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People seem to forget some of the very basic lessons of financial economics when it comes to share repurchases. Over the last few years, there has been a lot of press, pundit, and political attention paid to share repurchases, the vast majority unduly critical. A common critique is that each dollar used to buy back a share is a dollar that is not spent on business activities that would otherwise stimulate economic growth. Oh, if only it were that simple.

We do not believe that this harsh narrative appropriately reflects the true impact of share repurchases on the economy as a whole. In fact, the true impact of share repurchases is difficult to estimate, and any estimate requires far more nuanced analysis than has been offered. It is possible, of course, that an individual company's repurchase decision might be in the best interest of shareholders—possibly because of management's pessimistic assessment of investment opportunities, or possibly from reducing the agency costs that can accompany a large cash hoard.<sup>1</sup> In contrast, it is also possible that some repurchase decisions are suboptimally motivated by different agency issues, such as the desire to boost stock prices ahead of anticipated management options exercise.<sup>2</sup>

Note that the preceding arguments are about how share repurchases may help or hurt shareholders. Oddly, some more

extreme repurchase critics argue that share repurchases are problematic precisely *because* they maximize current shareholder value. According to this narrative, shareholders act myopically, rewarding share repurchases even though the repurchases ultimately rob them (and the economy as a whole) of future profitable investments. This claim is exceptionally difficult to substantiate, and those proffering it do not make any serious effort to do so. Crucially, this argument also ignores the fact that all of the capital that is distributed via share repurchases must be reinvested somewhere.<sup>3</sup> These sorts of uneconomic blanket claims regarding the collective motivation of aggregate share repurchase activity are particularly concerning but are not our main focus here because addressing unsubstantiated accusations is difficult.

Many of the less extreme criticisms of repurchases seem to arise simply from faulty beliefs and an incomplete presentation of the data. This is where this article comes in. Our goal is to highlight some key myths related to stock repurchase activity for U.S. publicly traded firms.<sup>4</sup> Because so much of the recent criticism of share repurchases relies on these myths, we conclude that this criticism is, to a large extent, unfair.

We are not the first to comment on the relative benefits and costs of share buyback activity. Notably, Edmans [2017] and Fried and Wang [2017] have both recently

addressed some of the same criticisms of share repurchases that we address. Our aim is to bring together multiple threads on the topic from both the academic and practitioner communities.

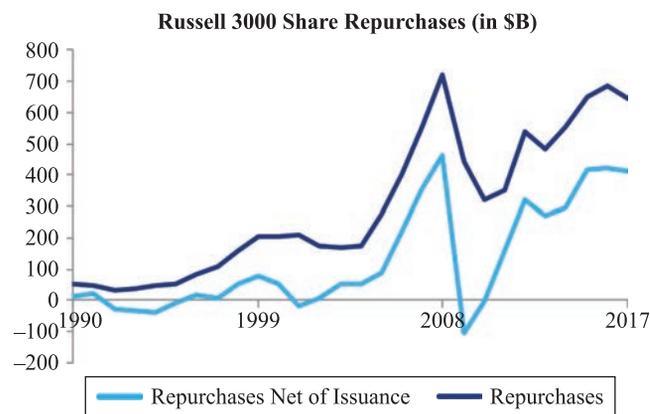
We address four myths related to aggregate share repurchase activity. First, although total dollars spent to repurchase shares is high today relative to history, companies are not self-liquidating, as some claim, because repurchases have largely been financed by debt issuance. Inferences on aggregate repurchase activity are heavily dependent on the source of funds, but this source is often completely ignored. Second, there is no obvious link between aggregate repurchase activity and a decline in aggregate investment activity. Third, aggregate repurchase activity is not, and cannot be, responsible for the strong equity market returns over the last eight years. Therefore, more prosaically, share repurchasers are not “propping up the market.” Fourth, aggregate repurchase activity is not associated with mechanical or automatic earnings per share (EPS) growth, as is often claimed. Finally, we share a set of potential pitfalls of share repurchases that merit further consideration because, unlike these four, they might not be mythical.

### MYTH 1: COMPANIES ARE SELF-LIQUIDATING USING SHARE REPURCHASES AT A HISTORICALLY HIGH RATE

Statements about the magnitude of aggregate share repurchase activity need to be placed in context. Yes, the number of dollars spent repurchasing shares is higher today than in the past, but this muddles changes in the scale of the economy and changes in the typical balance sheet of firms through time.

We examine various share repurchase measures for the constituents of the Russell 3000 Index from 1990 through 2017. Exhibit 1 shows the dollar value of gross and net share repurchase activity for these firms.<sup>5</sup> It is true that the dollar value of share repurchases is at elevated levels. However, levels are not as high as they were prior to the financial crisis. More importantly, comparing dollar values through time (as we, following many market analysts, do in Exhibit 1) is misleading if there are substantial changes in the aggregate size of firms: Dollar share repurchases can be larger simply because firms are larger. Exhibit 2 shows the same dollar repurchase measures simply scaled by aggregate market capitalization. Here it is clear that current levels of aggregate share repurchase

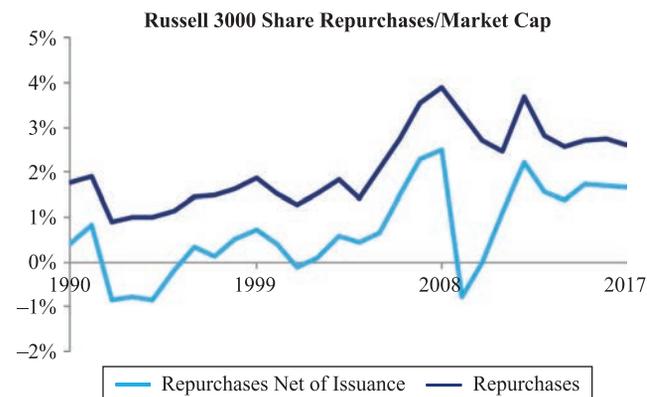
## EXHIBIT 1 Gross and Net Share Repurchase Activity



Notes: Repurchases equals the purchase of common and preferred stock, as reported in the financing section of the statement of cash flows for each firm, cumulated over all stocks in the Russell 3000 Index. Repurchases net of issuance equals the purchase of common and preferred stock minus the sale of common and preferred stock, as reported in the financing section of the statement of cash flows, cumulated over all stocks in the Russell 3000 Index.

Sources: Compustat and Russell.

## EXHIBIT 2 Gross and Net Share Repurchase Activity Scaled by Aggregate Market Capitalization



Notes: Repurchases and repurchases net of issuance are as defined in Exhibit 1. Market capitalization is the product of shares outstanding times the price per share, cumulated over all stocks in the Russell 3000 Index.

Sources: Compustat, Russell, and MSCI.

activity are not at all-time highs. On a yield basis (i.e., measured against market capitalization), share repurchases are even lower relative to pre-crisis levels.<sup>6</sup> Furthermore, when properly normalized, the upward

trend in share repurchases over the last five years disappears.

Because much of the criticism of repurchases arises from concerns that they come at the expense of investment, it seems reasonable to focus on share repurchases net of issuance, rather than gross repurchases (because *net*, not *gross*, tells us about what is left for investment). Net share repurchases are (by construction) lower than gross share repurchases. However, like gross repurchases, they are high relative to history on an unadjusted basis, but more ordinary relative to history when scaled by market capitalization.

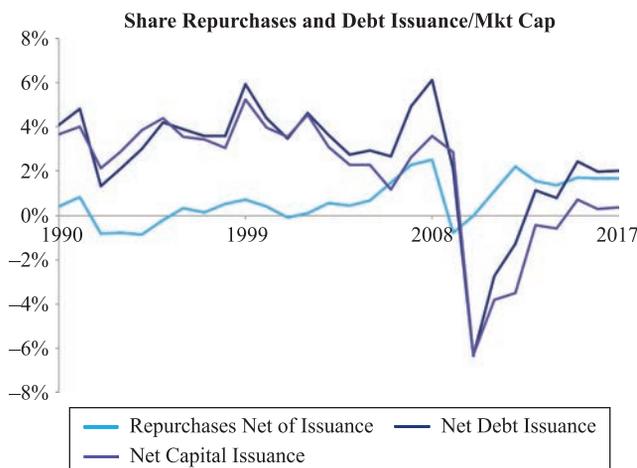
The next question is what is funding these share repurchases. Is it the case that companies are using cash on-hand or liquidating potentially productive assets to fund buybacks? Or are companies using capital raised externally? The answer is, largely, the latter. Although share repurchases have been on the rise since the end of the financial crisis, so has net debt issuance. Exhibit 3 shows aggregate net debt issuance and aggregate net share repurchase activity, both scaled by market capitalization from 1990 to 2017. Exhibit 3 also shows aggregate net capital issued by Russell 3000 companies (net debt issuance minus total net repurchases), also scaled by market capitalization. Aggregate (scaled) capital issuance took a huge hit in the financial crisis, but it has been steadily rising since and is now again above zero. This key fact is usually unmentioned when share repurchase critics link repurchases to diminished corporate investment. Aggregate issuance from firms over the last five years has been *positive*, although not back to pre-crisis levels. Furthermore, it is clear that there is a strong positive correlation between aggregate debt financing and aggregate share repurchase activity. A considerable portion of the recent share repurchase activity has simply been a recapitalization, shifting from equity to debt. Given low real and nominal rates, it is quite possible that corporate treasurers have viewed debt financing as cheaper than equity financing and thus engaged in this swap. This is interesting, but not for reasons that would directly affect investment.

## MYTH 2: SHARE REPURCHASES HAVE COME AT THE EXPENSE OF PROFITABLE INVESTMENT

The claim that share repurchases have come at the expense of profitable investment is not consistent with

## EXHIBIT 3

### Aggregate Net Debt Issuance, Aggregate Net Share Repurchase Activity, and Aggregate Net Capital Issuance, Scaled by Market Capitalization (1990–2017)



*Notes:* Repurchases net of issuance equals the purchase of common and preferred stocks minus the sale of common and preferred stocks, as reported in the financing section of the statement of cash flows, cumulated over all stocks in the Russell 3000 Index. Net debt issuance is equal to long-term debt issuance plus short-term debt change minus long-term debt reduction, cumulated over all stocks in the Russell 3000 Index. Net capital issuance is equal to net debt issuance minus repurchases net of issuance.

Sources: Compustat, Russell, and MSCI.

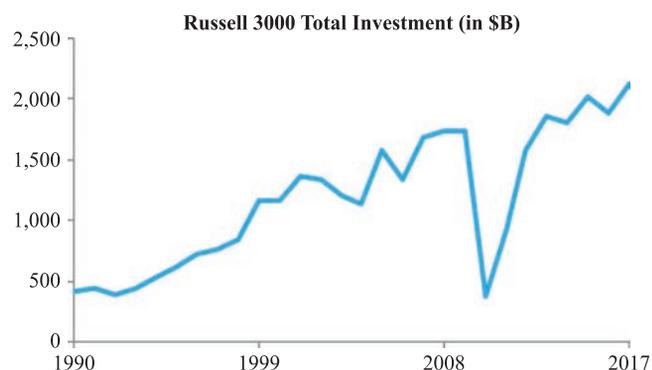
either finance theory or an empirical examination of the sources and uses of capital among U.S. corporates.

First, empirically, net investment has not declined (we always like it when we can start with “the very thing in question is not happening” and then move on to subtler issues!). We measure aggregate net investment using information from the statement of cash flows for each firm.<sup>7</sup> Exhibit 4 shows that from 1990 to 2017, total investment by Russell 3000 companies has trended steadily upward, other than a precipitous decline and recovery around the financial crisis. Normalized by either total assets or total (debt plus equity) market capitalization, total investment is lower than it was in the 1990s but also increasing since the financial crisis. Most importantly, for present purposes, there is no apparent negative relationship between normalized investment and share repurchase activity. In fact, the two variables have been positively correlated of late, as both investment and share repurchases have increased since the end of the financial crisis.<sup>8</sup>

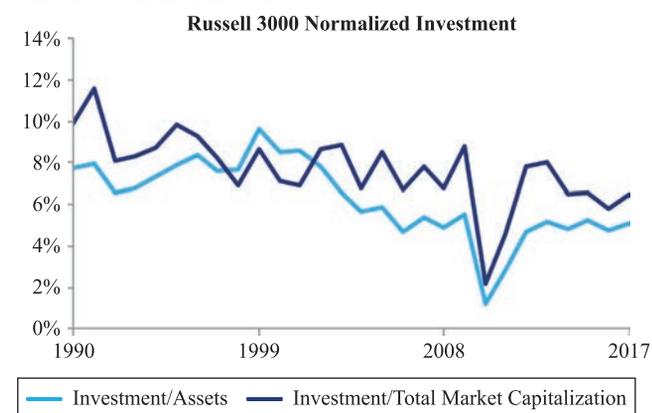
## EXHIBIT 4

### Russell 3000 Investment (1990–2017)

Panel A: Total Investment



Panel B: Normalized Investment



Notes: Investments equals increase in investments minus decrease in investments plus short-term investments plus capital expenditures plus acquisitions plus other investing activities minus sale of property plant and equipment, as reported in the financing section of the statement of cash flows, cumulated over all stocks in the Russell 3000 Index. Total market capitalization is the product of shares outstanding times the price per share plus total long-term debt, cumulated over all stocks in the Russell 3000 Index. Assets equals total assets, cumulated over all stocks in the Russell 3000 Index.

Sources: Compustat, Russell, and MSCI.

Second, from a theoretical perspective, the idea that share repurchases prevent profitable investment is causally reversed. In the presence of functioning capital markets, corporations raise capital when they want to invest and pay back capital (in the form of either debt or equity) when they do not have viable (profitable) investment opportunities. Could the claim that companies do have viable investment opportunities and are simply not choosing to pursue them be established

empirically by critics? Perhaps, if there existed some well-established measure of investment opportunity and share repurchase critics showed that, controlling for the investment opportunity set, repurchasers underinvest relative to nonrepurchasers. Such a test is implied by many if not all of the recent critiques (that is, they act as if it has been carried out with definite answers damning to repurchasers). Yet, to the best of our knowledge, none of the recent criticisms offer such proof, or even a hint.

Relatedly, investors' proceeds from share repurchases do not simply disappear. Rather, these funds are received by equity investors, who can (and do) allocate the proceeds elsewhere, thereby funding other investments. In fact, the redirection of available capital to the best available investment opportunities is the very purpose of a well-functioning capital market.

### MYTH 3: THE RECENT RUN-UP IN PRICES IS THE RESULT OF SHARE REPURCHASES

Claims that aggregate share repurchase activity caused the significant run-up in stock indexes over the last decade are heroic at best. These claims are often made ignoring the fact that this issue has been extensively studied.

Academic evidence suggests that the announcement impact on returns of share repurchases is between 1% and 2% on average.<sup>9</sup> Corporate finance theory dictates that share repurchases are greeted positively by investors for a few reasons. First, repurchases might signal that management believes that shares are undervalued. Parenthetically, if management sees shares as undervalued—which we believe is the most likely motivator of share repurchases—it seems inconsistent with the idea that management is, at the same time, forgoing abundant attractive growth opportunities.<sup>10</sup> Second, because interest payments are tax deductible, debt-financed repurchases can be viewed as good news because of the resulting lower tax burden.<sup>11</sup> Third, investors may feel as though it is better for management to return excess cash to shareholders, rather than chasing less economic pet projects. This kind of agency cost is often characterized as empire building, and avoiding it has long been viewed as one of the benefits of returning cash to shareholders.

It is very difficult to precisely measure the marginal impact of share repurchases on returns. We compute a (very rough) approximation of cumulative index level

returns if returns were driven only by share repurchases. If *every* index constituent repurchased shares in a given year at historically normal sizes, this would account for between 1% and 2% index level price appreciation based on the academic evidence referenced earlier. The recent bull market, whether measured from March 2009 or from January 2013, has been accompanied by annualized returns on the Russell 3000 of more than 15%. The 1% to 2% annual increase from share repurchases is a small percentage of the total run-up of the index, and even this is certainly overstated because far from all firms repurchase shares annually.

#### **MYTH 4: COMPANIES THAT REPURCHASE SHARES DO SO ONLY TO INCREASE EPS AND THEREBY “PRICE”**

Share repurchase critics argue that share repurchases are designed to artificially increase EPS and thereby artificially increase stock prices. We take issue with both claims, but particularly the second claim. The idea is that by repurchasing shares, a company decreases its share count and thus mechanically increases its earnings per share. The problem with this argument is that it ignores the fact that decreased cash means lower earnings, either due to less interest earned on the cash<sup>12</sup> or the loss of returns from other uses of the cash. Only if the cash that is used for share repurchases is truly idle (sitting in the chairman’s desk drawer) would we agree that share repurchases increase EPS. Next, the assertion that any increase in EPS leads to a commensurate increase in share price reflects a naïve understanding of basic corporate finance (e.g., Modigliani–Miller). The corporate finance argument is that any increase in leverage that increases EPS increases risk at the same time. The net effect is a “wash” on firm equity value. Holding constant P/E ratios and asserting that as earnings rise (due to leverage) price must rise as well misses this obvious point: All else is not equal because risk has gone up commensurately. If increasing share value is this easy, then the question is why do we not see even more share repurchases than we do?

As to the data, this is a harder myth to debunk. A necessary, but not sufficient, condition to support this myth is that firms that engage in repurchase activity should have high levels of EPS growth compared to otherwise similar firms that do not engage in share repurchase activity. However, comparing the EPS growth

of firms that do and do not engage in share repurchase activity is not an apples-to-apples comparison.<sup>13</sup>

With the caveat in mind that this comparison is coarse, we compare EPS growth rates for constituents of the Russell 3000 from 1991 through 2016 that do and do not engage in share repurchase activity. Empirically, there is no clear link between repurchases and EPS growth: EPS growth rates for firms that do not repurchase shares is approximately 1% higher than the EPS growth of repurchasers. We do not find this result surprising, in part because the very fact that firms elected to repurchase stocks quite possibly says something negative about their investment opportunity set and hence future growth. It does, however, throw some water on the myth that share repurchases creates earnings growth.

Finally, more generally, the belief that managers repurchase shares to “juice” EPS and thus stock price is a very strong statement about market inefficiency. It implies markets are very easy to fool in a repeated and obvious way. It also implies that there should be a strong trading strategy taking the other side (buying firms that do not repurchase and shorting firms that do). Any takers? We would caution that the opposite has been true on average for quite a while.<sup>14,15</sup>

#### **SOME POTENTIALLY VALID CRITICISMS OF SHARE REPURCHASES**

It is not all great news. There are ways share repurchases could, at least potentially, be a negative.

Managers of public companies *can* act in a manner that deviates from shareholder value maximization. Again, financial economists refer to the incentives that lead to these deviations as agency problems. For example, the management of a company might choose to repurchase shares ahead of an anticipated managerial options exercise. Senior executives typically have compensation that is directly related to either share price changes or earnings (EPS) levels and growth rates. As discussed in Myth 4, share repurchases should not increase EPS over time. However, a carefully timed share repurchase, just ahead of an earnings announcement, can reduce share count and thus mechanically increase earnings per share relative to what it would have been absent the repurchase. Critics of share repurchases offer little evidence, however, that this is the primary driver of share repurchase decisions. If this is an issue, a simple solution would be modification of compensation contracts to adjust EPS

growth for repurchase effects, akin to adjustments often made for dividend decisions in the context of employee share options. We would endorse such a change.

It is also possible that management might choose share repurchases in lieu of dividends to protect the value of equity incentives held in the form of stock options (Fenn and Liang [2001]). Usually, management stock options are not protected from the price-decreasing effect of dividend payments. Share repurchases can be used to avoid these price declines. Again, a simple fix to compensation contracts is likely warranted.

A second potentially valid criticism of share repurchases (considered in combination with the concurrent increase in debt), is that (perhaps) firms have taken on too much leverage. If firms issue debt to repurchase shares, balance sheet leverage can, of course, increase. On the other hand, if leverage started out low relative to recent history, then even with an increase due to share repurchases, leverage can remain at a low level. Exhibit 5 shows the evolution of aggregate leverage for Russell 3000 firms from 1990 to 2017. Leverage levels have been increasing recently, as befits a debt-for-equity exchange, but from a level that is low relative to history to a level still low (measured by book value) or relatively normal (measured by market value).

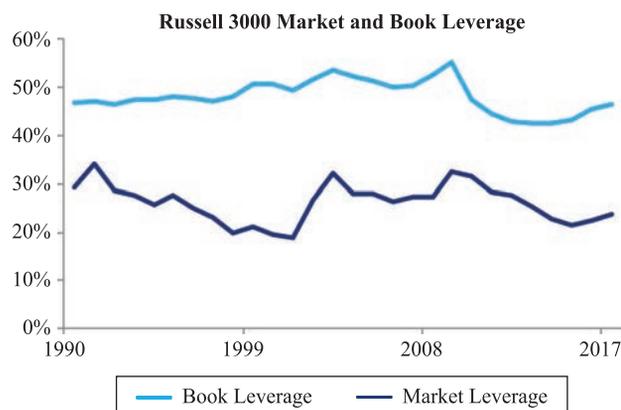
Examining market-level leverage measures conceals some interesting sector-level dynamics. Exhibit 6 shows market and book leverage for financial sector companies and industrial (nonfinancial) sector companies. Since the financial crisis, the financial sector has been steadily deleveraging. At the same time, the leverage of industrials has been edging higher. Market leverage for industrials is close to the historical average, but book leverage for industrials is at a post-1990 high. However, for industrials the range between high and low historical book leverage levels is quite narrow, so current leverage levels still do not appear alarmingly high.

## CONCLUSION

The popular press is replete with commentary seeking to damn the behavior of corporate managers in handing free cash flow back into the hands of shareholders. Investment professionals have even been heard to comment on the profligate use of free cash flow when it is used to buy back common shares. These criticisms are often, even regularly, without merit (at least merit that can be demonstrated), sometimes glaringly so.

## EXHIBIT 5

### Evolution of Aggregate Leverage for Russell 3000 Firms (1990–2017)

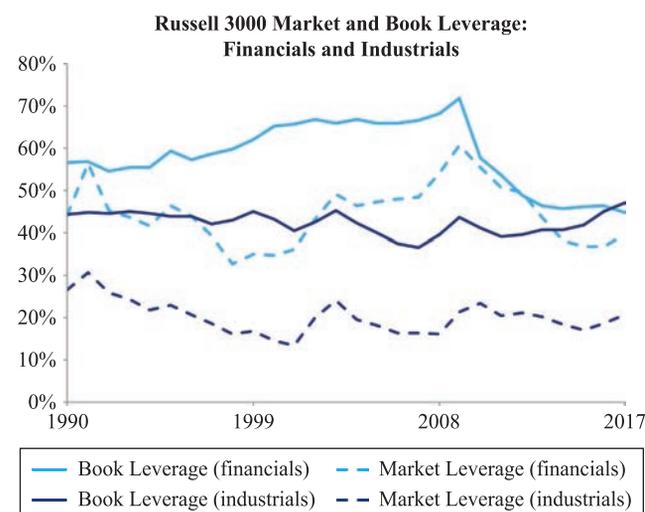


Notes: Book leverage is total long-term debt, cumulated over all stocks in the Russell 3000 Index, divided by total assets, cumulated over all stocks in the Russell 3000. Market leverage is total long-term debt, cumulated over all stocks in the Russell 3000 Index, divided by the sum of total long-term debt, cumulated over all stocks in the Russell 3000 Index, and the product of shares outstanding times the price per share, cumulated over all stocks in the Russell 3000 Index.

Sources: Compustat, Russell, and MSCI.

## EXHIBIT 6

### Market and Book Leverage for Financial Sector and Industrial Companies



Notes: Book leverage and market leverage are as defined in Exhibit 5. Financials are all companies in the Russell 3000 in the Global Industry Classification Standard (GICS) Sector 40. Industrials are all companies in the Russell 3000 with GICS Sector <math>\leq 40</math>.

Sources: Compustat, Russell, and MSCI.

Although there is always the possibility for agency issues to create incentives for corporate managers to engage in suboptimal share repurchase decisions, we feel that in aggregate, share repurchase activity is far less nefarious than the popular press would lead you to believe. In fact, there is at least as much “agency theory” arguing that paying back free cash flow is a positive as there is that it is a negative.

Aggregate share repurchase activity has not been at historical highs when measured properly, and when netted against debt issuance is almost a non-event, it does not mechanically create earnings (EPS) growth, does not stifle aggregate investment activity, and has not been the primary cause for recent stock market strength. These myths should be discarded.

## ENDNOTES

We thank Toby Moskowitz, Antti Ilmanen, Ronen Israel, John Liew, Jacob Boudoukh, Matthew Richardson, Kristoffer Laursen, and Roni Israelov for their helpful comments and suggestions.

<sup>1</sup>In the academic literature, *agency costs* refer to potential principal-agent problems that can take place when management does not own a firm and thus might pursue negative net present value activities. Some examples include spending money on executive perks and pursuing projects that do not increase shareholder value in the interest of empire building.

<sup>2</sup>See earlier work by Vermaelen [1981] and Brennan and Thakor [1990]. A recent paper by Manconi, Peyer, and Vermaelen [2015] documents internal evidence that supports previous evidence of short-term and long-term positive excess returns associated with share repurchases in the United States. Dittmar [2000] documented that firms use excess cash to repurchase stock to distribute excess cash, take advantage of undervaluation, and fend off takeovers. The “agency issues” argument is documented by (among others) Almeida, Fos, and Kronlund [2016] and Bens et al. [2003], both of whom show that firms sometimes appear to use share repurchases to manage earnings per share (EPS).

<sup>3</sup>A set of heroic assumptions is required to support the claim that proceeds from share repurchases are not ultimately invested. One would need to follow the cash received as part of the share repurchases and conclude that it is being held in a safe (or a mattress). Otherwise, the claim is difficult to substantiate.

<sup>4</sup>Rather than providing formal statistical proof of our claims, we will rely on a set of graphs that visually demonstrate that these claims are unsubstantiated.

<sup>5</sup>*Gross share repurchases* are total dollars used to repurchase shares, ignoring issuance. *Net issuance* is gross issuance

less total dollars raised in share issuance. For more detail on these calculations, see the notes to Exhibit 1.

<sup>6</sup>Some might argue that normalizing by market capitalization is problematic because market capitalization has been pushed upward “artificially” because of share repurchases (we show in Myth 3 that it is unlikely that this effect is large). Share repurchases still seem very normal relative to history if we normalize by the book value of equity or the book value of assets.

<sup>7</sup>We use a cash flow-based measure of investment activity because it allows us to capture both increases (investment, capital expenditures, and acquisitions) and decreases (disposals of property, plant, and equipment) in firm-level investment activity.

<sup>8</sup>Obviously we are not suggesting any causality.

<sup>9</sup>Bhattacharya and Jacobsen [2016] and Chemmanur and Li [2014], among others, have looked at returns around share repurchase announcements.

<sup>10</sup>It is inconsistent that management would engage in a repurchase because it thinks shares are undervalued and simultaneously not care that it could maximize this value further with forgone positive net present value (NPV) projects.

<sup>11</sup>Finance theory posits that there is a trade-off between tax efficiency and bankruptcy costs as leverage increases. If the (competitive and reasonably efficient) market responds positively to share repurchases, then the pre-recapitalization leverage must have been suboptimal.

<sup>12</sup>Admittedly, this is not as much of an issue at current interest rates.

<sup>13</sup>Although we acknowledge that comparing the EPS growth rates of repurchasing and non-repurchasing firms is problematic, we would have thought that proponents of this myth would at least have evidence that repurchasing firms have *higher* EPS growth rates.

<sup>14</sup>Evidence of positive (negative) returns after share repurchases (issuance) has been given by researchers including Ikenberry, Lakonishok, and Vermaelen [1995]; Loughran and Ritter [1997]; and Bradshaw, Richardson, and Sloan [2006].

<sup>15</sup>The implication of such a trading strategy would be that the market inefficiently processes share repurchase-driven EPS changes. Note that because we are arguing against this particular form of market inefficiency does not imply that we are believers in perfect markets (nobody really believes in perfection).

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