0.189	-0.068	0.172	0.114	0.054	0.120
	(0.128)	(0.103)	(0.157)	(0.102)	(0.127)	(0.103)	(0.153)	(0.102)	(0.135)	(0.111)	(0.153)	(0.108)
US 2006 dummy	-0.411***	-0.436***	-0.496***	-0.443***	-0.003	-0.034	-0.083	-0.038	0.190	0.129	0.126	0.139
	(0.122)	(0.106)	(0.141)	(0.104)	(0.122)	(0.107)	(0.139)	(0.104)	(0.129)	(0.114)	(0.140)	(0.111)
US 2007 dummy	-0.415***	-0.427***	-0.460***	-0.437***	-0.000	-0.015	-0.042	-0.021	0.183	0.134	0.149	0.148
	(0.124)	(0.111)	(0.140)	(0.108)	(0.124)	(0.112)	(0.138)	(0.108)	(0.129)	(0.119)	(0.139)	(0.115)
US 2008 dummy	-0.473***	-0.463***	-0.539***	-0.477***	-0.035	-0.033	-0.096	-0.042	0.150	0.106	0.101	0.126
	(0.121)	(0.112)	(0.137)	(0.107)	(0.120)	(0.113)	(0.135)	(0.108)	(0.128)	(0.122)	(0.138)	(0.116)
US 2009 dummy	-0.483***	-0.464***	-0.598***	-0.481***	-0.024	-0.023	-0.132	-0.033	0.169	0.108	0.083	0.132
	(0.128)	(0.117)	(0.147)	(0.111)	(0.128)	(0.118)	(0.145)	(0.111)	(0.138)	(0.127)	(0.150)	(0.120)
US 2010 dummy	-0.495***	-0.477***	-0.592***	-0.496***	-0.020	-0.019	-0.111	-0.031	0.164	0.099	0.091	0.126
	(0.127)	(0.120)	(0.146)	(0.113)	(0.127)	(0.121)	(0.144)	(0.113)	(0.137)	(0.130)	(0.148)	(0.122)
US 2011 dummy	-0.525***	-0.514***	-0.611***	-0.535***	-0.041	-0.048	-0.123	-0.061	0.134	0.059	0.069	0.089
	(0.130)	(0.122)	(0.148)	(0.115)	(0.129)	(0.123)	(0.146)	(0.115)	(0.138)	(0.132)	(0.149)	(0.123)
US 2012 dummy	-0.603***	-0.522***	-0.778***	-0.544***	-0.091	-0.041	-0.256	-0.055	0.100	0.064	-0.031	0.095
	(0.144)	(0.122)	(0.171)	(0.114)	(0.143)	(0.123)	(0.168)	(0.114)	(0.154)	(0.133)	(0.171)	(0.123)
US 2013 dummy	-0.564***	-0.502***	-0.696***	-0.525***	-0.055	-0.018	-0.178	-0.031	0.114	0.072	0.015	0.103
	(0.140)	(0.125)	(0.163)	(0.117)	(0.139)	(0.125)	(0.160)	(0.117)	(0.148)	(0.135)	(0.162)	(0.125)
US 2014 dummy	-0.535***	-0.457***	-0.679***	-0.480***	-0.036	0.015	-0.171	0.002	0.127	0.098	0.020	0.130
	(0.145)	(0.126)	(0.169)	(0.118)	(0.144)	(0.127)	(0.166)	(0.117)	(0.152)	(0.136)	(0.168)	(0.126)
US 2015 dummy	-0.566***	-0.494***	-0.717***	-0.517***	-0.057	-0.013	-0.199	-0.027	0.100	0.063	-0.013	0.095
	(0.149)	(0.127)	(0.179)	(0.119)	(0.147)	(0.128)	(0.175)	(0.119)	(0.155)	(0.137)	(0.175)	(0.127)
US 2016 dummy	-0.617***	-0.528***	-0.742***	-0.552***	-0.055	-0.017	-0.171	-0.031	0.087	0.047	-0.005	0.080
	(0.141)	(0.129)	(0.160)	(0.120)	(0.144)	(0.129)	(0.160)	(0.120)	(0.152)	(0.139)	(0.163)	(0.129)
US 2017 dummy	-0.575***	-0.512***	-0.692***	-0.537***	-0.041	-0.003	-0.151	-0.018	0.090	0.049	0.002	0.084
	(0.146)	(0.129)	(0.165)	(0.121)	(0.145)	(0.129)	(0.162)	(0.120)	(0.153)	(0.140)	(0.165)	(0.129)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
R^2	0.592	0.950	0.244	0.922	0.606	0.951	0.234	0.918	0.635	0.950	0.223	0.903
N	1,361	1,506	1,361	1,506	1,373	1,518	1,373	1,518	1,373	1,518	1,373	1,518

Table 8: **Global nominal listing counts and peak years by economic development**

This table provides an overview of country-specific listing peaks. A country's listing-peak year is defined as the year with the highest listing count between 1975–2017. Columns (6)–(7) show each country's change in listing count from the peak year to 2017. Advanced and developing/emerging economies are defined by the IMF as of 2018. Data sources: CRSP, WDI, WFE, and stock exchange homepages.

Country	2017 GDP USD tri. (1)	2017 GDP rank (2)	Peak listing year (3)	Listing count at peak (4)	2017 listing count (5)	Change since peak (6)	Annual change (7)
A: Advanced countries that have peaked							
United States	19.4	1	1996	7,325	3,515	-52%	-2.5%
Germany	3.7	4	2007	761	450	-41%	-4.1%
United Kingdom	2.6	5	2006	2,913	1,731	-41%	-3.7%
France	2.6	7	2000	1,185	465	-61%	-3.6%
Canada	1.7	10	1998	1,991	871	-56%	-3.0%
Spain	1.3	14	2015	3,623	3,110	-14%	-7.1%
Netherlands	0.8	18	2000	392	102	-74%	-4.4%
Switzerland	0.7	20	2003	289	228	-21%	-1.5%
Belgium	0.5	25	1999	278	116	-58%	-3.2%
Austria	0.4	28	1992	112	67	-40%	-1.6%
Norway	0.4	29	2008	209	180	-14%	-1.5%
Israel	0.4	32	2000	664	431	-35%	-2.1%
Ireland	0.3	35	1996	93	41	-56%	-2.7%
Denmark	0.3	36	1986	274	135	-51%	-1.6%
Singapore	0.3	37	2005	564	483	-14%	-1.2%
Finland	0.3	43	2000	158	125	-21%	-1.2%
Portugal	0.2	47	1988	158	43	-73%	-2.5%
Czech Republic	0.2	48	1998	92	13	-86%	-4.5%
New Zealand	0.2	51	1986	339	164	-52%	-1.7%
Greece	0.2	52	2003	339	196	-42%	-3.0%
Luxembourg	0.1	72	1987	347	28	-92%	-3.1%
Average (N = 21)	1.7	29	1999	1,089	634	-47%	-2.8%
B: Advanced countries that have not peaked by 2017							
Japan	4.9	3	–	–	2,627	–	–
Italy	1.9	9	–	–	339	–	–
South Korea	1.6	11	–	–	2,114	–	–
Australia	1.3	13	–	–	2,013	–	–
Taiwan	0.6	22	–	–	1,548	–	–
Sweden	0.5	23	–	–	315	–	–
Hong Kong	0.3	34	–	–	1,987	–	–
Average (N = 7)	1.6	16	–	–	1,563	–	–

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Table 8: **Continued (page 2 of 2)**

Country	2017 GDP USD tri. (1)	2017 GDP rank (2)	Peak listing year (3)	Listing count at peak (4)	2017 listing count (5)	Change since peak (6)	Annual change (7)
C: Developing/emerging countries that have peaked							
India	2.6	6	1996	5,999	5,615	-6%	-0.3%
Brazil	2.1	8	1989	592	335	-43%	-1.6%
Russia	1.5	12	2012	292	230	-21%	-4.2%
Mexico	1.1	15	1990	390	141	-64%	-2.4%
Turkey	0.9	17	2015	392	374	-5%	-2.3%
Argentina	0.6	21	1975	321	96	-70%	-1.7%
Poland	0.5	24	2015	872	861	-1%	-0.6%
Iran	0.4	27	2005	408	326	-20%	-1.7%
Nigeria	0.4	31	2010	215	166	-23%	-3.3%
South Africa	0.3	33	1988	754	294	-61%	-2.1%
Malaysia	0.3	38	2006	1,021	894	-12%	-1.1%
Colombia	0.3	40	1997	128	67	-48%	-2.4%
Pakistan	0.3	41	1996	782	559	-29%	-1.4%
Chile	0.3	42	1997	294	212	-28%	-1.4%
Egypt	0.2	45	2002	1,150	252	-78%	-5.2%
Romania	0.2	49	1998	126	86	-32%	-1.7%
Peru	0.2	50	1998	246	218	-11%	-0.6%
Hungary	0.1	57	1999	64	41	-36%	-2.0%
Morocco	0.1	62	2008	77	73	-5%	-0.6%
Kenya	0.1	69	2016	65	63	-3%	-3.1%
Oman	0.1	70	2005	235	112	-52%	-4.4%
Costa Rica	0.1	74	1994	31	10	-68%	-2.9%
Average (N = 22)	0.6	38	2001	657	501	-33%	-2.1%
D: Developing/emerging countries that have not peaked by 2017							
China	12.2	2	–	–	3,485	–	–
Indonesia	1.0	16	–	–	566	–	–
Saudi Arabia	0.7	19	–	–	188	–	–
Thailand	0.5	26	–	–	688	–	–
United Arab Emirates	0.4	30	–	–	127	–	–
Philippines	0.3	39	–	–	264	–	–
Bangladesh	0.2	44	–	–	572	–	–
Vietnam	0.2	46	–	–	344	–	–
Qatar	0.2	55	–	–	45	–	–
Kazakhstan	0.2	56	–	–	90	–	–
Sri Lanka	0.1	65	–	–	296	–	–
Average (N = 11)	1.5	36	–	–	606	–	–

Table 9: **Listing-count changes in event time around peak year (0) in Table 8**

This table shows the change in nominal listing count L for countries with a nominal listing peak, 10 and 5 years before and after the peak. The countries, sorting, and data sources in this table are as in Table 8.

	Peak year	**Peak year -10**		**Peak year -5**		**Peak year +5**		**Peak year +10**	
Country	L	L	% change	L	% change	L	% change	L	% change
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A: Advanced countries that have peaked									
United States	7,325	5,930	24%	5,672	29%	5,550	-24%	4,616	-37%
Germany	761	700	9%	715	6%	665	-13%	450	-41%
United Kingdom	2,913	2,041	43%	2,438	19%	1,987	-32%	1,790	-39%
France	1,185	443	167%	710	67%	749	-37%	617	-48%
Canada	1,991	1,856	7%	1,673	19%	1,239	-38%	1,409	-29%
Spain	3,623	3,290	10%	3,310	9%	–	–	–	–
Netherlands	392	260	51%	184	113%	237	-40%	150	-62%
Switzerland	289	215	34%	232	25%	253	-12%	236	-18%
Belgium	278	190	46%	162	72%	235	-15%	165	-41%
Austria	112	62	81%	75	49%	101	-10%	109	-3%
Norway	209	214	-2%	160	31%	173	-17%	–	–
Israel	664	216	207%	652	2%	579	-13%	596	-10%
Ireland	93	–	–	–	–	68	-27%	57	-39%
Denmark	274	247	11%	210	30%	260	-5%	237	-14%
Singapore	564	250	126%	328	72%	461	-18%	483	-14%
Finland	158	73	116%	73	116%	133	-16%	123	-22%
Portugal	158	38	316%	25	532%	89	-44%	76	-52%
Czech Republic	92	-	-	3	2,967%	37	-60%	19	-79%
New Zealand	339	-	-	-	-	139	-59%	132	-61%
Greece	339	135	151%	246	38%	289	-15%	248	-27%
Luxembourg	347	73	375%	88	294%	59	-83%	56	-84%
Average	1,195	1,008	68%	1,053	44%	772	-23%	714	-32%
(excluding Czech Republic, Luxembourg, and Portugal due to outliers)									
B: Developing/emerging countries that have peaked									
India	5,999	1,911	214%	2,556	135%	5,795	-3%	4,796	-20%
Brazil	592	404	47%	522	13%	548	-7%	478	-19%
Russia	292	–	–	–	–	230	-21%	–	–
Mexico	390	271	44%	188	107%	185	-53%	175	-55%
Turkey	392	257	53%	263	49%	–	–	–	–
Argentina	321	–	–	–	–	277	-14%	226	-30%
Poland	872	234	273%	570	53%	–	–	–	-
Iran	408	142	187%	285	43%	369	-10%	318	-22%
Nigeria	215	–	–	215	0%	183	-15%	–	–
South Africa	754	507	49%	464	63%	615	-18%	650	-14%
Malaysia	1,021	615	66%	804	27%	932	-9%	893	-13%
Colombia	128	–	–	83	54%	110	-14%	90	-30%
Pakistan	782	–	–	–	–	747	-4%	651	-17%
Chile	294	211	39%	244	20%	245	-17%	238	-19%
Egypt	1,150	–	–	654	76%	435	-62%	234	-80%
Romania	126	–	–	–	–	57	-55%	62	-51%
Peru	246	–	–	235	5%	195	-21%	201	-18%
Hungary	64	–	–	40	60%	47	-27%	42	-34%
Morocco	77	53	45%	52	48%	75	-3%	–	–
Kenya	65	52	25%	58	12%	–	–	–	–
Oman	235	114	106%	208	13%	114	-51%	116	-51%
Costa Rica	31	16	94%	–	–	21	-32%	22	-29%
Average	657	368	96%	438	46%	588	-23%	575	-31%

Table 10: **Determinants of post-peak listing count rates of decline**

This table shows coefficient estimates from the following regression specification:

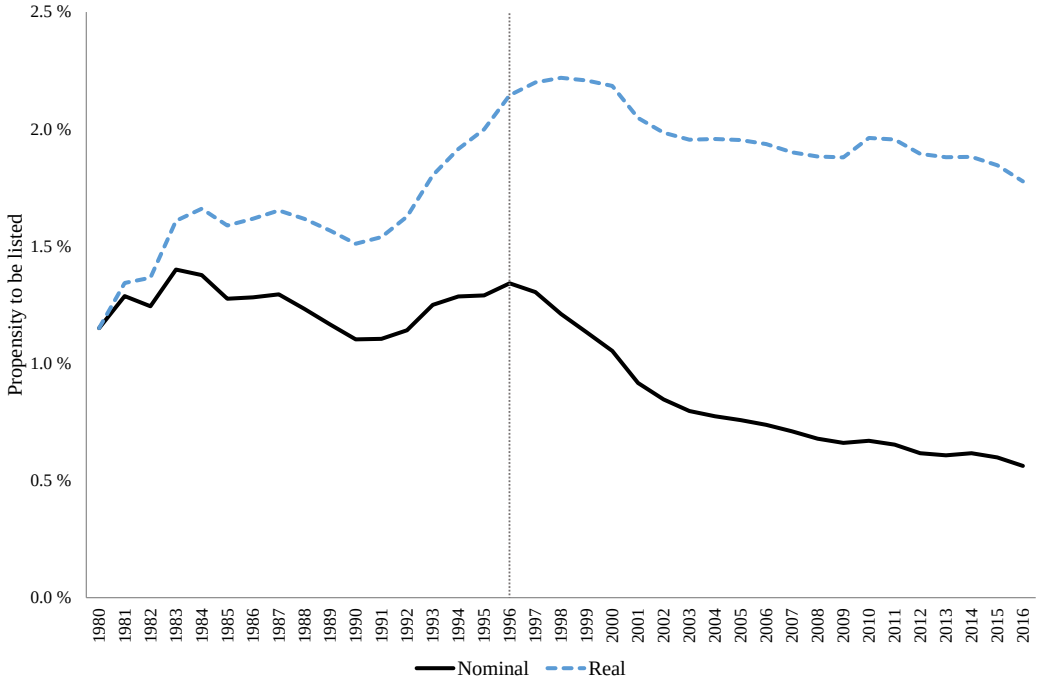
$$Decline_i = \alpha + \beta D_{US} + \lambda Z_i + \epsilon_i,$$

where $Decline_i$ is the average annual rate (percent) of decline in listed firms for country i in the five years (columns 1–2, 5–6, 9–10) or three years (columns 3–4, 7–8, 11–12) after that country's listing peak. $Decline_i$ is calculated from the nominal listing count (G1) in columns (1)–(4), the real listing count without private targets (G4) in columns (5)–(8), and the real listing count with all targets (G5) in columns (9)–(12). G1, G4, and G5 are defined in Eq. (5). D_{US} is a dummy taking a value of one if the country is the US and zero otherwise. Z_i is a set of pre-peak country-specific control variables. Each is an annual average value from the five or three years (depending on the sample) before the listing peak in country i. *Growth variables* measure the average percent growth in listing count (in G1, G4, or G5, corresponding to $Decline_i$) and GDP from the start of the event period to the peak year. Trade and FDI net inflows are scaled by GDP, where the former is the sum of exports and imports. Patent applications and GDP are scaled by population. Patent applications only includes those made by residents. The sample starts with the full list of countries that experience a peak between 1975 and 2016 (43 countries). Several countries are dropped due to missing data. Additionally, Czech Republic, Luxembourg, and Portugal are excluded due to irregularities in the WDI data. Odd-numbered columns use all available countries and even-numbered columns only sample advanced economies. US listing count data are from CRSP, foreign listing count data are from WDI and exchange homepages, and merger data are from SDC. Control variables are from the World Bank and IMF. Advanced economies are classified by the IMF as of 2018. Parentheses display robust standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

	$Decline_i$: **Nominal listing count (G1)**				$Decline_i$: **Real listing count without private targets (G4)**				$Decline_i$: **Real listing count with all targets (G5)**			
Event time:	±5 years		±3 years		±5 years		±3 years		±5 years		±3 years	
Sampled countries:	All	Adv.	All	Adv.	All	Adv.	All	Adv.	All	Adv.	All	Adv.
Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Constant	0.059**	0.123**	0.081*	0.209**	0.050*	0.109*	0.081**	0.156**	0.063**	0.101	0.093***	0.151***
	(0.021)	(0.034)	(0.035)	(0.070)	(0.021)	(0.037)	(0.033)	(0.037)	(0.024)	(0.055)	(0.031)	(0.029)
US dummy	0.016***	0.011*	0.006	0.001	-0.025***	-0.027**	-0.044***	-0.050***	-0.033***	-0.035*	-0.059***	-0.067***
	(0.005)	(0.005)	(0.009)	(0.008)	(0.007)	(0.006)	(0.009)	(0.006)	(0.010)	(0.011)	(0.012)	(0.009)
Pre-peak growth variables												
Listing count growth	0.103	0.116*	0.077	0.116	0.057	0.114	0.072	0.199**	0.014	0.040	0.063	0.207*
	(0.103)	(0.059)	(0.098)	(0.079)	(0.102)	(0.079)	(0.098)	(0.047)	(0.081)	(0.119)	(0.094)	(0.092)
GDP growth	-0.005	-0.010*	-0.006	-0.021*	-0.003	-0.010	-0.006	-0.016*	-0.005	-0.010	-0.008*	-0.019*
	(0.004)	(0.004)	(0.006)	(0.010)	(0.002)	(0.006)	(0.005)	(0.006)	(0.003)	(0.011)	(0.004)	(0.007)
GDP-scaled variables												
Trade	-0.000**	-0.001***	-0.000*	-0.001*	-0.000***	-0.000	-0.000	-0.000	-0.000**	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FDI net inflows	0.004*	0.012***	0.006**	0.014*	0.003	0.007	0.003	0.004	0.003	0.003	0.002	-0.001
	(0.002)	(0.003)	(0.003)	(0.006)	(0.002)	(0.004)	(0.003)	(0.004)	(0.002)	(0.006)	(0.003)	(0.005)
Population-scaled variables												
Patent applications	-50.051	-102.493*	-86.113	-137.863*	-33.235	-88.014	-65.195	-100.637	-70.057*	-104.716	-95.677*	-114.473*
	(29.433)	(49.077)	(55.608)	(68.272)	(31.680)	(50.656)	(43.364)	(51.958)	(38.953)	(66.337)	(45.282)	(37.070)
GDP	0.000	-0.001*	-0.000	-0.001*	0.000	-0.000	-0.000	-0.001***	-0.000	-0.001	-0.000	-0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.227	0.663	0.181	0.744	0.125	0.649	0.219	0.866	0.279	0.602	0.371	0.895
N	26	14	29	14	21	12	24	12	21	12	24	12

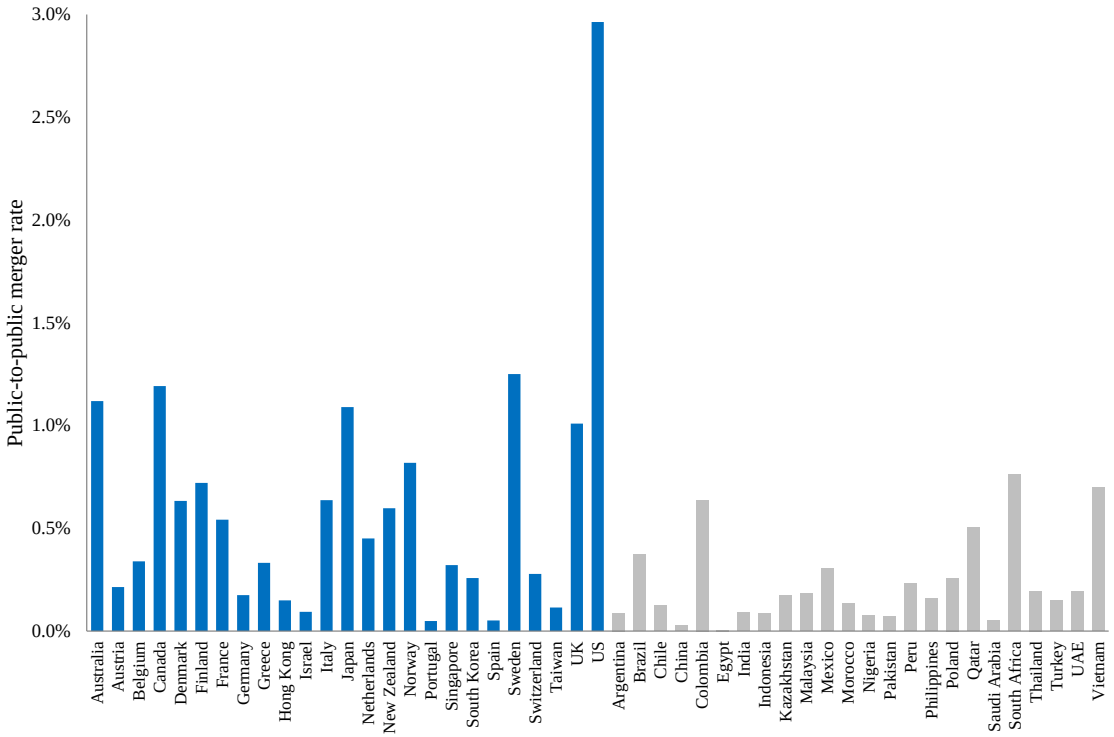
Appendix Figure 1: **Real and nominal propensity to be listed, 1980–2016**

This figure shows the listing propensity for an average US firm of listable size. Following Doidge et al. (2017), we identify listable firms as those with 20 or more employees. To calculate the propensity to be listed, we divide the number of publicly listed firms by the total number of listable firms in the US, which is available from the Longitudinal Business Database. Listing propensity is separately calculated using the US nominal and real listing counts, both plotted in Figure 1. The denominator (number of US listable firms) is adjusted when calculating real listing propensity to account for the difference between nominal and real public firm counts. The size threshold for a private-to-public merger or subsidiary divestiture to be counted as a real new list or delist is the 1^{st} percentile of listed firms' market cap with a one-year survivorship requirement and matched on Fama-French 12 industry classification. The vertical dotted line indicates 1996, the US nominal listing peak year.



Appendix Figure 2: **Average annual public-to-public merger probability by country, 1990–2017**

This figure shows the average annual likelihood for a public company to be acquired by another public company in the same country in a year 1990–2017. Blue bars indicate advanced economies and grey bars indicate developing/emerging economies. Merger data are from SDC, listing counts are from CRSP, WDI, and stock exchanges, and economic development status is classified by the IMF as of 2018.



Appendix Table 1: **International sample selection process**

This table shows the countries included in each step of the sample selection process, starting with the 75 largest GDP countries per the World Bank as of 2017, plus Taiwan. The end of the table displays the number of sampled countries as well which configuration of countries correspond to speecific figures and tables.

75 World Bank highest GDP countries plus Taiwan (1)	**WDI listing data are available** (2)	**Listing data are found for 2017** (3)	**Country has experienced a listing peak** (4)	**Available data seem reliable ±5 years around peak** (5)	**Listing count data available ±3 years around peak** (6)	**Listing count available ±5 years around peak** (7)
Algeria	–	–	–	–	–	–
Angola	–	–	–	–	–	–
Argentina	Argentina	Argentina	Argentina	Argentina	–	–
Australia	Australia	Australia	-	–	–	–
Austria	Austria	Austria	Austria	Austria	Austria	Austria
Bangladesh	Bangladesh	Bangladesh	–	–	–	–
Belgium	Belgium	Belgium	Belgium	Belgium	Belgium	Belgium
Brazil	Brazil	Brazil	Brazil	Brazil	Brazil	Brazil
Canada	Canada	Canada	Canada	Canada	Canada	Canada
Chile	Chile	Chile	Chile	Chile	Chile	Chile
China	China	China	–	–	–	–
Colombia	Colombia	Colombia	Colombia	Colombia	Colombia	Colombia
Costa Rica	Costa Rica	Costa Rica	Costa Rica	Costa Rica	Costa Rica	–
Czech Republic	Czech Republic	Czech Republic	Czech Republic	–	–	–
Denmark	Denmark	Denmark	Denmark	Denmark	Denmark	Denmark
Dominican Republic	–	–	–	–	–	–
Ecuador	Ecuador	–	–	–	–	–
Egypt	Egypt	Egypt	Egypt	Egypt	Egypt	Egypt
Ethiopia	–	–	–	–	–	–
Finland	Finland	Finland	Finland	Finland	Finland	Finland
France	France	France	France	France	France	France
Germany	Germany	Germany	Germany	Germany	Germany	Germany
Greece	Greece	Greece	Greece	Greece	Greece	Greece
Guatemala	–	–	–	–	–	–
Hong Kong	Hong Kong	Hong Kong	–	–	–	–
Hungary	Hungary	Hungary	Hungary	Hungary	Hungary	Hungary

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Appendix Table 1: **Continued (page 2 of 3)**

75 World Bank highest GDP countries plus Taiwan	**WDI listing data are available**	**Listing data are found for 2017**	**Country has experienced a listing peak**	**Available data seem reliable ±5 years around peak**	**Listing count data available ±3 years around peak**	**Listing count available ±5 years around peak**
(1)	(2)	(3)	(4)	(5)	(6)	(7)
India	India	India	India	India	India	India
Indonesia	Indonesia	Indonesia	–	–	–	–
Iran	Iran	Iran	Iran	Iran	Iran	Iran
Iraq	–	–	–	–	–	–
Ireland	Ireland	Ireland	Ireland	Ireland	–	–
Israel	Israel	Israel	Israel	Israel	Israel	Israel
Italy	Italy	Italy	–	–	–	–
Japan	Japan	Japan	–	–	–	–
Kazakhstan	Kazakhstan	Kazakhstan	–	–	–	–
Kenya	Kenya	Kenya	Kenya	Kenya	–	–
Kuwait	Kuwait	–	–	–	–	–
Luxembourg	Luxembourg	Luxembourg	Luxembourg	–	–	–
Malaysia	Malaysia	Malaysia	Malaysia	Malaysia	Malaysia	Malaysia
Mexico	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
Morocco	Morocco	Morocco	Morocco	Morocco	Morocco	Morocco
Myanmar	–	–	–	–	–	–
Netherlands	Netherlands	Netherlands	Netherlands	Netherlands	Netherlands	Netherlands
New Zealand	New Zealand	New Zealand	New Zealand	New Zealand	–	–
Nigeria	Nigeria	Nigeria	Nigeria	Nigeria	Nigeria	Nigeria
Norway	Norway	Norway	Norway	Norway	Norway	Norway
Oman	Oman	Oman	Oman	Oman	Oman	Oman
Pakistan	Pakistan	Pakistan	Pakistan	Pakistan	Pakistan	–
Peru	Peru	Peru	Peru	Peru	Peru	Peru
Philippines	Philippines	Philippines	–	–	–	–
Poland	Poland	Poland	Poland	Poland	–	–
Portugal	Portugal	Portugal	Portugal	–	–	–
Puerto Rico	–	–	–	–	–	–

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Appendix Table 1: **Continued (page 3 of 3)**

75 World Bank highest GDP countries plus Taiwan (1)	**WDI listing data are available** (2)	**Listing data are found for 2017** (3)	**Country has experienced a listing peak** (4)	**Available data seem reliable ±5 years around peak** (5)	**Listing count data available ±3 years around peak** (6)	**Listing count available ±5 years around peak** (7)
Qatar	Qatar	Qatar	–	–	–	–
Romania	Romania	Romania	Romania	Romania	–	–
Russia	Russia	Russia	Russia	Russia	Russia	–
Saudi Arabia	Saudi Arabia	Saudi Arabia	–	–	–	–
Singapore	Singapore	Singapore	Singapore	Singapore	Singapore	Singapore
Slovakia	Slovakia	–	–	–	–	–
South Africa	South Africa	South Africa	South Africa	South Africa	South Africa	South Africa
South Korea	South Korea	South Korea	–	–	–	–
Spain	Spain	Spain	Spain	Spain	–	–
Sri Lanka	Sri Lanka	Sri Lanka	–	–	–	–
Sudan	–	–	–	–	–	–
Sweden	Sweden	Sweden	–	–	–	–
Switzerland	Switzerland	Switzerland	Switzerland	Switzerland	Switzerland	Switzerland
Taiwan	–	Taiwan	–	–	–	–
Thailand	Thailand	Thailand	–	–	–	–
Turkey	Turkey	Turkey	Turkey	Turkey	–	–
Ukraine	–	–	–	–	–	–
UAE	UAE	UAE	–	–	–	–
UK	UK	UK	UK	UK	UK	UK
US	US	US	US	US	US	US
Uzbekistan	–	–	–	–	–	–
Venezuela	Venezuela	–	–	–	–	–
Vietnam	Vietnam	Vietnam	–	–	–	–
Number of countries in sample						
76	64	61	43	41	32	29
Sample used in Figures...						
		5–8	9			10
Sample used in Tables...						
		5–8	9		10	10

Appendix Table 2: Estimates of US nominal and merger-adjusted listing gaps: advanced economies

The table reports coefficient estimates from the following regression specification:

$$ln(Y_{it}) = \alpha + \delta_i + \tau_t + \beta D_{US,t} + \Gamma(D_{US,t} \times \tau_t) + \lambda X_{it} + \epsilon_{it},$$

where the dependent variable for country i in year t (Y_{it}) varies by column: nominal listing count (G1) per capita (1–2) or per GDP (3–4), the public-to-public merger-adjusted listing count (G2) per capita (5–6) or per GDP (7–8), or the public- and private-to-public merger-adjusted listing count (G3) per capita (9–10) or per GDP (11–12). G1, G2, and G3 are defined in Eq. (5). δ_i and τ_t are country and year fixed effects, respectively. Country fixed effects are only included in the even-numbered columns below. $D_{US,t}$ is a dummy variable taking a value of one if the country is US and zero otherwise, and X_{it} is a set of country-specific control variables (anti-self-dealing index, log(GDP/capita) and GDP growth) in year t. For each year after 1990, the size of the listing gap in year t is measured as $L_{1990} * \Gamma$, where L_{1990} is the number of US listed companies in 1990. The regressions are run on the subsample of 28 economies. US listing count data are from CRSP, foreign listing count data are from WDI and exchange homepages, and merger data are from SDC. Parentheses display country-clustered robust standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

	Y_{it}: **Nominal listing count (G1)**				Y_{it}: **Public-to-public merger-adjusted listing count (G2)**				Y_{it}: **Priv- and pub-to-pub merger-adjusted listing count (G3)**			
	Per capita		Per GDP		Per capita		Per GDP		Per capita		Per GDP	
Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Constant	-0.794	0.406	-1.599***	-0.446***	-1.004	0.893	-1.603***	-0.462***	-1.452	1.732	-1.585***	-0.493***
	(1.529)	(2.116)	(0.387)	(0.096)	(1.543)	(2.149)	(0.382)	(0.096)	(1.524)	(2.232)	(0.374)	(0.103)
Anti-self-dealing index	2.036***		2.098***		2.092***		2.138***		2.165***		2.175***	
	(0.572)		(0.550)		(0.564)		(0.533)		(0.544)		(0.502)	
Log(GDP/capita)	0.781*	0.756			0.837**	0.613			0.964**	0.364		
	(0.388)	(0.602)			(0.387)	(0.611)			(0.375)	(0.634)		
GDP growth	0.041	0.000	0.041	-0.000	0.037	0.002	0.036	0.001	0.026	0.007	0.026	0.005
	(0.042)	(0.007)	(0.044)	(0.008)	(0.042)	(0.008)	(0.044)	(0.008)	(0.043)	(0.008)	(0.044)	(0.008)
US dummy	-0.396**		-0.445**		-0.422**		-0.459***		-0.472**		-0.480***	
	(0.188)		(0.166)		(0.189)		(0.165)		(0.184)		(0.161)	
US 1991 dummy	0.001	-0.039	0.006	-0.033	0.004	-0.034	0.009	-0.024	0.021	-0.013	0.022	0.002
	(0.061)	(0.047)	(0.059)	(0.043)	(0.060)	(0.047)	(0.058)	(0.042)	(0.060)	(0.046)	(0.058)	(0.042)
US 1992 dummy	-0.149	-0.017	-0.145	-0.011	-0.114	-0.008	-0.111	0.001	-0.020	0.033	-0.019	0.047
	(0.146)	(0.055)	(0.151)	(0.053)	(0.147)	(0.055)	(0.150)	(0.053)	(0.147)	(0.057)	(0.148)	(0.054)
US 1993 dummy	-0.086	0.021	-0.083	0.025	-0.043	0.043	-0.041	0.050	0.086	0.130*	0.087	0.141*
	(0.134)	(0.068)	(0.137)	(0.067)	(0.133)	(0.069)	(0.136)	(0.068)	(0.132)	(0.070)	(0.132)	(0.070)
US 1994 dummy	-0.026	-0.011	-0.032	-0.007	0.029	0.030	0.025	0.035	0.184	0.154**	0.183	0.162**
	(0.117)	(0.072)	(0.114)	(0.070)	(0.115)	(0.072)	(0.113)	(0.070)	(0.112)	(0.073)	(0.113)	(0.071)
US 1995 dummy	0.041	0.018	0.038	0.024	0.112	0.079	0.110	0.088	0.300***	0.244**	0.300***	0.259***
	(0.087)	(0.084)	(0.085)	(0.080)	(0.086)	(0.085)	(0.085)	(0.081)	(0.084)	(0.089)	(0.084)	(0.086)
US 1996 dummy	0.019	-0.001	0.015	0.002	0.121	0.079	0.118	0.084	0.352**	0.260**	0.351**	0.269**
	(0.134)	(0.097)	(0.134)	(0.095)	(0.134)	(0.099)	(0.134)	(0.098)	(0.136)	(0.105)	(0.135)	(0.106)
US 1997 dummy	-0.022	-0.041	-0.025	-0.038	0.111	0.069	0.108	0.074	0.377**	0.286**	0.376**	0.294**
	(0.143)	(0.102)	(0.144)	(0.100)	(0.143)	(0.103)	(0.144)	(0.102)	(0.146)	(0.110)	(0.146)	(0.110)
US 1998 dummy	-0.194	-0.152	-0.200	-0.151	-0.009	0.003	-0.014	0.004	0.325	0.271**	0.324	0.272**
	(0.203)	(0.100)	(0.208)	(0.100)	(0.204)	(0.101)	(0.207)	(0.102)	(0.208)	(0.109)	(0.208)	(0.110)

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Appendix Table 2: Continued (page 2 of 2)

	Y_{it}: **Nominal listing count (G1)**				Y_{it}: **Public-to-public merger-adjusted listing count (G2)**				Y_{it}: **Priv- and pub-to-pub merger-adjusted listing count (G3)**			
	Per capita		Per GDP		Per capita		Per GDP		Per capita		Per GDP	
Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
US 1999 dummy	-0.238	-0.256**	-0.244	-0.256**	-0.017	-0.055	-0.022	-0.055	0.334**	0.252**	0.333**	0.251**
	(0.155)	(0.102)	(0.157)	(0.104)	(0.156)	(0.103)	(0.158)	(0.105)	(0.162)	(0.109)	(0.161)	(0.114)
US 2000 dummy	-0.296**	-0.373***	-0.300**	-0.371***	-0.036	-0.125	-0.039	-0.122	0.320**	0.203*	0.319**	0.208*
	(0.116)	(0.093)	(0.117)	(0.093)	(0.117)	(0.093)	(0.118)	(0.094)	(0.125)	(0.100)	(0.126)	(0.103)
US 2001 dummy	-0.386***	-0.471***	-0.387***	-0.466***	-0.069	-0.168	-0.070	-0.160	0.310**	0.181*	0.310**	0.195*
	(0.127)	(0.101)	(0.127)	(0.100)	(0.126)	(0.100)	(0.126)	(0.099)	(0.133)	(0.105)	(0.133)	(0.106)
US 2002 dummy	-0.454***	-0.513***	-0.454***	-0.506***	-0.096	-0.175	-0.096	-0.163	0.306*	0.186	0.307*	0.205*
	(0.153)	(0.111)	(0.154)	(0.110)	(0.153)	(0.110)	(0.154)	(0.109)	(0.162)	(0.115)	(0.161)	(0.115)
US 2003 dummy	-0.563***	-0.577***	-0.565***	-0.571***	-0.175	-0.206*	-0.175	-0.196*	0.256	0.165	0.256	0.182
	(0.198)	(0.114)	(0.201)	(0.114)	(0.198)	(0.112)	(0.200)	(0.112)	(0.209)	(0.116)	(0.210)	(0.118)
US 2004 dummy	-0.526***	-0.579***	-0.528***	-0.572***	-0.120	-0.184	-0.121	-0.173	0.306	0.196	0.306	0.212*
	(0.173)	(0.115)	(0.175)	(0.116)	(0.173)	(0.113)	(0.174)	(0.113)	(0.184)	(0.118)	(0.185)	(0.119)
US 2005 dummy	-0.538***	-0.582***	-0.540***	-0.576***	-0.113	-0.168	-0.113	-0.158	0.319	0.214*	0.319	0.230*
	(0.191)	(0.119)	(0.192)	(0.120)	(0.192)	(0.118)	(0.192)	(0.118)	(0.203)	(0.124)	(0.204)	(0.125)
US 2006 dummy	-0.473***	-0.568***	-0.471***	-0.559***	-0.021	-0.131	-0.020	-0.117	0.387**	0.245*	0.388**	0.268**
	(0.159)	(0.119)	(0.154)	(0.121)	(0.161)	(0.119)	(0.157)	(0.121)	(0.171)	(0.125)	(0.169)	(0.127)
US 2007 dummy	-0.451***	-0.583***	-0.444***	-0.569***	0.023	-0.122	0.029	-0.100	0.420**	0.248*	0.422**	0.283**
	(0.160)	(0.123)	(0.147)	(0.124)	(0.160)	(0.123)	(0.149)	(0.125)	(0.166)	(0.128)	(0.159)	(0.130)
US 2008 dummy	-0.558***	-0.637***	-0.549***	-0.621***	-0.043	-0.146	-0.036	-0.120	0.372**	0.220*	0.374**	0.262*
	(0.164)	(0.121)	(0.153)	(0.120)	(0.167)	(0.121)	(0.157)	(0.120)	(0.180)	(0.128)	(0.174)	(0.128)
US 2009 dummy	-0.627***	-0.655***	-0.619***	-0.639***	-0.076	-0.136	-0.070	-0.110	0.351	0.224	0.352	0.266*
	(0.201)	(0.128)	(0.195)	(0.128)	(0.204)	(0.127)	(0.199)	(0.128)	(0.221)	(0.134)	(0.217)	(0.138)
US 2010 dummy	-0.604***	-0.662***	-0.595***	-0.645***	-0.033	-0.119	-0.026	-0.092	0.382*	0.239*	0.384*	0.283**
	(0.183)	(0.130)	(0.174)	(0.130)	(0.187)	(0.129)	(0.178)	(0.129)	(0.202)	(0.134)	(0.196)	(0.137)
US 2011 dummy	-0.627***	-0.680***	-0.617***	-0.662***	-0.032	-0.114	-0.025	-0.086	0.385*	0.242*	0.387*	0.288**
	(0.195)	(0.133)	(0.186)	(0.133)	(0.198)	(0.132)	(0.189)	(0.133)	(0.213)	(0.137)	(0.206)	(0.140)
US 2012 dummy	-0.797***	-0.695***	-0.796***	-0.680***	-0.167	-0.110	-0.167	-0.087	0.279	0.238	0.279	0.276*
	(0.253)	(0.137)	(0.257)	(0.139)	(0.258)	(0.136)	(0.261)	(0.138)	(0.280)	(0.143)	(0.280)	(0.148)
US 2013 dummy	-0.710***	-0.662***	-0.711***	-0.650***	-0.082	-0.067	-0.083	-0.048	0.336	0.275*	0.336	0.306*
	(0.218)	(0.143)	(0.221)	(0.145)	(0.222)	(0.141)	(0.224)	(0.143)	(0.240)	(0.145)	(0.241)	(0.150)
US 2014 dummy	-0.658***	-0.632***	-0.660***	-0.621***	-0.040	-0.044	-0.041	-0.026	0.365	0.293*	0.364	0.323**
	(0.217)	(0.146)	(0.220)	(0.148)	(0.219)	(0.143)	(0.221)	(0.146)	(0.235)	(0.147)	(0.236)	(0.153)
US 2015 dummy	-0.677***	-0.660***	-0.679***	-0.649***	-0.041	-0.052	-0.042	-0.034	0.363	0.288*	0.362	0.317*
	(0.234)	(0.147)	(0.238)	(0.149)	(0.234)	(0.144)	(0.237)	(0.147)	(0.245)	(0.148)	(0.246)	(0.154)
US 2016 dummy	-0.745***	-0.701***	-0.740***	-0.690***	-0.009	-0.039	-0.010	-0.020	0.388*	0.300*	0.388*	0.331**
	(0.194)	(0.149)	(0.196)	(0.149)	(0.206)	(0.145)	(0.208)	(0.148)	(0.221)	(0.149)	(0.221)	(0.155)
US 2017 dummy	-0.675***	-0.669***	-0.676***	-0.657***	0.006	-0.015	0.006	0.005	0.400	0.315**	0.399	0.348**
	(0.219)	(0.151)	(0.221)	(0.154)	(0.220)	(0.148)	(0.222)	(0.152)	(0.235)	(0.152)	(0.235)	(0.159)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
R^2	0.371	0.922	0.367	0.922	0.379	0.922	0.356	0.918	0.420	0.918	0.349	0.905
N	748	748	748	748	752	752	752	752	752	752	752	752

Appendix Table 3: Estimates of US nominal and real listing gaps: advanced economies

The table reports coefficient estimates from the following regression specification:

$$ln(Y_{it}) = \alpha + \delta_i + \tau_t + \beta D_{US,t} + \Gamma(D_{US,t} \times \tau_t) + \lambda X_{it} + \epsilon_{it},$$

where the dependent variable for country i in year t (Y_{it}) varies by column: nominal listing count (G1) per capita (1–2) or per GDP (3–4), the real listing count without private targets (G4) per capita (5–6) or per GDP (7–8), or the real listing count with all targets (G5) per capita (9–10) or per GDP (11–12). G1, G4, and G5 are defined in Eq. (5). δ_i and τ_t are country and year fixed effects, respectively. Country fixed effects are only included in the even-numbered columns below. $D_{US,t}$ is a dummy variable taking a value of one if the country is US and zero otherwise, and X_{it} is a set of country-specific control variables (anti-self-dealing index, log(GDP/capita) and GDP growth) in year t. For each year after 1990, the size of the listing gap in year t is measured as $L_{1990} * \Gamma$, where L_{1990} is the number of US listed companies in 1990. The regressions are run on the subsample of 28 advanced economies. US listing count data are from CRSP, foreign listing count data are from WDI and exchange homepages, and merger data are from SDC. Parentheses display country-clustered robust standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

	Y_{it}: **Nominal listing count (G1)**				Y_{it}: **Real listing count without private targets (G4)**				Y_{it}: **Real listing count with all targets (G5)**			
	Per capita		Per GDP		Per capita		Per GDP		Per capita		Per GDP	
Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Constant	-0.794	0.406	-1.599***	-0.446***	-1.004	0.893	-1.603***	-0.462***	-1.452	1.732	-1.585***	-0.493***
	(1.529)	(2.116)	(0.387)	(0.096)	(1.543)	(2.149)	(0.382)	(0.096)	(1.524)	(2.232)	(0.374)	(0.103)
Anti-self-dealing index	2.036***		2.098***		2.092***		2.138***		2.165***		2.175***	
	(0.572)		(0.550)		(0.564)		(0.533)		(0.544)		(0.502)	
Log(GDP/capita)	0.781*	0.756			0.837**	0.613			0.964**	0.364		
	(0.388)	(0.602)			(0.387)	(0.611)			(0.375)	(0.634)		
GDP growth	0.041	0.000	0.041	-0.000	0.037	0.002	0.036	0.001	0.026	0.007	0.026	0.005
	(0.042)	(0.007)	(0.044)	(0.008)	(0.042)	(0.008)	(0.044)	(0.008)	(0.043)	(0.008)	(0.044)	(0.008)
US dummy	-0.396**		-0.445**		-0.422**		-0.459***		-0.472**		-0.480***	
	(0.188)		(0.166)		(0.189)		(0.165)		(0.184)		(0.161)	
US 1991 dummy	0.001	-0.039	0.006	-0.033	0.007	-0.031	0.011	-0.022	0.010	-0.024	0.011	-0.009
	(0.061)	(0.047)	(0.059)	(0.043)	(0.060)	(0.047)	(0.058)	(0.042)	(0.060)	(0.046)	(0.058)	(0.042)
US 1992 dummy	-0.149	-0.017	-0.145	-0.011	-0.110	-0.003	-0.107	0.006	-0.045	0.008	-0.044	0.022
	(0.146)	(0.055)	(0.151)	(0.053)	(0.147)	(0.055)	(0.150)	(0.053)	(0.147)	(0.057)	(0.148)	(0.054)
US 1993 dummy	-0.086	0.021	-0.083	0.025	-0.037	0.049	-0.036	0.055	0.045	0.089	0.045	0.099
	(0.134)	(0.068)	(0.137)	(0.067)	(0.133)	(0.069)	(0.136)	(0.068)	(0.132)	(0.070)	(0.132)	(0.070)
US 1994 dummy	-0.026	-0.011	-0.032	-0.007	0.037	0.038	0.033	0.043	0.128	0.097	0.127	0.105
	(0.117)	(0.072)	(0.114)	(0.070)	(0.115)	(0.072)	(0.113)	(0.070)	(0.112)	(0.073)	(0.113)	(0.071)
US 1995 dummy	0.041	0.018	0.038	0.024	0.124	0.090	0.121	0.099	0.226**	0.170*	0.226**	0.185**
	(0.087)	(0.084)	(0.085)	(0.080)	(0.086)	(0.085)	(0.085)	(0.081)	(0.084)	(0.089)	(0.084)	(0.086)
US 1996 dummy	0.019	-0.001	0.015	0.002	0.134	0.092	0.131	0.097	0.270*	0.178	0.269*	0.187*
	(0.134)	(0.097)	(0.134)	(0.095)	(0.134)	(0.099)	(0.134)	(0.098)	(0.136)	(0.105)	(0.135)	(0.106)
US 1997 dummy	-0.022	-0.041	-0.025	-0.038	0.127	0.085	0.124	0.090	0.281*	0.190*	0.281*	0.199*
	(0.143)	(0.102)	(0.144)	(0.100)	(0.143)	(0.103)	(0.144)	(0.102)	(0.146)	(0.110)	(0.146)	(0.110)
US 1998 dummy	-0.194	-0.152	-0.200	-0.151	0.008	0.020	0.003	0.021	0.204	0.150	0.203	0.152
	(0.203)	(0.100)	(0.208)	(0.100)	(0.204)	(0.101)	(0.207)	(0.102)	(0.208)	(0.109)	(0.208)	(0.110)

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Appendix Table 3: Continued (page 2 of 2)

	Y_{it}: Nominal listing count (G1)				Y_{it}: Real listing count without private targets (G4)				Y_{it}: Real listing count with all targets (G5)			
	Per capita		Per GDP		Per capita		Per GDP		Per capita		Per GDP	
Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
US 1999 dummy	-0.238	-0.256**	-0.244	-0.256**	-0.004	-0.042	-0.009	-0.043	0.188	0.106	0.187	0.105
	(0.155)	(0.102)	(0.157)	(0.104)	(0.156)	(0.103)	(0.158)	(0.105)	(0.162)	(0.109)	(0.161)	(0.114)
US 2000 dummy	-0.296**	-0.373***	-0.300**	-0.371***	-0.032	-0.120	-0.034	-0.117	0.149	0.032	0.148	0.037
	(0.116)	(0.093)	(0.117)	(0.093)	(0.117)	(0.093)	(0.118)	(0.094)	(0.125)	(0.100)	(0.126)	(0.103)
US 2001 dummy	-0.386***	-0.471***	-0.387***	-0.466***	-0.075	-0.174*	-0.076	-0.166	0.099	-0.030	0.099	-0.016
	(0.127)	(0.101)	(0.127)	(0.100)	(0.126)	(0.100)	(0.126)	(0.099)	(0.133)	(0.105)	(0.133)	(0.106)
US 2002 dummy	-0.454***	-0.513***	-0.454***	-0.506***	-0.115	-0.194*	-0.115	-0.182	0.067	-0.053	0.068	-0.034
	(0.153)	(0.111)	(0.154)	(0.110)	(0.153)	(0.110)	(0.154)	(0.109)	(0.162)	(0.115)	(0.161)	(0.115)
US 2003 dummy	-0.563***	-0.577***	-0.565***	-0.571***	-0.202	-0.233**	-0.203	-0.223*	-0.008	-0.099	-0.008	-0.083
	(0.198)	(0.114)	(0.201)	(0.114)	(0.198)	(0.112)	(0.200)	(0.112)	(0.209)	(0.116)	(0.210)	(0.118)
US 2004 dummy	-0.526***	-0.579***	-0.528***	-0.572***	-0.153	-0.216*	-0.153	-0.206*	0.033	-0.077	0.033	-0.061
	(0.173)	(0.115)	(0.175)	(0.116)	(0.173)	(0.113)	(0.174)	(0.113)	(0.184)	(0.118)	(0.185)	(0.119)
US 2005 dummy	-0.538***	-0.582***	-0.540***	-0.576***	-0.156	-0.211*	-0.156	-0.201	0.023	-0.082	0.023	-0.065
	(0.191)	(0.119)	(0.192)	(0.120)	(0.192)	(0.118)	(0.192)	(0.118)	(0.203)	(0.124)	(0.204)	(0.125)
US 2006 dummy	-0.473***	-0.568***	-0.471***	-0.559***	-0.073	-0.183	-0.071	-0.169	0.073	-0.070	0.073	-0.047
	(0.159)	(0.119)	(0.154)	(0.121)	(0.161)	(0.119)	(0.157)	(0.121)	(0.171)	(0.125)	(0.169)	(0.127)
US 2007 dummy	-0.451***	-0.583***	-0.444***	-0.569***	-0.044	-0.189	-0.038	-0.167	0.080	-0.092	0.081	-0.057
	(0.160)	(0.123)	(0.147)	(0.124)	(0.160)	(0.123)	(0.149)	(0.125)	(0.166)	(0.128)	(0.159)	(0.130)
US 2008 dummy	-0.558***	-0.637***	-0.549***	-0.621***	-0.128	-0.231*	-0.121	-0.205*	0.000	-0.152	0.002	-0.110
	(0.164)	(0.121)	(0.153)	(0.120)	(0.167)	(0.121)	(0.157)	(0.120)	(0.180)	(0.128)	(0.174)	(0.128)
US 2009 dummy	-0.627***	-0.655***	-0.619***	-0.639***	-0.182	-0.241*	-0.175	-0.216	-0.053	-0.180	-0.051	-0.137
	(0.201)	(0.128)	(0.195)	(0.128)	(0.204)	(0.127)	(0.199)	(0.128)	(0.221)	(0.134)	(0.217)	(0.138)
US 2010 dummy	-0.604***	-0.662***	-0.595***	-0.645***	-0.146	-0.232*	-0.139	-0.205	-0.038	-0.181	-0.036	-0.137
	(0.183)	(0.130)	(0.174)	(0.130)	(0.187)	(0.129)	(0.178)	(0.129)	(0.202)	(0.134)	(0.196)	(0.137)
US 2011 dummy	-0.627***	-0.680***	-0.617***	-0.662***	-0.161	-0.243*	-0.153	-0.215	-0.063	-0.206	-0.061	-0.160
	(0.195)	(0.133)	(0.186)	(0.133)	(0.198)	(0.132)	(0.189)	(0.133)	(0.213)	(0.137)	(0.206)	(0.140)
US 2012 dummy	-0.797***	-0.695***	-0.796***	-0.680***	-0.305	-0.248*	-0.305	-0.225	-0.185	-0.226	-0.185	-0.188
	(0.253)	(0.137)	(0.257)	(0.139)	(0.258)	(0.136)	(0.261)	(0.138)	(0.280)	(0.143)	(0.280)	(0.148)
US 2013 dummy	-0.710***	-0.662***	-0.711***	-0.650***	-0.225	-0.210	-0.226	-0.191	-0.141	-0.202	-0.141	-0.171
	(0.218)	(0.143)	(0.221)	(0.145)	(0.222)	(0.141)	(0.224)	(0.143)	(0.240)	(0.145)	(0.241)	(0.150)
US 2014 dummy	-0.658***	-0.632***	-0.660***	-0.621***	-0.188	-0.192	-0.189	-0.174	-0.119	-0.191	-0.120	-0.161
	(0.217)	(0.146)	(0.220)	(0.148)	(0.219)	(0.143)	(0.221)	(0.146)	(0.235)	(0.147)	(0.236)	(0.153)
US 2015 dummy	-0.677***	-0.660***	-0.679***	-0.649***	-0.199	-0.210	-0.201	-0.193	-0.142	-0.217	-0.143	-0.189
	(0.234)	(0.147)	(0.238)	(0.149)	(0.234)	(0.144)	(0.237)	(0.147)	(0.245)	(0.148)	(0.246)	(0.154)
US 2016 dummy	-0.745***	-0.701***	-0.740***	-0.690***	-0.179	-0.209	-0.180	-0.190	-0.142	-0.230	-0.142	-0.199
	(0.194)	(0.149)	(0.196)	(0.149)	(0.206)	(0.145)	(0.208)	(0.148)	(0.221)	(0.149)	(0.221)	(0.155)
US 2017 dummy	-0.675***	-0.669***	-0.676***	-0.657***	-0.171	-0.193	-0.172	-0.173	-0.146	-0.231	-0.146	-0.198
	(0.219)	(0.151)	(0.221)	(0.154)	(0.220)	(0.148)	(0.222)	(0.152)	(0.235)	(0.152)	(0.235)	(0.159)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
R^2	0.371	0.922	0.367	0.922	0.380	0.922	0.357	0.919	0.417	0.917	0.349	0.905
N	748	748	748	748	752	752	752	752	752	752	752	752