
Response to Congress

Negative Net Equity Issuance

As Directed by the **House Committee** on Appropriations
H.R. Rept. No. 116-111



This is a report by the staff of the U.S. Securities and Exchange Commission (SEC). The Commission has expressed no view regarding the analysis, findings, or conclusions contained herein.

December, 23, 2020

Contents

| | |
|--|----|
| I. Introduction | 3 |
| A. Objective | 3 |
| B. Background | 3 |
| C. Summary of findings | 6 |
| II. Facts about repurchases | 7 |
| A. Legal framework and implementation | 7 |
| B. Aggregate trends | 12 |
| 1. Total repurchases have increased but not relative to market capitalization. ... | 13 |
| 2. Fewer firms pay dividends; more firms conduct regular repurchases. | 15 |
| 3. Stock prices typically increase when companies announce repurchases. | 18 |
| 4. Repurchases are concentrated in certain industries. | 20 |
| III. Investment and economic growth..... | 24 |
| IV. Possible reasons firms repurchase stock..... | 27 |
| A. Lack of investment opportunities..... | 27 |
| 1. Overinvestment concerns | 27 |
| 2. Evidence from tax changes..... | 31 |
| B. Increasing leverage..... | 33 |
| C. Signaling Theories..... | 37 |
| 1. Correcting mispricing..... | 37 |
| 2. Efforts to manipulate stock prices | 38 |
| D. Compensation practices..... | 40 |
| 1. EPS-linked performance compensation..... | 40 |
| 2. Considerations related to stock options | 42 |
| V. Conclusion | 44 |
| Appendix. Variable Definitions | 46 |

I. Introduction

A. Objective

In its Joint Explanatory Statement accompanying the Financial Services and General Government Appropriations Act,¹ Congress directed the staff of the Securities and Exchange Commission (SEC) to study the recent growth of negative net equity issuances with respect to non-financial issuers, including the history and effects of those issuers repurchasing their own securities, and the effects of those repurchases on investment, corporate leverage, and economic growth.²

B. Background

Companies that choose to distribute cash back to shareholders generally do so through dividends or through negative net equity issuances (henceforth “repurchases”), and may do so for a number of reasons, including to offset dilution that can occur as a result of shares issued under employee equity compensation plans. Companies conduct repurchases through a variety of methods including open market repurchases, fixed price or Dutch auction tender offers, accelerated repurchase plans, and private negotiations.³

¹ See H. Committee Print of Consolidated Appropriations Act, 2020, Comm. on Approp., 116 Cong, 2d Sess. No. 38-678 (Jan. 2020), at 652, available at <https://www.govinfo.gov/content/pkg/CPRT116HPRT38678/pdf/CPRT-116HPRT38678.pdf>. The Joint Explanatory Statement accompanying Division C of the Consolidated Appropriations Act, 2020 addressed reporting directives to the SEC generally. The enactment of appropriations for the Commission on December 20, 2019, confirmed the directive to prepare this report. See Consolidated Appropriations Act, 2020, Pub. Law No. 116- 93, 133 Stat. 2317 (2020).

² This report provides a brief overview of the academic literature and relevant trends in negative net equity issuances. Several strands of academic literature, spanning most topics in corporate finance, provide insights on the effects repurchases may have on investment, corporate leverage, and economic growth. Accordingly, the report provides a high-level overview of the relevant principles.

For more fulsome reviews of academic literature on payout policy, see Joan Farre-Mensa, Roni Michaely, and Martin Schmalz, *Payout Policy*, 6 ANN. REV. FIN. ECON. 75 (2014); and Franklin Allen and Roni Michaely, *Payout Policy*, in HANDBOOK OF THE ECONOMICS OF FINANCE. VOL. 1. (Elsevier ed., 2003) 337-429.

For a discussion of capital structure considerations, see John R. Graham and Mark T. Leary, *A Review of Empirical Capital Structure Research and Directions for the Future*, 3 ANN. REV. FIN. ECON. 309 (2011); and CHRISTOPHER PARSONS & SHERIDAN TITMAN, EMPIRICAL CAPITAL STRUCTURE: A REVIEW (2009).

On executive incentives and compensation, see Kevin J. Murphy, *Executive Compensation*, in Vol. 3 HANDBOOK OF LABOR ECONOMICS 2485 (1999); and Wayne R Guay, David F. Larcker, and John E. Core, *Executive Equity Compensation and Incentives: A Survey*, 9 ECON. POL’Y REV. 27 (Apr. 2003).

³ These methods are described in more detail in Section II.A.

A long-standing conclusion in academic finance literature is that returning capital to shareholders would not affect the market value of the firm beyond the amount of capital returned if capital markets are perfectly efficient and such distributions do not affect investment policies or tax obligations.⁴ Thus, to analyze how distributions may affect investors and companies, this report considers the interaction between companies' distributions, investment policies, tax obligations, and the efficiency of the capital markets.

The impact of a company's distributions on its investment policy, tax obligations, or the market for the company's stock depends on the reasons for the distribution and the form of the distribution (repurchase or dividend).⁵ There are a number of reasons companies may distribute cash to shareholders, any number of which may simultaneously factor into such decisions. The theories underlying these reasons have distinct and substantially different directional predictions for firm value and economic growth and, as a result, for investor and market reactions to repurchase and dividend announcements. Some of these theories are introduced below, and their respective implications for investment and economic growth, and the supporting empirical evidence, are discussed in greater detail in Section IV.

- A company with cash in excess of that needed to meet profitable investment opportunities may return capital to shareholders to reduce the agency costs of excess cash (e.g., shareholders may have lower capital allocation costs and better opportunities to allocate the capital) (see Section IV.A).

⁴ Merton H. Miller & Franco Modigliani, *Dividend policy, growth, and the valuation of shares*, 34(4) J. BUS. 411 (1961).

This concept is illustrated by a hypothetical example of a company with a market capitalization of \$100 million reflected by 10 million shares outstanding, each worth \$10. In an environment with perfectly efficient capital markets without taxes, and as long as all other company policies remain constant, if a company decides to return \$20 million to shareholders through a dividend, each shareholder would receive \$2 per share in cash, and the market price for a share of this company's stock would fall to \$8 (since the firm value would fall to \$80 million after spending \$20 million on dividends). If the same company had instead returned the cash by repurchasing stock, it would have spent \$20 million buying back 2 million shares. The share price would still be \$10 per share but there would now be 8 million shares outstanding instead of 10 million. Thus, shareholders would own something worth \$10 in either situation, i.e., they would own a share worth \$10 or have \$2 in cash and own a share worth \$8.

⁵ Section II.B.2 discusses some of the reasons why companies may prefer to repurchase shares over paying a dividend when distributing cash back to shareholders.

- A company may return capital to shareholders to optimize its capital structure by increasing leverage and, as one result, increasing its interest tax deduction, thereby increasing return on equity capital and shareholder value (see Section IV.B).⁶
- A company may return capital to shareholders to signal information about the value of the firm to outsiders. In particular, companies may repurchase shares to correct mispricing or to provide price support by supplying liquidity when selling pressure is, in the company's view, unnecessarily high (see Section IV.C.1).
- Some suggest that managers may attempt to use repurchase program announcements to artificially inflate share prices.⁷ Due to the flexibility inherent in repurchase programs, such manipulation efforts may or may not be followed by actual share repurchases (see Section IV.C.2).⁸
- Some also suggest that managers may attempt to use repurchases to increase the expected value of their previously awarded equity compensation, if the potential effects of the repurchases are not taken into account by those awarding that equity compensation (see Section IV.D).

The report begins with a discussion of aggregate trends and other empirical findings about repurchases, followed by a discussion of aggregate investment trends. The report then presents an empirical analysis of the reasons for repurchases.

⁶ Repurchases when equity is relatively undervalued, along with issuances when equity is relatively overvalued, may also be a part of the firm's market timing approach to capital structure adjustments.

⁷ Companies' boards typically authorize repurchase programs and have oversight over repurchase announcements, which may coincide with other corporate announcements, such as earnings announcements and, in some cases, earnings guidance. It has also been asserted that companies may use earnings guidance and other forward-looking information in efforts to inflate share prices artificially.

⁸ Theoretically, dividend announcements could also reflect disingenuous efforts to inflate share prices, although this type of manipulation may be less likely to occur in practice since follow-through may be verifiable in a shorter timeframe.

C. Summary of findings

Repurchases are an increasingly common way firms distribute cash to shareholders. As discussed in Section II.B.1, in 2019, firms spent about \$600 billion on repurchases and raised \$200 billion through new share issuances.⁹ These values represent an increase since the 1980s, when firms repurchased about as much stock as they issued and conducted most distributions through dividends. During the past decade, firms' net repurchases (repurchases less share issuances) were on par with dividends, collectively representing about 4% of total market capitalization.¹⁰

There are several possible reasons firms conduct repurchases; some support efficient investment and for some the connection is less clear. The analysis below suggests that firms are more likely to conduct repurchases when they have excess cash and when they would benefit from increased reliance on debt financing. Because the increase in repurchases partly reflects a substitution away from dividends, it has not coincided with increases in aggregate leverage or decreased levels of cash holdings. Furthermore, the portion of repurchases financed with debt has remained relatively steady at about 40%. Because the types of firms that repurchase stock tend to be more profitable firms that have increased in value, repurchasing firms tend to have lower leverage levels and higher cash holdings than non-repurchasing firms. Thus, the data is consistent with firms using repurchases to maintain optimal levels of cash holdings and to minimize their cost of capital.

As is discussed in the analysis below, reasons for repurchases where the connection to efficient investment is less clear are unlikely to motivate the majority of repurchases since stock prices typically increase in response to repurchase announcements, suggesting that, at least on

⁹ The analysis discussed in this report is based on share repurchases and issuances as reported in the Consolidated Statement of Cash-Flows. These measures therefore would not include shares issued or retired for non-cash considerations, such as shares issued as equity-based compensation awards (although shares issued when stock-option awards are exercised would be included). As previously noted, companies may engage in repurchases to offset dilution that can occur (i.e., to keep the number of shares outstanding constant) as a result of shares issued under employee equity compensation plans. The use of equity as compensation has increased significantly in the past several decades. Further study of the effects of equity compensation plans on repurchases could provide additional insight. See, e.g., Bruce Dravis, *Dilution, Disclosure, Equity Compensation, and Buybacks*, 74 Bus. Law. 631 (2019), available at <https://ssrn.com/abstract=3472427> or <http://dx.doi.org/10.2139/ssrn.3472427>. Retrieved from SSRN Elsevier database ("Dravis (2019)").

¹⁰ Total distributions relative to market capitalization over the past decade were similar to those in the late 1980s, but higher than distributions in the 1990s and early 2000s. See Exhibit 1.

average, repurchases are viewed as having a positive effect on firm value.¹¹ For example, the declining levels of option-based compensation suggest that efforts to use repurchases to maintain the value of compensation grants do not account for most firms' increased use of repurchases. Similarly, the relatively low incidence of firms having earnings-per-share (EPS)-based performance targets, as well as the rate at which boards of directors consider the impact of repurchases when setting EPS-based performance targets or determining whether they have been met, further supports the conclusion that efforts to increase compensation are unlikely to account for most repurchase activity.

II. Facts about repurchases

A. Legal framework and implementation

A company can repurchase its stock through open-market transactions, fixed price or Dutch auction tender offers, accelerated share repurchase plans, and privately negotiated repurchases.¹² Regardless of the manner in which a company repurchases its stock, U.S. companies must comply with applicable laws, rules, and regulations, including those relating to market manipulation and insider trading. The Securities Exchange Act of 1934 (Exchange Act) Section 9(a)(2) makes it unlawful for any person to effect transactions in securities that raise or depress the price of the security for the purposes of inducing the purchase or sale of such security.¹³ Exchange Act Section 10(b) and Rule 10b-5 thereunder generally make it unlawful to employ any device, scheme, or artifice to defraud in connection with any purchase or sale of a security.¹⁴

¹¹ This interpretation of the positive market reaction as being indicative of the firm value effect of repurchases is motivated by the presence of a large number of sophisticated institutional investors that compete in the processing of information released by firms, including disclosures about repurchases. Nevertheless, we recognize the potential use of share repurchases motivated by short-term price manipulation, such as around insider sales, and discuss it in greater detail below. Importantly, this announcement effect does not dissipate over time, as one would expect if repurchases were based on efforts to manipulate share prices.

¹² In a Dutch auction tender offer, a company sets a range of prices within which shareholders are invited to tender their shares. The company purchases the tendered shares at the lowest price up to a specified share limit.

¹³ 15 U.S.C. 78i(a)(2)).

¹⁴ 15 U.S.C. 78j(b) and 17 CFR 240.10b-5.

In 1982, the Commission adopted Rule 10b-18.¹⁵ Rule 10b-18 provides issuers with a safe harbor from liability under Section 9(a)(2) and Section 10(b) of the Exchange Act and Rule 10b-5 thereunder if an issuer conducts repurchases in accordance with the volume, price, timing, and manner of sale conditions in the safe harbor.¹⁶ The Rule 10b-18 safe harbor conditions are designed to minimize the market impact of repurchases, allowing the market to establish a price based on independent market forces without undue influence by the issuer or its affiliates.¹⁷ However, Rule 10b-18 confers no immunity from potential Rule 10b-5 liability where the issuer engages in repurchases while in possession of material nonpublic information concerning its securities.¹⁸ The safe harbor is also not available if the repurchases are fraudulent or manipulative when viewed in the totality of the facts and circumstances surrounding the repurchases.¹⁹

Individual boards are generally responsible, consistent with their fiduciary duty, for deciding whether it is appropriate to distribute cash back to shareholders and act to authorize the form and amount of any such capital allocation. In deciding whether and how to distribute cash back to shareholders, boards may consider, in addition to other factors, macroeconomic²⁰ and company-specific factors, including the company's capital structure, investment opportunities, upcoming capital requirements, and the amount of capital it expects to generate or consume over the foreseeable future. All these considerations must be reviewed in a manner consistent with,

¹⁵ See Purchases of Certain Equity Securities by the Issuer and Others; Adoption of Safe Harbor, Release No. 34-19244 (Nov. 17, 1982) [47 FR 53333 (Nov. 26, 1982)], available at https://archives.federalregister.gov/issue_slice/1982/11/26/53330-53341.pdf (“1982 Adopting Release”).

¹⁶ 17 CFR 240.10b-18.

¹⁷ See Purchases of Certain Equity Securities by the Issuer and Others, Release No. 34-48766 (Nov. 10, 2003) [68 FR 64952 (Nov. 17, 2003)], available at https://www.sec.gov/rules/final/33-8335.htm#P43_7089 (“2003 Amendments Release”).

¹⁸ See 1982 Adopting Release, *supra* note 15.

¹⁹ See 2003 Adopting Release.

²⁰ For example, a survey of public company directors revealed that share repurchases are more attractive in a low-growth and low-interest rate environment because such an environment makes it more difficult to find attractive investment opportunities for the company's capital. See *Buybacks and the Board: Director Perspectives on the Share Repurchase Revolution*, Richard Fields, Tapestry Network, available at https://www.tapestrynetworks.com/sites/default/files/publication_pdf/IRRCI%20-%20Buybacks%20and%20the%20Board%20-%20August%202016.pdf.

among other obligations and restrictions, the board’s fiduciary duties and state corporate law.²¹ The board’s compensation committee, each member of which is a fiduciary with a duty to be informed and act consistent with their duties of loyalty and care, typically makes compensation decisions. Accordingly, the effects of stock repurchases ordinarily would be taken into account by compensation committees in the oversight of the design and implementation of the company’s compensation plan.

An overwhelming majority of repurchases in the United States are conducted through open market transactions.²² In the three years ending in 2019, 91% of repurchase announcements pertained to open market repurchases, based on Thomson SDC data.²³ The remaining 9% of announcements were split between privately negotiated repurchases (5%), fixed-price tender offers (1%) and Dutch Auction tender offers (3%). The proportions are very similar if considering all announcements from the past 20 years (90%, 5%, 1%, and 3%, respectively).²⁴

Once an issuer’s board authorizes repurchases, the issuer generally discloses the dollar amount of repurchases the board has authorized. Issuers are not required to disclose the terms or conditions of potential repurchases, such as maximum volume weighted average price, but they are required to disclose on a quarterly basis the number of shares purchased by the company or its affiliates.²⁵ Issuers are not required to repurchase stock following any board authorization of

²¹ Many states limit the source of funds a company may use to declare dividends or repurchase or redeem shares. For example, dividends may not be declared out of net profits if “the capital of the corporation, computed in accordance with sections 154 and 244 of [the DGCL], shall have been diminished by depreciation in the value of its property, or by losses, or otherwise, to an amount less than the aggregate amount of the capital represented by the issued and outstanding stock of all classes having a preference upon the distribution of assets” DGCL § 170(a)(2).

²² Gustavo Grullon & David L. Ikenberry, *What do we know about stock repurchases?*, 13 J. APPLIED CORP. FIN. 31 (2000) (“Grullon & Ikenberry (2000)”).

²³ See *infra* note 36. Some repurchase programs included in this figure are implemented through agreements negotiated with intermediaries who purchase stock on behalf of the issuer, called “Accelerated Share Repurchases” (“ASRs”). ASRs are credible commitments by firms to repurchase shares immediately. There is some evidence that these arrangements have become more common in recent years. See, e.g., Leonce Barger, Manoj Kulchania, & Shawn Thomas, *Accelerated Share Repurchases*, 101 J. FIN. ECON. 69 (2011); Ahmet Kurt, *Managing EPS and Signaling Undervaluation as a Motivation for Repurchases: The Case of Accelerated Share Repurchases*, 17 REV. ACCT. & FIN. 453 (2018) (“Kurt (2018)”), finding that 41 such programs were announced in 2011, the last year of the study. For context, we found that there were 530 open-market repurchase announcements in 2011, implying that 8% were conducted through Accelerated Share Repurchases.

²⁴ This data is based on repurchase announcements from Thomson Reuters SDC Platinum Mergers & Acquisitions database, following the classification methodology in Grullon & Ikenberry (2000), *supra* note 22.

²⁵ Item 703 of Regulation S-K. 17 CFR 229.703.

funds to be used to fund repurchases²⁶, but stock prices tend to increase in response to announcements of planned repurchases.²⁷ Furthermore, this announcement effect is, on average, an underreaction—stock prices of firms that announced repurchases tend to earn positive abnormal returns²⁸ over the subsequent 1–2 years.²⁹ Our findings based on more recent data on repurchase announcements are consistent with these results (*see* Section II.B.3).

One criticism of share repurchases is that insider sales may be timed to coincide with repurchase announcements.³⁰ If insiders time sales to coincide with repurchase announcements and any resulting increase in stock price, executives may be incentivized to recommend repurchase programs to further their own gain.³¹

²⁶ For evidence of the actual repurchase completion rates during different time periods, *see, e.g.*, Clifford Stephens & Michael Weisbach, *Actual Share Repurchases in Open-Market Repurchase Programs*, 53 J. FIN. 313 (1998) (“Stephens & Weisbach (1998)”); Alice Bonaimé, *Repurchases, Reputation, and Returns*, 47 J. FIN. & QUANTITATIVE ANALYSIS 469 (2012) (“Bonaimé (2012)”); Alice Bonaimé, *Mandatory disclosure and firm behavior: evidence from share repurchases*, 90 ACCT. REV. 1333 (2015).

²⁷ Announcement returns could be difficult to interpret for companies for which repurchase announcements coincide with other corporate announcements, such as earnings announcements. The extent to which announcement effects are over-stated due to confounding earnings news depends on whether overlapping earnings news tend to be favorable.

²⁸ Abnormal returns are the difference between actual returns and expected returns, where expected returns are based on a model of returns, such as the Capital Asset Pricing Model (or CAPM). Academic research uses various measures for expected returns. The analysis in this report uses the return on the CRSP’s overall market return measure, “vwretd”, as a proxy for expected returns.

²⁹ *See, e.g.*, Leonce Barger, Manoj Kulchania, & Shawn Thomas, *The Timing And Source Of Long-Run Returns Following Repurchases*, 52 J. FIN. & QUANTITATIVE ANALYSIS 491 (2017) (“Barger et. al. (2017)”). Subsequent outperformance is most pronounced for firms that have experienced the largest declines leading up to repurchase announcements. Urs Peyer & Theo Vermaelen, *The Nature And Persistence of Buyback Anomalies*, 22 REV. FIN. STUD. 1693 (2009). *But see* Fangjian Fu & Sheng Huang, *The Persistence of Long-Run Abnormal Returns Following Stock Repurchases and Offerings*, 62 MGMT. SCIENCE 964 (2016) (documenting disappearance of long-run, post-repurchase abnormal returns during 2003-2012).

³⁰ Some studies find evidence consistent with this theory. *See, e.g.*, Dittmar & Field, (2015), *infra* note 34 (finding that “repurchasing firms with relatively high net insider buying have significantly lower relative repurchase prices” and concluding that firms with more net insider buying repurchase undervalued stock”). Such insider buying can enhance the credibility of the repurchase signal (*see infra* note 90). Similarly, there is some evidence that insiders time stock sales to follow repurchase announcements, which are typically accompanied by price increases. It is therefore possible that some repurchase announcements may reflect efforts to influence share prices prior to sales. *See, e.g.*, Chan et. al. (2010), *infra* note 93. As with other studies cited in this report, it is possible that these findings may be less applicable today, to the extent that changes in corporate governance practices have changed the manner in which insiders transact.

³¹ Repurchase program announcements do not often coincide with when a company actually makes repurchases under a program, so work that examines the intersection between repurchase program announcements and insider sales does not examine the point in time in which an insider is selling into a market in which the company is buying.

There are a number of reasons why insider sales may coincide with repurchase program announcements, making it difficult to ascertain the motivations underlying insider sales. For example, because repurchase program announcements often coincide with earnings announcements and companies often prohibit insiders from trading in the period leading up to earnings announcements, insider sales activity may be the result of pent-up demand. In addition, some insider sales activity may be the result of pre-arranged sales under an existing Rule 10b5-1 plan. Rule 10b5-1 plans provide companies and insiders with an affirmative defense to insider trading liability for sales made pursuant to a Rule 10b5-1 plan so long as a company or insider is not in possession of material non-public information when setting the plan, and does not amend the plan or otherwise exercise influence over a transaction while in possession of material non-public information.³² Insiders are not required to disclose whether transactions are made pursuant to Rule 10b5-1 plans, so it can be difficult to analyze the potential intersection between repurchase program announcements and insider sales, particularly whether such sales were pre-planned or influenced by potential repurchase program announcements.

Another concern with open-market repurchases is that firms' insiders likely know more about their stock price than others. This concern is consistent with survey evidence showing that CFOs consider the price of the stock when deciding whether to repurchase stock³³ and evidence that firms tend to conduct repurchases when stock prices are low.³⁴ That said, public announcements of repurchase plans should alleviate some information asymmetries. Further, like insiders, issuers are subject to Rule 10b-5 liability when trading while in possession of material non-public information.

³² See Rules 10b-5 and 10b5-1 [17 CFR 240.10b5-1].

³³ Alon Brav, John Graham, Campbell Harvey, & Roni Michaely, *Payout Policy in the 21st Century*, 77 J. FIN. ECON. 483 (2005) ("Brav et. al. (2005)").

³⁴ See, e.g., Amy Dittmar & Laura C. Field, *Can managers time the market? Evidence using repurchase price data*, 115 J. FIN. ECON. 261 (2015) ("Dittmar & Field, (2015)"); Azi Ben-Rephael, Jacob Oded, & Avi Wohl, *Do Firms Buy Their Stock at Bargain Prices? Evidence From Actual Stock Repurchase Disclosures*, 18 REV. FIN. 1299 (2014).

B. Aggregate trends

This section examines aggregate trends in repurchases.³⁵ Firm-level financial information comes from S&P Global Market Intelligence Compustat North America Fundamentals Annual and Fundamentals Quarterly datasets.³⁶ The analysis is limited to domestic firms listed on the NYSE, NYSE American, or NASDAQ exchanges.³⁷ In light of the Congressional directive that the report concern “non-financial issuers, the analysis excludes real estate and financial issuers (identified by primary SIC codes 6000–6999). In addition, the analysis excludes non-operating establishments (identified by primary SIC code 9995). Lastly, as is common in the academic literature, the analysis excludes firms with missing or non-positive book value of assets or sales.³⁸

Net share repurchases are defined as the dollar value of repurchases of common stock less the value of sales of common stock, calculated as of the end of each firm’s fiscal year.³⁹ Because net repurchases does not account for shares issued for compensation, some portion of spending on repurchases offsets the money companies save by paying employees with stock.⁴⁰

³⁵ This section provides charts that summarize the trends in repurchases and other financial metrics to establish baseline statistics on what has occurred and how trends in repurchases may be related to other economic factors. However, it is very difficult, if not impossible, to draw causal conclusions from simple correlations due to the likelihood of confounding effects.

³⁶ Firm financial data from Compustat is supplemented with a) repurchase program announcement information from Thomson Securities Data Company’s (SDC) Mergers & Acquisitions dataset, b) information on stock awards and stock options in executive compensation from S&P Global Market Intelligence Compustat Execucomp dataset, c) information on EPS targets in compensation contracts from issuers’ proxy statements on EDGAR, and d) information on shareholder proposals from ISS Voting Analytics Shareholder Proposals.

³⁷ In 2019, the last calendar year of data available, domestic securities listed on national securities exchanges accounted for approximately 63% of total market capitalization and 84% of total net share repurchases in the Compustat dataset.

³⁸ In 2019, non-financial firms with positive book value of assets and sales accounted for 78% of total market capitalization and 74% of total net share repurchases of domestic listed firms.

³⁹ With the exception of Exhibit 1A, Exhibit 3, and Table 2, which specify “Gross Repurchases,” all chart and table references to repurchases reflect repurchases net of any share issuances and sales reflected in the cash flow statement. Purchases and sales of common stock measures exclude stock issuances for non-cash considerations, such as shares issued or retired in connection with merger and acquisition transactions. *See supra* note 9.

⁴⁰ *See, e.g.* Dravis (2019), *supra* note 9, finding that nearly 37% of shares repurchased at Fortune 100 companies offset shares issued for compensation, including stock awards, stock option awards, and RSUs.

This and other measures are defined in Appendix A. All nominal values throughout the report are adjusted for inflation to reflect 2019 dollars.⁴¹

1. Total repurchases have increased but not relative to market capitalization.

Over the past four decades, share repurchases have increased from less than \$20 billion in 1983 to just over \$700 billion in 2018.⁴² In the 1980s and 1990s, about as many shares were sold as were repurchased, so net repurchases – share repurchases minus issuances – hovered around zero.⁴³ In the past decade, net repurchases increased to over \$550 billion in 2018 (see Exhibit 1A). Similarly, issuers increasingly used dividends to return money to shareholders, returning about \$450 billion in dividends 2019 (see Exhibit 1A).

Aggregate market capitalization of non-financial public firms has also risen substantially since the 1980s, to slightly over \$26 trillion in 2019 (see Exhibit 1B). Net share repurchases as a percentage of aggregate market capitalization of public companies have remained stable at approximately 2% over the past decade (see Exhibit 1C).

While growth in aggregate dividends has been relatively stable, growth in aggregate repurchases has fluctuated over the past several decades, as demonstrated by a large decline and rebound following the financial crisis.⁴⁴ Relatedly, repurchases tend to be pro-cyclical, meaning they tend to increase in economic booms and decline during recessions, suggesting repurchases were more likely when capital was less constrained.⁴⁵

⁴¹ U.S. Bureau of Economic Analysis, Gross Domestic Product: Implicit Price Deflator [GDPDEF], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/GDPDEF>, (last accessed November 19, 2020).

⁴² Gross share repurchases are the total amount of dollars used to repurchase shares, and net share repurchases are gross share repurchases less the dollar proceeds from share issuances.

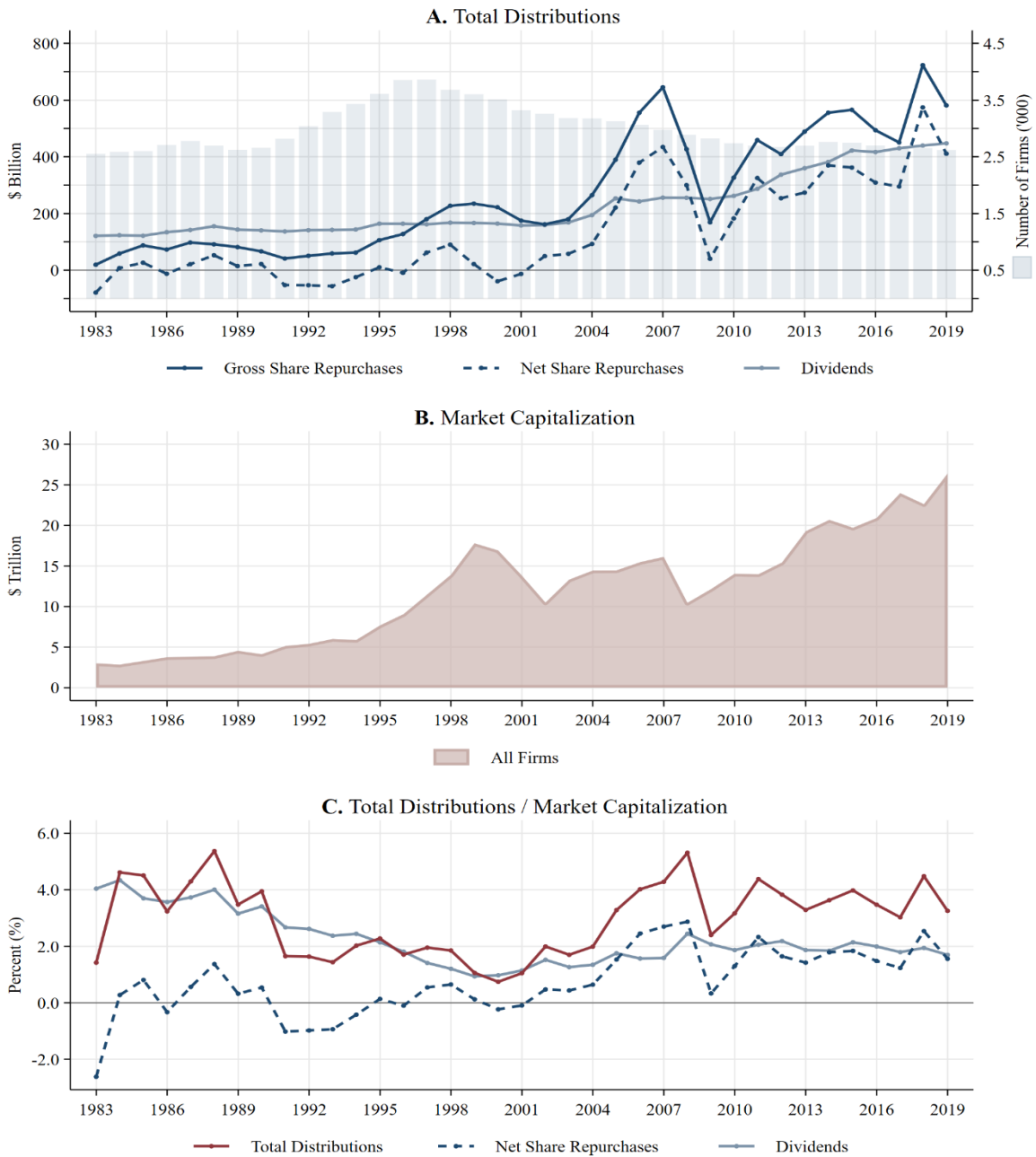
Aggregate share repurchases in 2020 look considerably different than in 2019, suggesting that the recent market conditions surrounding the Covid-19 pandemic may have affected corporate distributions. In particular, in the first three quarters of 2020, aggregate gross (net) share repurchases were \$353 billion (\$158 billion), demonstrating a 21% (50%) decrease from the first three quarters in 2019.

⁴³ Share issuances includes shares issued for cash-consideration and therefore does not includes shares issued in connection with equity compensation. *See supra* note 9.

⁴⁴ *See* Section II.B.2 below discussing reasons why dividends may fluctuate less than net repurchases.

⁴⁵ *See, e.g.,* Murillo Campello, John Graham, & Campbell Harvey, *The Real Effects of Financial Constraints: Evidence from a Financial Crisis*, 97 J. FIN. ECON. 470 (2010); Amy Dittmar & Robert Dittmar, *The Timing of Financing Decisions: An Examination of the Correlation in Financing Waves*, 90 J. FIN. ECON. 59 (2008); Eric Floyd, Nan Li & Douglas Skinner, *Payout Policy through the Financial Crisis: The Growth of Repurchases and the Resilience of Dividends*, 118 J. FIN. ECON 299 (2015).

Exhibit 1: Aggregate Share Repurchases and Dividends



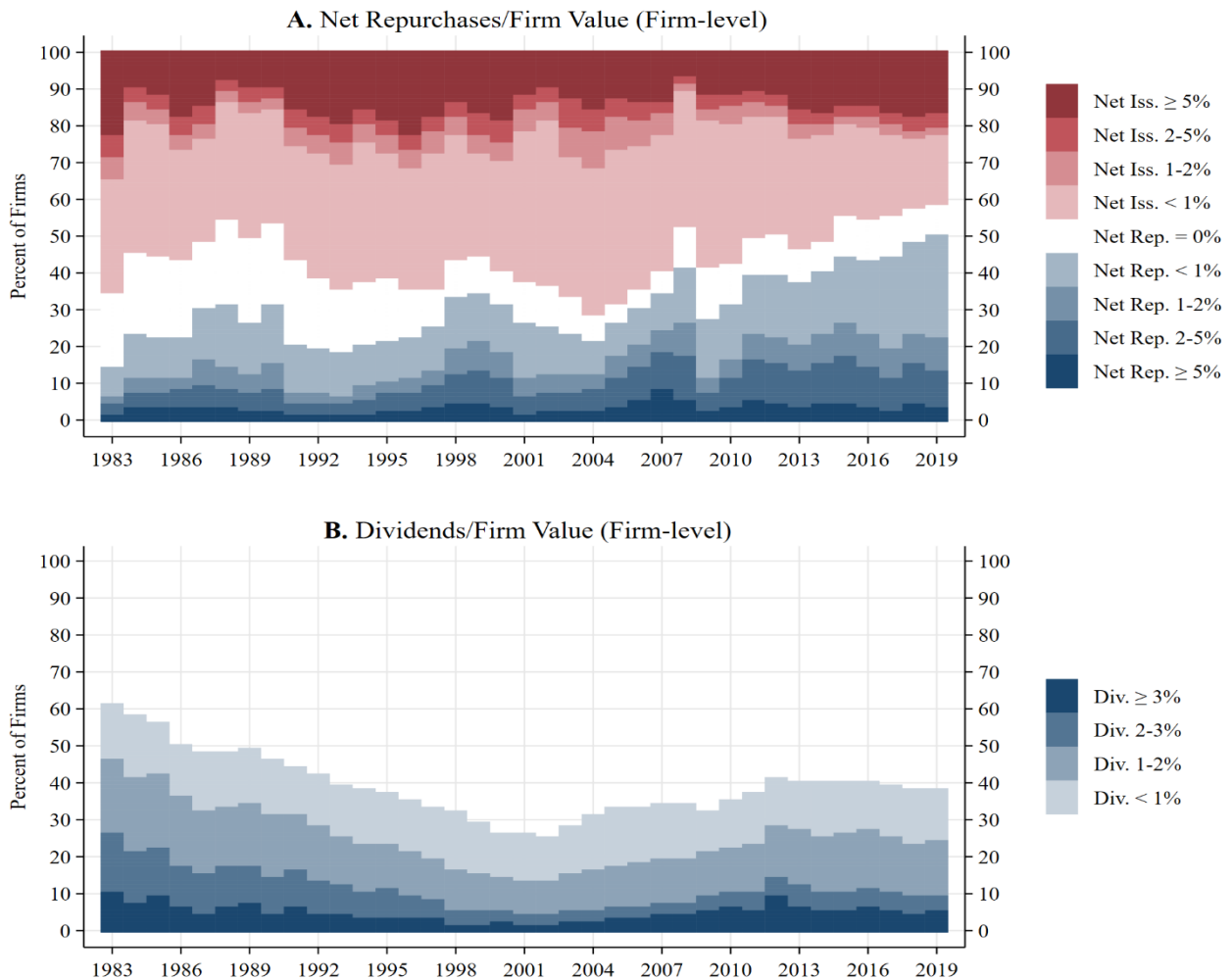
Sources: Compustat Fundamentals Annual, FRED GDP deflator.

Notes: Total distributions are the sum of net repurchases and dividends. Firms with repurchases are firms with positive net share repurchases over the year.

2. Fewer firms pay dividends; more firms conduct regular repurchases.

Exhibit 2 shows the distribution of firms' net share repurchases and dividends. In the early-to-mid 1980s, more than 50% of firms were net issuers, roughly 20% of firms were net buyers, and just about 60% of firms paid dividends. In the past five years roughly 40% of firms were net issuers, 50% were net buyers, and about 40 % paid dividends. Overall, the growth in net share repurchases was driven by the growth in the percentage of firms with net share repurchases. The median net share repurchase was roughly 1% of firm market value in the first and last three years of the sample period.

Exhibit 2: The Distribution of Share Repurchases and Dividends



Source: Compustat Fundamentals Annual.

Notes: Panel A reflects values of repurchases less issuances, where red tones reflect cases in which companies are net issuers and blue tones reflect cases in which companies are net buyers. Net share repurchases, issuances, and dividends are expressed as percentages of each firm's market value, defined as the sum of the book value of total liabilities, preferred stock, and market capitalization. See Section II.B.1 and Appendix A.

Exhibit 2 also suggests that dividends fluctuate less than net issuances. This could be because dividends are viewed by the market as a commitment to regularly return cash to shareholders.⁴⁶ Companies generally announce dividend policies, and markets react strongly to

⁴⁶ See, e.g., RICHARD BREALEY, STEWART MYERS & FRANKLIN ALLEN, PRINCIPLES OF CORPORATE FINANCE (12th ed. 2017).

increases and reductions in dividends.⁴⁷ As a result, managers endeavor to keep dividend payments stable, justifying the market's interpretation. A survey of 384 CFOs and executives suggests that the ability to avoid reducing dividends was the top consideration of managers when determining dividend policy.⁴⁸ Indeed, firms that favor repurchases tend to have more volatile cash flows than dividend-paying firms.⁴⁹

Exhibit 3 provides additional detail about the nature of repurchases over time. Firms that exclusively pay dividends are increasingly rare. The percentage of firms that do not repurchase any shares within a year has declined from over 30% to under 10% for dividend payers, with most of the decline occurring prior to 2000, and from 30% to slightly over 20% for non-dividend payers, with most of the decline occurring after 2000. The portion of firms that conduct repurchases in every quarter has grown from under 5% to over 30%, and about half of them are dividend payers. The percentage of firms that conduct less frequent repurchases has remained relatively steady and is also split roughly 50/50 into dividend payers and non-dividend payers. The increase in the proportion of firms that regularly conduct repurchases suggests that firms have partially substituted dividends with repurchases.⁵⁰

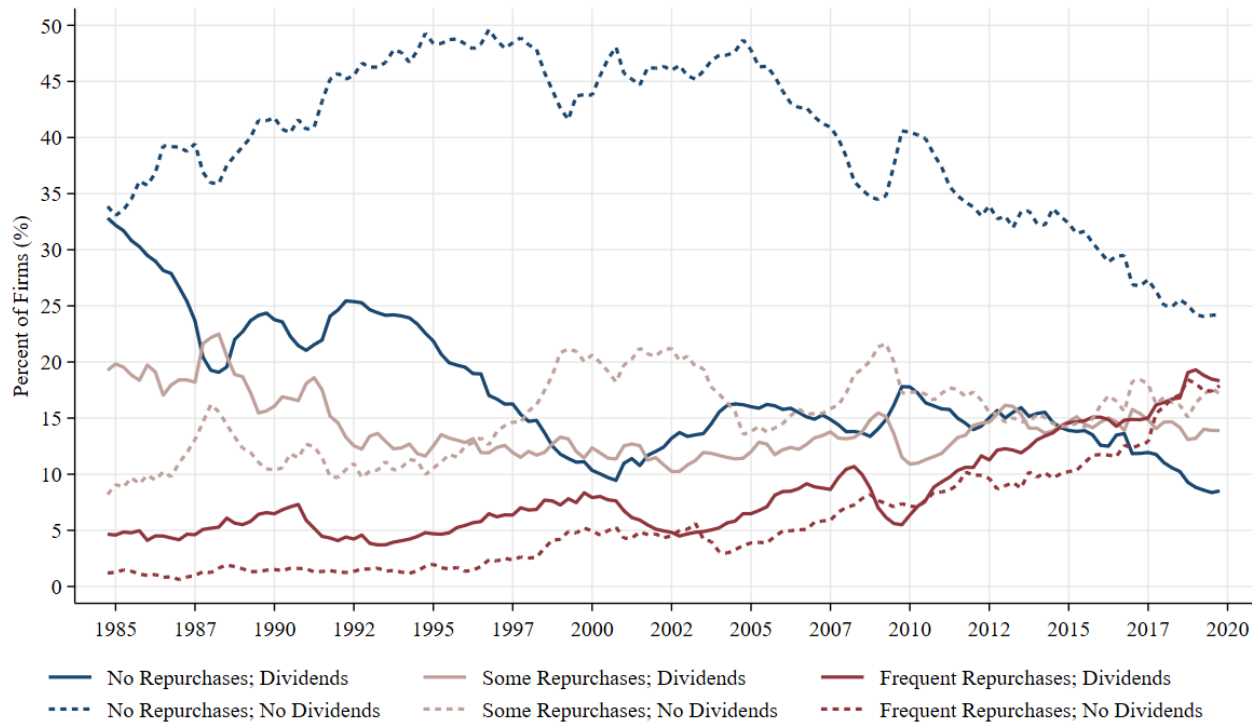
⁴⁷ See, e.g., Paul Healy & Krishna Palepu, *Earnings Information Conveyed by Dividend Initiations and Omissions*, 21 J. FIN. ECON. 149 (1988). Market reactions to initiations and omissions are even more pronounced. See Roni Michaely, Richard Thaler & Kent Womack, *Price reactions to dividend initiations and omissions: overreaction or drift?*, 50 J. FIN. 573 (1995); Bong Soo Lee & Nathan Mauck, *Dividend Initiations, Increases and Idiosyncratic Volatility*, 40 J. CORP. FIN. 47 (2016).

⁴⁸ See Brav et. al. (2005), *supra* note 33.

⁴⁹ See, e.g., Murali Jagannathan, Clifford Stephens, & Michael Weisbach, *57 Financial Flexibility and the Choice Between Dividends and Stock Repurchases*, J. FIN. ECON. 355 (2000). See also Gerard Hoberg & Nagpurnanand Prabhala, *Disappearing Dividends, Catering, and Risk*, 22 REV. FIN. STUD. 79 (2009) (showing that riskier firms are less likely to pay dividends).

⁵⁰ The partial substitution between dividends and repurchases has also been documented in academic studies. See, e.g., Douglas Skinner, *The Evolving Relation between Earnings, Dividends and Stock Repurchases*, 87 J. FIN. ECON. 582 (2008); Gustavo Grullon & Roni Michaely, *Dividends, Share Repurchases, and the Substitution Hypothesis*, 57 J. FIN. 1649 (2002).

Exhibit 3: Frequency of Gross Share Repurchases



Source: Compustat Fundamentals Quarterly.

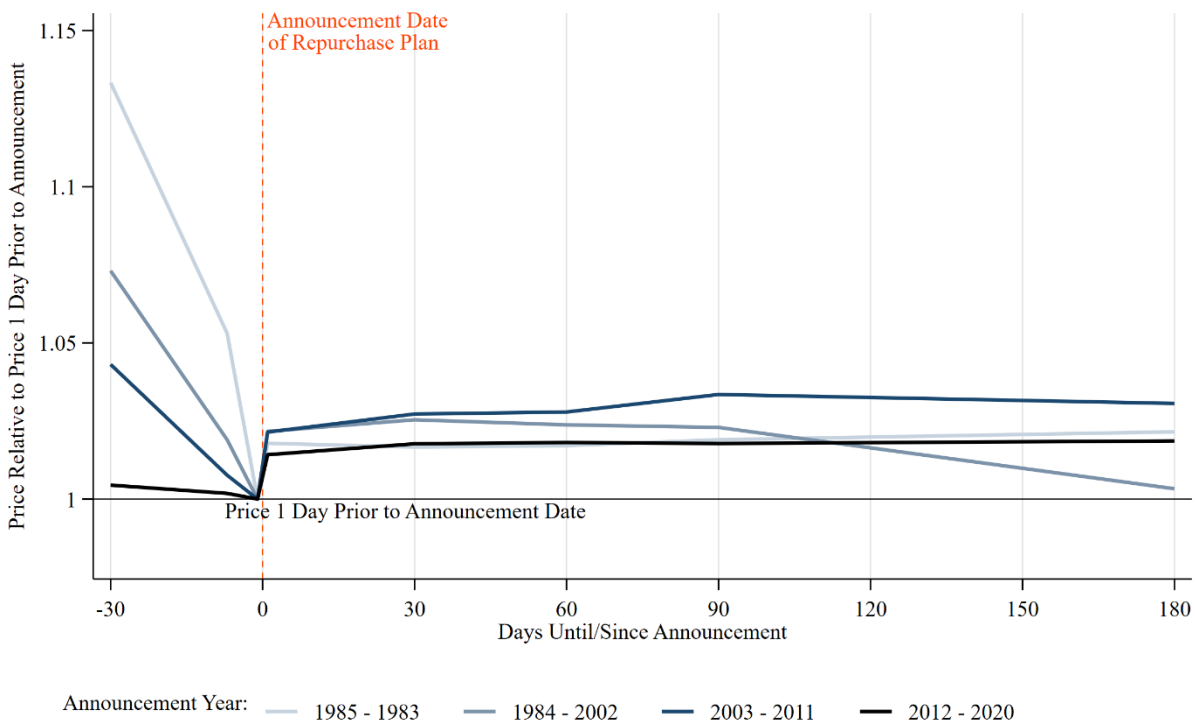
Notes: A firm is classified as having paid dividends if it has paid a dividend at least once within the past four quarters. A firm is classified as having “frequent” repurchases if it reported a positive value of gross repurchases (not net of share issuances) in each of the previous four quarters. A firm is classified as having “some” repurchases if it reported a positive value of gross repurchases (not net of share issuances) in at least one but not all of the previous four quarters.

3. Stock prices typically increase when companies announce repurchases.

Exhibit 4 provides an analysis of average share price changes around announcements of new repurchase programs. The results are generally consistent with the academic literature: prices typically decline prior to repurchase announcements, although this decline has become less pronounced for more recent announcements. Prices typically increase by 1–2% when

repurchases are announced.⁵¹ This announcement effect does not dissipate over time, as one would expect if repurchases were based on efforts to manipulate share prices.⁵²

Exhibit 4: Price Changes Prior to and Following Repurchase Announcements



Sources: SDC Platinum sample of repurchase announcements for U.S. Issuers, Center for Research in Security Prices (CRSP), Compustat.

Notes: Returns are market adjusted by subtracting the return from CRSP “vwretd” (total return value-weighted index). Includes announcements for all firms that are in the Compustat sample used for the remaining results (see discussion of methodology at beginning of Section II.B).

Nearly all of the theoretical reasons for repurchases introduced in Section I.B above and discussed in detail in Section IV below are consistent with a positive announcement effect. The fact that the announcement returns do not dissipate over time supports theories that are generally

⁵¹ Note that this estimate is somewhat lower than the 2–3% documented in published studies. This difference appears to be due to sample characteristics rather than time series effects since this report also finds lower estimates for sample periods that overlap with previous studies.

⁵² See *supra* note 29.

consistent with efficient investment and economic growth and is inconsistent with efforts to manipulate the stock price.⁵³ Price declines preceding repurchase announcements are more consistent with signaling and price support theories.

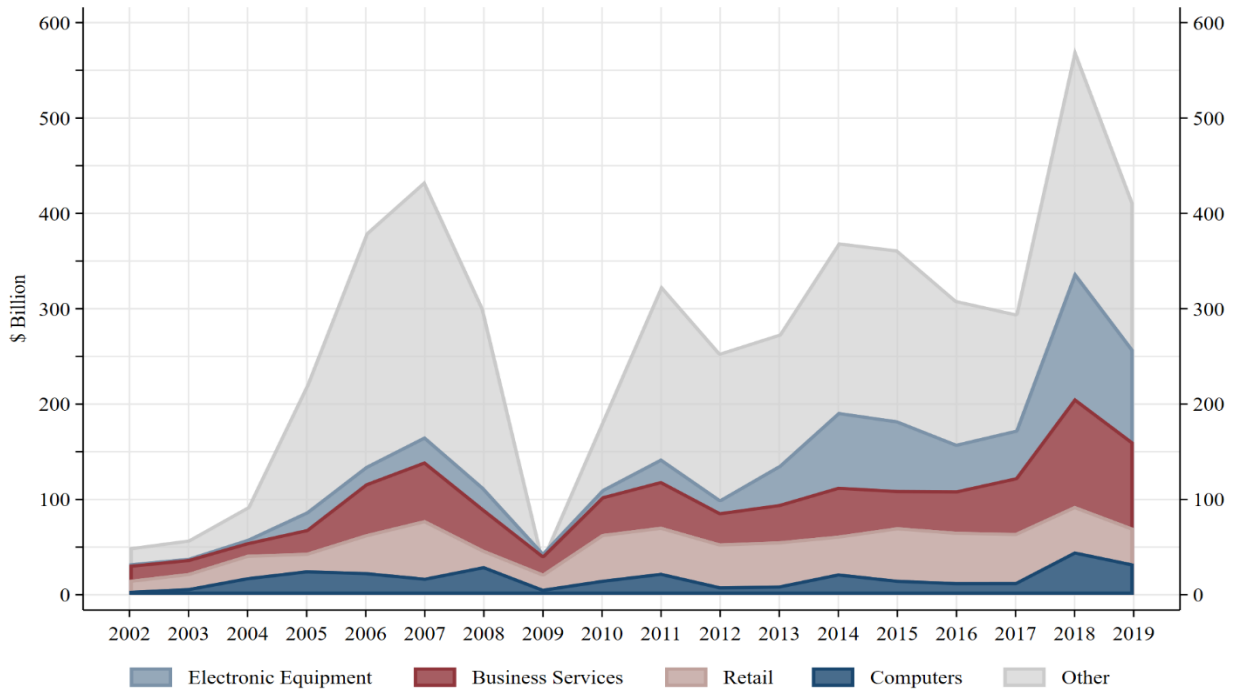
4. Repurchases are concentrated in certain industries.

Recent share repurchase activity has been concentrated in a handful of industries. In particular, only four industries—*Electronic Equipment, Business Services, Retail, and Computers*—accounted for approximately 60% of the total value of repurchased shares in the past three years (see Exhibit 5).⁵⁴ Information on the average repurchases and firm size by industry is reported in Table 1 below.

⁵³ Evidence suggests that long-run outperformance first documented in Davis Ikenberry, Josef Lakonishok & Theo Vermaelen, *Market Underreactions to Open Market Share Repurchases*, 39 J. FIN. ECON. 181 (1995), is not attributable to improved operating performance. See Gustavo Grullon & Roni Michaely, *The Information Content Of Share Repurchase Programs*, 59 J. FIN. 651 (2004) (“Grullon & Michaely (2004)”). Instead the authors posit that investors may be underestimating improvements to cost of capital. However, others have found that outperformance is attributable to discrete events that follow repurchase programs, such as takeover announcements as in Barger et al. (2017), *supra* note 29. There is some evidence that long-run returns following repurchases have declined in recent years. See Inmoo Lee, Yeun Jung Park & Neil Pearson, *Repurchases After Being Well Known as Good News*, 62 J. CORP. FIN. 101552 (2020).

⁵⁴ The same four industries accounted to approximately 29% of companies and 42% of the total market capitalization in 2019.

Exhibit 5: Share Repurchases by Industry⁵⁵



Source: CRSP/Compustat Merged Fundamentals Annual.

Notes: Aggregate net share repurchases are presented at the industry level. Firms' historical SIC classifications are mapped to Fama–French 48 industry definitions.

⁵⁵ In 2009, net share repurchases for the four industries plotted in Exhibit 5 totaled approximately \$45 billion, exceeding the aggregate net share repurchases for all industries (approximately \$40 billion). This could be largely explained by share issuances exceeding share repurchases for several large industries during the financial crisis (i.e. in *Transportation, Machinery, and Chemicals* industries).

Table 1. Net Repurchases by Industry, 2019

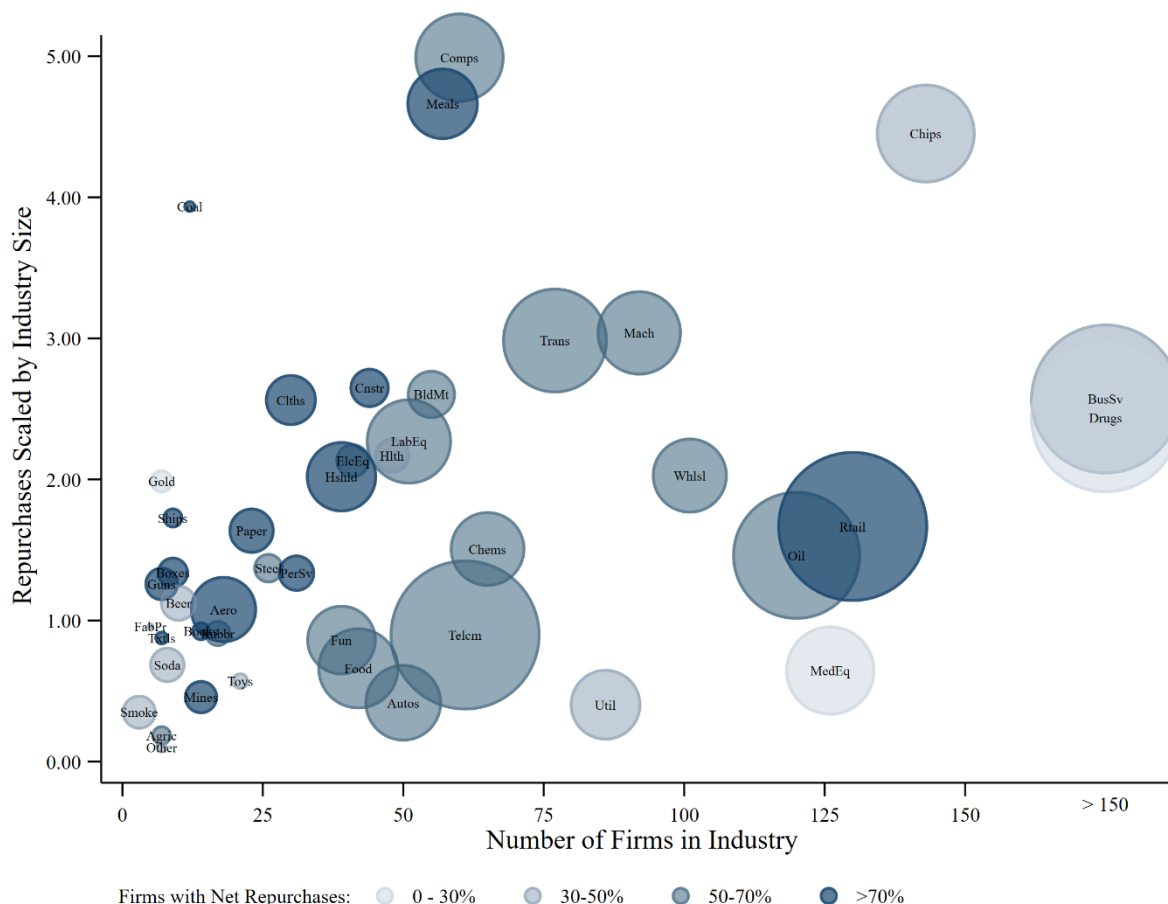
Reflects levels of net repurchases across industries for 2019. Industries are based on Fama–French 48 industry definitions. Investment includes spending on physical capital, research & development, and operational capital (see Appendix). *Source:* CRSP/Compustat Merged Fundamentals Annual.

| Industry | Number of Firms | Average Assets | Average Firm Value | Avg. Net Repurchases | Repurchases / Firm Value | Investment / Firm Value | Total Debt/ Firm Value |
|--|-----------------|----------------|--------------------|----------------------|--------------------------|-------------------------|------------------------|
| Electronic Equipment | 144 | 7,037 | 18,495 | 673 | 4.4 | 15.1 | 11.3 |
| Computers | 60 | 8,172 | 12,807 | 544 | 4.8 | 13.5 | 19.6 |
| Restaurants, Hotels, Motels | 57 | 3,884 | 11,586 | 393 | 4.7 | 6.6 | 23.2 |
| Retail | 130 | 11,153 | 23,397 | 288 | 1.6 | 17.5 | 18.9 |
| Tobacco Products | 3 | 30,864 | 95,165 | 281 | 0.4 | 5.1 | 20.9 |
| Beer & Liquor | 10 | 14,234 | 32,702 | 281 | 1.0 | 11.4 | 17.7 |
| Aircraft | 18 | 21,914 | 31,410 | 273 | 1.1 | 5.6 | 20.3 |
| Consumer Goods | 39 | 6,554 | 16,426 | 236 | 2.0 | 11.7 | 12.5 |
| Business Services | 411 | 5,507 | 15,008 | 227 | 2.6 | 13.1 | 10.6 |
| Communication | 61 | 32,553 | 36,310 | 210 | 0.9 | 6.1 | 37.3 |
| Apparel | 30 | 4,035 | 10,897 | 188 | 2.5 | 15.2 | 13.0 |
| Defense | 7 | 7,709 | 19,237 | 173 | 1.3 | 5.5 | 11.3 |
| Transportation | 76 | 9,980 | 14,029 | 171 | 3.0 | 10.6 | 28.2 |
| Machinery | 91 | 4,316 | 7,504 | 161 | 3.0 | 9.9 | 20.7 |
| Shipping Containers | 9 | 11,405 | 12,646 | 137 | 1.3 | 5.9 | 39.2 |
| Chemicals | 64 | 6,218 | 8,312 | 125 | 1.5 | 7.6 | 24.4 |
| Business Supplies | 23 | 6,198 | 11,057 | 117 | 1.6 | 10.4 | 20.8 |
| Wholesale | 101 | 5,020 | 5,231 | 84 | 2.1 | 7.6 | 29.5 |
| Healthcare | 48 | 4,410 | 6,361 | 84 | 2.2 | 6.2 | 42.6 |
| Pharmaceutical Products | 354 | 2,888 | 7,050 | 80 | 2.4 | 14.2 | 13.5 |
| Candy & Soda | 8 | 11,960 | 38,803 | 80 | 0.7 | 7.2 | 11.1 |
| Entertainment | 37 | 5,870 | 11,949 | 78 | 0.9 | 7.1 | 28.9 |
| Construction Materials | 55 | 2,557 | 3,941 | 76 | 2.6 | 7.1 | 23.8 |
| Measuring and Control Equipment | 51 | 5,527 | 13,924 | 74 | 2.3 | 8.9 | 12.7 |
| Petroleum and Natural Gas | 120 | 13,967 | 13,446 | 73 | 1.5 | 9.4 | 25.7 |
| Construction | 44 | 3,865 | 4,262 | 66 | 2.6 | 4.4 | 25.4 |
| Coal | 11 | 1,724 | 953 | 65 | 4.4 | 8.7 | 45.3 |
| Shipbuilding, Railroad Equipment | 9 | 4,330 | 4,700 | 60 | 1.7 | 8.0 | 28.3 |
| Food Products | 41 | 11,749 | 15,328 | 55 | 0.7 | 4.7 | 25.2 |
| Steel Works Etc | 26 | 3,332 | 2,938 | 37 | 1.3 | 7.5 | 30.7 |
| Precious Metals | 7 | 6,410 | 6,802 | 36 | 2.0 | 4.5 | 16.5 |
| Electrical Equipment | 40 | 1,491 | 2,493 | 31 | 2.1 | 10.6 | 22.5 |
| Non-Metallic and Industrial Metal Mining | 14 | 6,813 | 9,415 | 31 | 0.5 | 6.4 | 24.7 |
| Personal Services | 31 | 4,413 | 5,153 | 28 | 1.3 | 20.0 | 45.1 |
| Printing and Publishing | 14 | 3,149 | 2,674 | 22 | 0.9 | 9.4 | 30.2 |
| Textiles | 7 | 2,485 | 2,523 | 20 | 0.9 | 8.9 | 22.5 |
| Automobiles and Trucks | 50 | 13,548 | 11,281 | 7 | 0.4 | 11.0 | 49.9 |
| Agriculture | 7 | 6,862 | 4,199 | (3) | 0.2 | 8.7 | 7.4 |
| Rubber and Plastic Products | 17 | 2,139 | 3,343 | (5) | 0.9 | 7.9 | 34.4 |
| Other | 7 | 2,779 | 3,058 | (6) | 0.1 | 9.9 | 34.7 |
| Medical Equipment | 125 | 2,478 | 6,870 | (10) | 0.6 | 11.9 | 10.6 |
| Recreation | 21 | 1,137 | 2,682 | (60) | 0.6 | 16.2 | 17.4 |
| Fabricated Products | 5 | 938 | 1,090 | (72) | 1.0 | 5.1 | 23.6 |
| Utilities | 86 | 25,278 | 16,459 | (263) | 0.3 | 6.7 | 49.1 |

Exhibit 6 presents the industry distribution of net repurchases measured as a percentage of firm value. As above, *Electronic Equipment* (aka “*Chips*”) accounts for a large portion of

repurchases. *Computers (Comps)*; *Restaurants, Hotels, Motels (Meals)*; and *Coal* also have a relatively high proportion of repurchases. Exhibit 6 also provides some information on how common repurchases are within the industry. *Pharmaceuticals (Drugs)* represents a high proportion of the total dollar value of repurchases, but this is largely because of the size of the industry; the repurchase rate is similar to that of other industries when scaled by size (reflected by the size of the marker). The color of the markers indicates the percentage of firms in the industry that conduct repurchases. For example, *Pharmaceuticals* have a high average aggregate repurchase rate, these repurchases are conducted by a minority of Pharmaceutical firms. Conversely, *Restaurants, Hotels, Motels (Meals)* has a high repurchase, with over 70% of firms in that industry reporting net repurchases in 2019. This industry variation in concentration suggests that the reasons for repurchases may also vary by industry. Whereas repurchases in *Pharmaceuticals* may be due to factors that only affect a subset of firms, repurchases in *Restaurants, Hotels, Motels (Meals)* may reflect a more general trend across the industry.

Exhibit 6: Net Share Repurchases by Industry



Source: CRSP/Compustat Merged Fundamentals Annual.

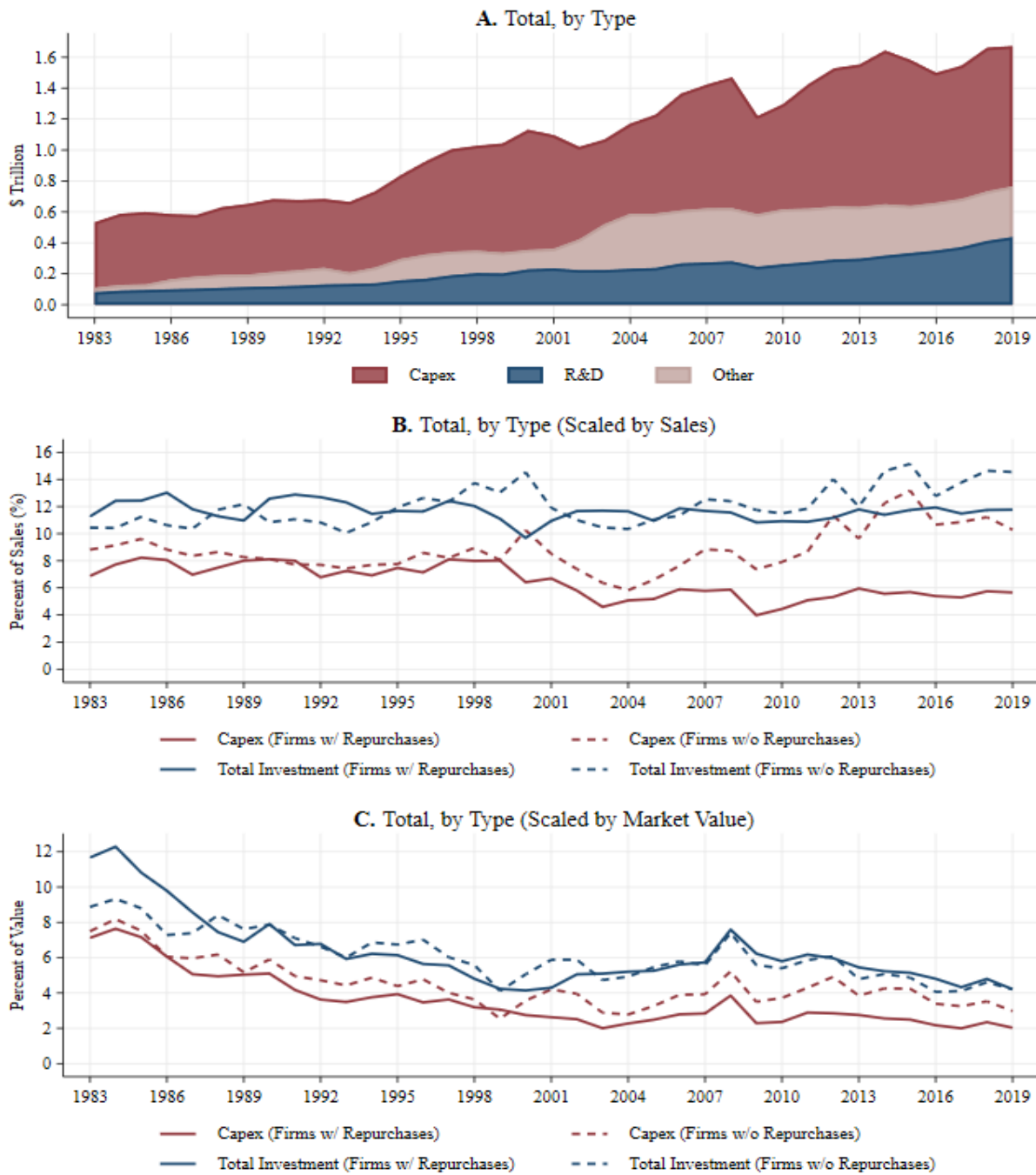
Notes: This chart reports aggregate net repurchases scaled by the market value of the industry on the vertical axis relative to the number of firms in the industry on the horizontal axis. Marker size is based on the market value of the industry and marker color indicates the proportion of firms in the industry with positive net repurchases.

III. Investment and economic growth

Corporate investment can take a variety of forms, from investment in physical assets, like purchase of land or machinery, to investment in intangible assets, like spending on new product development or human capital. Corporate investment in physical assets, as measured by capital expenditures (“capex”), has tracked the growth in sales and assets, growing from around \$400

billion to about \$900 billion over the past 40 years (see Exhibit 7). Investment in intangible assets, as measured by spending on research and development (“R&D”), has likewise risen from approximately \$80 billion to over \$400 billion during this time. Total corporate investment, which includes capital expenditures, research & development, and a fraction of selling, general, and administrative (“SG&A”) spending representing investment in organization capital, has grown from \$530 billion to \$1.7 trillion.

Exhibit 7: Aggregate Investment



Source: CRSP/Compustat Merged Fundamentals Annual.

Notes: Total investment is defined as the sum of capex, R&D, and investment in organizational capital. Following the methodology in Peters & Taylor (2017), *infra* note 114 investment in organizational capital is defined as a fraction of SG&A, which captures investment in human capital, brand, customer relationships, and distribution systems. Firms with repurchases are firms with positive net repurchases over the year.

When scaled by revenues, there is not a strong trend in the data. When scaled by aggregate market value, however, total investment, along with each of the components, has declined for both repurchasing firms and non-repurchasing firms. There are various potential explanations for lower levels of investment, including decreased competition,⁵⁶ a shift in the composition of firms,⁵⁷ and a decline in the returns on investment.⁵⁸

It does not necessarily follow that higher levels of investment would lead to more economic growth. When capital is scarce, economic growth is maximized when firms invest in the most profitable opportunities. Distributions can facilitate this reallocation if shareholders re-deploy returned capital to capital-constrained firms with access to more profitable ventures. From an economy-wide perspective, economic growth is maximized when capital goes to its best use. The term “efficient investment” captures investment in which capital is allocated to projects with the highest returns.

Due to simultaneity in the distribution, financing, and investment policies, as well as the effect of a firm’s growth outlook on distributions, investment, and growth, it is difficult to evaluate the causal effects of distributions on investment and growth.⁵⁹

IV. Possible reasons firms repurchase stock

A. Lack of investment opportunities

1. Overinvestment concerns

Sometimes companies that have excess cash do not have profitable investment opportunities. In such instances, distributing the cash through dividends or repurchases can

⁵⁶ German Gutiérrez & Thomas Philippon, *Investment-Less Growth: An Empirical Investigation* (Nat’l Bureau of Econ. Research, No. w22897, 2016) (“Gutiérrez & Philippon (2016)”).

⁵⁷ Dong Wook Lee and Hyun-Han Shin and Rene M. Stulz, *Why Does Capital No Longer Flow More to the Industries with the Best Growth Opportunities?* (Charles A. Dice Ctr., Working Paper No. 2016-15, Dec. 4, 2016), available at <https://ssrn.com/abstract=2839832>. Retrieved from SSRN Elsevier database.

⁵⁸ Lawrence Summers, *Demand side secular stagnation*, 105(5) AM. ECON. REV. 60 (2015).

⁵⁹ For a discussion of how distributions may affect investment, see, e.g., Joseph Gruber & Steven Kamin *Corporate Buybacks and Capital Investment: An International Perspective*, BD. OF GOVERNORS OF THE FED. RESERVE SYSTEM (Apr. 11, 2017), available at <https://www.federalreserve.gov/econres/notes/ifdp-notes/corporate-buybacks-and-capital-investment-an-international-perspective-20170411.htm>.

alleviate concerns that managers will spend the cash in sub-optimal ways, such as empire-building acquisitions.⁶⁰ Survey evidence supports this theory, with the second most cited reason for conducting a repurchase being the “lack of good investment opportunities.”⁶¹ Stock price reactions to announcements of new repurchase programs are higher for cash-rich companies, suggesting managers create value when they remove their discretion over how to invest excess cash and provide that cash to investors to redeploy as they see fit.⁶²

Overall, the upward trend in share repurchases does not seem to be correlated with a contemporaneous drop in cash holdings. In particular, while the aggregate value of public firms grew substantially, the ratio of aggregate cash holdings to market value is similar to the level in the 1980s, at approximately 5.5% (see Exhibit 8).⁶³ In the past decade, cash holdings as a proportion of market value tended to be slightly higher for firms with positive net share repurchases than for firms without (see Exhibit 8).

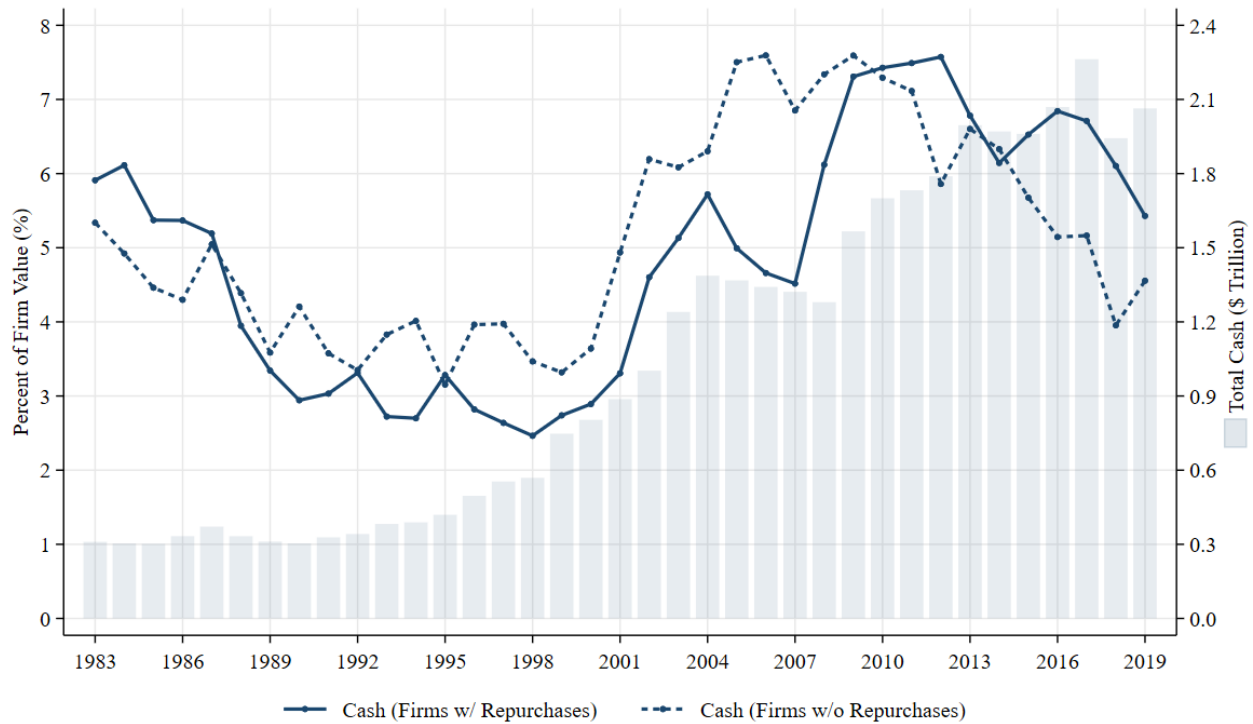
⁶⁰ Michael Jensen, *Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers*, 76 AM. ECON. REV. 323 (1986).

⁶¹ See Brav et. al. (2005), *supra* note 33. Undervalued stock as a motivation for repurchases, the most cited reason, is discussed in section IV.C below.

⁶² See Grullon & Michaely (2004), *supra* note 53.

⁶³ The total market (book) value of public firms has risen roughly eight (four) times since the 1980s (see Exhibit 4A). Firms with positive net share repurchases accounted for an increasing share of aggregate firm value over time. This is consistent with the rise in the fraction of firms repurchasing shares (see Section II.B.2).

Exhibit 8: Cash holdings (Aggregate, Scaled by Firm Value)



Source: Compustat Fundamentals Annual.

Notes: Firms with repurchases are firms with positive net repurchases. Aggregate cash holdings are expressed as a percentage of aggregate firm value, which is the sum of the book value of total liabilities, preferred stock, and market capitalization.

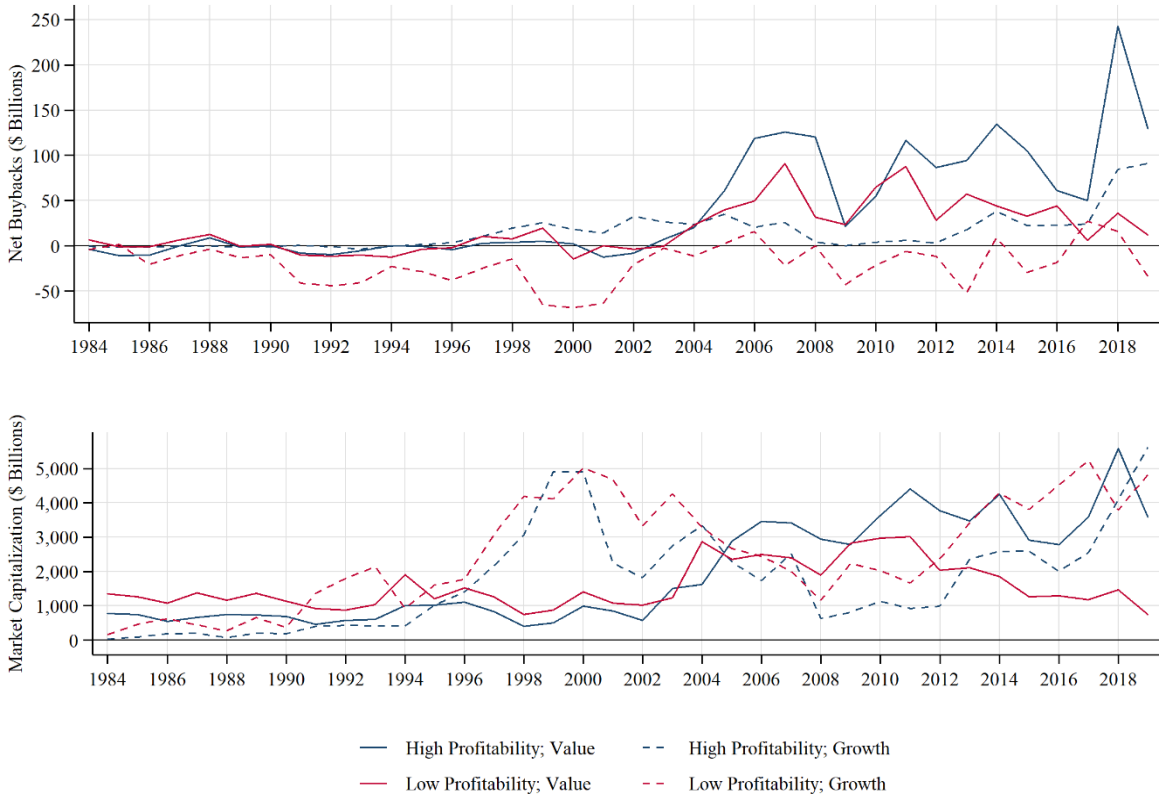
If repurchases are driven by efforts to reduce the agency costs of excess cash, one would expect most repurchases to be conducted by firms that are profitable and that have limited growth opportunities. A firm’s price-to-earnings ratio is a common measure of growth opportunities.⁶⁴ The reason is that if a firm’s market value is much higher than earnings, then the market price of the stock must be accounting for future earnings growth.⁶⁵ Exhibit 9 compares repurchases for high-profitability value firms, high-profitability growth firms, low-profitability

⁶⁴ Market-to-book-value is a more common measure of growth opportunities. However, there are many critiques of this measure as in Christopher Hennessy, Amnon Levy & Toni Whited, *Testing Q theory with financing frictions*, 83 J. FIN. ECON. 691 (2007). Because of the prevalence of theories of repurchases involving the price of the stock, it is instructive to focus on the valuation component of market-to-book, following the decomposition developed by Gustavo Grullon and David Ikenberry, *The Persistent Decline in Asset Utilization and the Investment-q Paradox* (June 29, 2020) available at <https://ssrn.com/abstract=3638505>. Retrieved from SSRN Elsevier database.

⁶⁵ B.G. Malkiel, *Equity Yields, Growth, and the Structure Of Share Prices*, 53 AM. ECON. REV. 1004 (1963).

value firms, and low-profitability growth firms, where growth/value is based on the ratio of market valuation to earnings and profitability is based on return on equity.⁶⁶

Exhibit 9: Repurchases by Firm Type: Growth vs Value and High vs Low Profitability



Sources: Compustat

Notes: Firms are defined as either “Value” or “Growth” according to the ratio of earnings-to-price, where growth firms are firms with earnings-to-price ratios below 5%. High versus low profitability is based on whether the firms’ net income exceeds 7% of its book value of equity.

Exhibit 9 suggests that repurchases are positively correlated with profitability, controlling for growth opportunities (Growth vs. Value), and negatively correlated with growth opportunities, controlling for profitability. These findings are consistent with the theory that

⁶⁶ These cut-offs are defined so that the total market capitalization of the four groups is comparable over the full sample period.

repurchases are driven by firms that have more cash than investment opportunities.⁶⁷ Repurchases from low profitability firms with limited growth prospects (Value) increased starting in 2005 and has been somewhat steady since then. Over the past five years, there has been an increase in repurchases from profitable firms with growth opportunities (Growth). Because firms are categorized into four groups above by levels that are fixed over time, some of the fluctuations in repurchases are driven by a change in the composition of firms. From 1996 to 2004, most stock market value was driven by firms with P/E ratios above 20. Valuations (a proxy for growth opportunities) fell in the subsequent years, coinciding with a large increase in repurchases (see Exhibit 9, bottom panel).

2. *Evidence from tax changes*

For issuers with international operations, high domestic corporate tax rates can make it costly to return cash to shareholders since doing so would involve paying taxes on the repatriated earnings. Evidence suggests that such tax considerations play an important role in repurchasing decisions. For example, in 2004 the American Jobs Creation Act created a one-time tax holiday for repatriating foreign earnings. A study found that \$1 of repatriated earnings resulted in \$0.60–\$0.92 of distributions.⁶⁸ That most of the cash went to distributions suggests that firms were neither overinvesting nor underinvesting prior to the tax holiday.⁶⁹

The 2017 Tax Cuts and Jobs Act⁷⁰ also created a one-time, temporary repatriation tax holiday in addition to permanently cutting the corporate income tax rate from 35% to 21%. Preliminary results suggest that repurchases following the tax cuts are concentrated in the subset of firms with foreign profits, indicating a response to the tax holiday.⁷¹ Repurchases that result from one-time windfalls are a sign that companies are investing efficiently.

⁶⁷ There are similar results when using return on assets (ROA) as a measure of profitability.

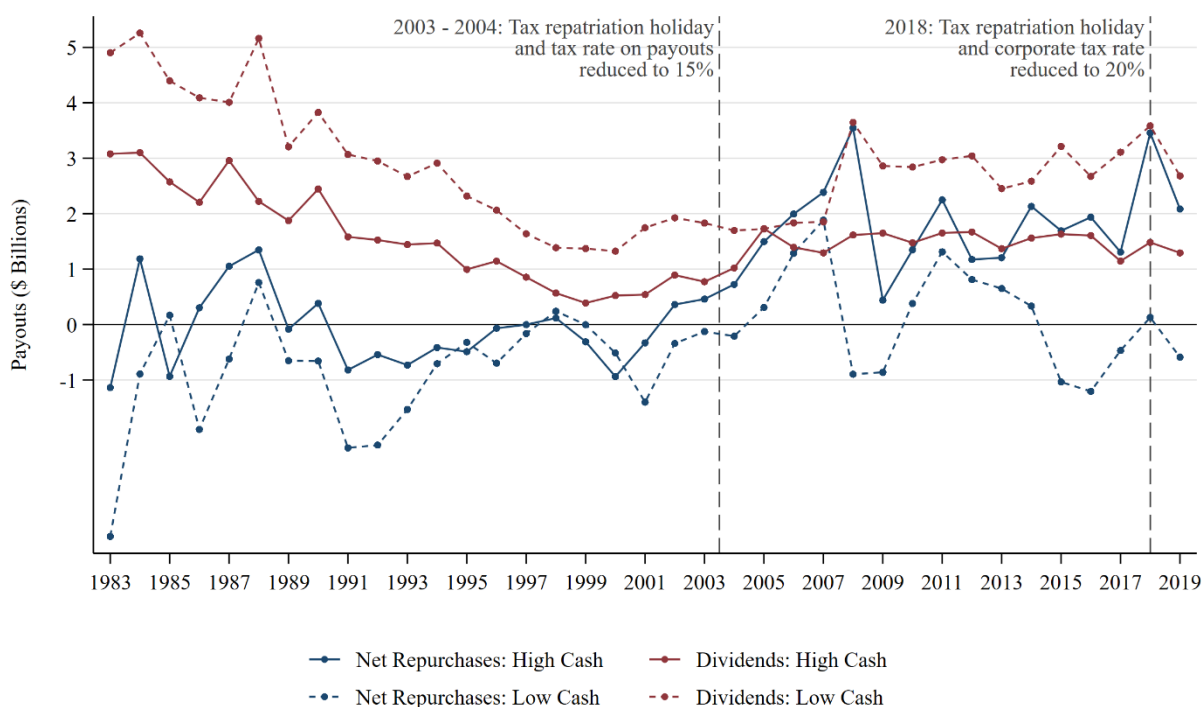
⁶⁸ See Dhammika Dharmapala, C. Fritz Foley & Kristin Forbes, *Watch what I do, not what I say: The unintended consequences of the Homeland Investment Act*, 66 J. FIN. 753 (2011).

⁶⁹ That is because an increase in investment would have signaled that firms were financially constrained (underinvesting) or that they indiscriminately spent available cash (overinvesting).

⁷⁰ The bill was signed into law on December 22, 2017 and went into effect on January 1, 2018.

⁷¹ See Benjamin Bennett, Anjan Thakor & Zexi Wang, *Stock Repurchases and the 2017 Tax Cuts and Jobs Act* (Aug. 27, 2019), available at <https://ssrn.com/abstract=3443656>. Retrieved from SSRN Elsevier database.

Exhibit 10: Tax Cuts and Repurchases



Sources: Compustat, Fundamentals Quarterly, Compustat Marginal Tax Rates⁷²

Notes: The Exhibit compares net repurchases and dividends according to lagged cash holdings. High and low cash is based on whether a firm's level of cash holdings in the prior year exceeds 5% of its assets.

Exhibit 10 indicates the two years that relevant tax changes took effect: 2003 and 2018. The two years have opposite implications for longer run changes in distributions: whereas the 2003 tax changes⁷³ incentivize increased levels of corporate distributions, the 2018 tax changes⁷⁴ increase returns to investment, making it more costly to return cash to shareholders. Both were accompanied by one-time tax repatriation holiday,⁷⁵ which one could expect would be accompanied by one-time increases in distributions. In the 2003 tax reform, the tax rate on

⁷² See Jennifer Blouin, John Core & Wayne Guay, *Have the Tax Benefits of Debt Been Overestimated?*, 98(2) J. FIN. ECON. 195 (2010).

⁷³ Jobs and Growth Tax Relief Reconciliation Act of 2003.

⁷⁴ The Tax Cuts and Jobs Act of 2017.

⁷⁵ In the first instance, the repatriation holiday occurred the following year with the American Jobs Creation Act of 2004.

dividends, which had previously been taxed at the tax rate on income, fell by more than the tax rate on capital gains. Accordingly, one would expect dividends to increase following the dividend tax cut.⁷⁶ The trends generally support these predictions: the 2003 tax changes preceded increases in both dividends and repurchases for firms with high levels of cash. The 2018 changes are accompanied by more of a one-time increase in distributions that affected only repurchases for firms with high levels of cash.⁷⁷

B. Increasing leverage

Repurchases and dividends mechanically increase leverage ratios⁷⁸—the portion of the firm financed with debt—of indebted firms since they reduce assets by the amount of cash paid out without impacting the firm’s liabilities.⁷⁹ There are several reasons firms may want to increase their leverage ratio. One of the main advantages of debt financing is the ability to deduct interest expenses from profits for tax purposes. Firms spent \$281 billion on interest in 2019 in the report’s sample of non-financial firms. Debt financing can also increase firm value by reducing financing costs.⁸⁰ The cost of debt tends to fall as firms become more profitable and acquire assets that can be pledged as collateral (which reduces the bankruptcy costs of debt). Thus as firms mature they may use repurchases to shift their capital structure towards debt.⁸¹

⁷⁶ See, e.g., Raj Chetty & Emmanuel Saez, *Dividend Taxes and Corporate Behavior: Evidence From the 2003 Dividend Tax Cut*, 120 Q. J. ECON. 791 (2005). The 2003 tax reform also decreased the capital gains tax rate applicable to share repurchases.

⁷⁷ This is in line with academic evidence. See, e.g., Ivalina Kalcheva, et al., *(Un)Intended Consequences? The Impact of The 2017 Tax Cuts and Jobs Act On Shareholder Wealth*, 118 J. BANKING & FIN. 105860 (2020).

⁷⁸ For a discussion of repurchases in the context of leverage, see, e.g., Armen Hovakimian, Tim Opler & Sheridan Titman, *The Debt-Equity Choice*, 36 J. FIN. & QUANTITATIVE ANALYSIS 1 (2001). See also Sirio Aramonte, *Mind the buybacks, beware of the leverage*. BIS Q. REV. (Sep. 2020); Daniel Gyimah, Antonios Siganos & Chris Veld, *Why do financially unconstrained firms borrow to repurchase shares?* (Working paper, 2019).

⁷⁹ Determining the impact of repurchases on market-based measures of leverage is complex because repurchases can impact the market valuation of debt and the share price of the remaining outstanding shares.

⁸⁰ The recurrent nature of debt payments constitutes a costly commitment to distribute free cash flow, mitigating the manager’s ability to fund inefficient projects or extract private benefits, resulting in lower financing costs. Leverage also adds a layer of debtholder monitoring of managerial decisions. See, generally, Michael Jensen & Williams Meckling, *Theory of The Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305 (1976) (“Jensen & Meckling (1976)”). Note too, however, that increasing leverage can also increase financing costs if default risk is sufficiently high.

⁸¹ See, e.g., Murray Frank & Ali Sanati, *Financing Corporate Growth*, REV. FIN. STUD. (Forthcoming 2020).

Relatedly, companies that endeavor to maintain certain leverage ratios may pay dividends or repurchase stock periodically to offset the impact of shares issued through compensation awards.

Generally, interest rate changes may impact both the costs of debt and equity financing.⁸² To the extent a reduction in interest rates decreases the cost of debt financing relative to equity financing, firms may conduct repurchases (and issue debt) to take advantage of periods with low interest rates by increasing leverage.⁸³ Relatedly, managers may repurchase shares they believe are undervalued (or issue shares when they believe their shares are overvalued), as part of the market timing approach to capital structure.⁸⁴ Other evidence suggests that firms tend to repurchase stock and issue debt when the cost of debt falls relative to the cost of equity.⁸⁵

Exhibit 11 plots the aggregate leverage ratio over time. While interest rate decreases have coincided with increased aggregate debt levels, debt grew proportionally to aggregate firm market value, and aggregate corporate leverage (the ratio of total debt to total firm value) has been relatively stable for both groups of firms since the early 2000s. This could be due to decreasing interest rates lowering both the cost of debt and equity, thereby increasing the market value of firms. Leverage tended to be lower for firms with positive net share repurchases than for firms without them (see Exhibit 11).

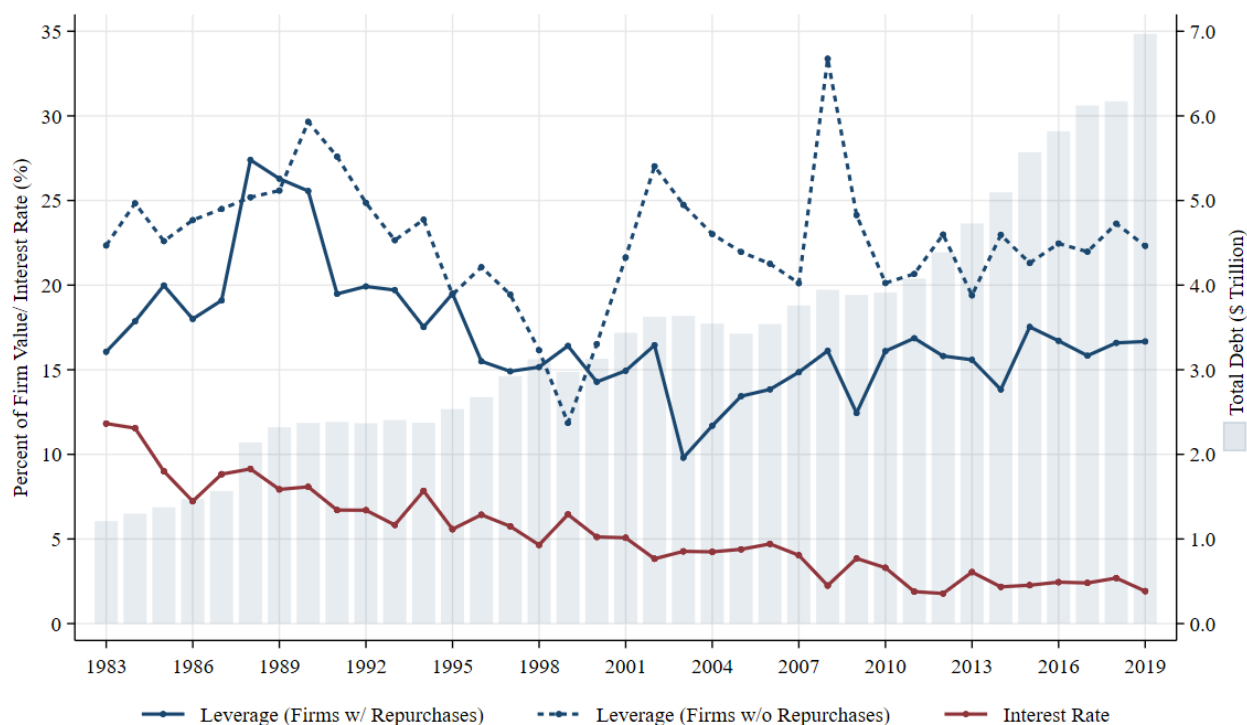
⁸² In certain instances, interest rate changes may have a greater impact on the cost of debt financing than on equity financing. For example, if lenders rely on interest coverage ratios, reductions in interest rates could ease some loan covenant constraints.

⁸³ Along with affecting the cost of debt, interest rate changes may affect the cost of equity capital.

⁸⁴ See, generally, Malcolm Baker & Jeffrey Wurgler, *Market timing and capital structure*, 57 J. FIN. 1 (2002). Relatedly, there is mixed evidence about the extent to which issuers accelerate negative disclosures in an effort to depress share price prior to repurchases. In support, see, e.g., Guojin Gong, Henock Louis & Amy Sun, *Earnings Management and Firm Performance Following Open-Market Repurchases*, 6 J. FIN. 947 (2008); Paul Brockman, Inder Khurana & Xiumin Martin, *Voluntary Disclosures around Share Repurchases*, 89 J. FIN. ECON. 175 (2008). Conversely, see, e.g., Sheng-Syan Chen & Chia-Wei Huang, *The Sarbanes-Oxley Act (SOX), Earnings Management, and Post-Buyback Performance of Open-Market Repurchasing Firms*, 48 J. FIN. & QUANTITATIVE ANALYSIS 1847 (2013) (finding no evidence of pre-repurchase downward earnings management post-SOX); Douglas Cook, Laurie Krugman & J. Chris Leach, *On the timing and execution of open market repurchases*, 17 REV. FIN. STUD. 463 (2004).

⁸⁵ See Yueran Ma, *Nonfinancial Firms as Cross-Market Arbitrageurs*, 74 J. FIN. 3041 (2019).

Exhibit 11: Aggregate Leverage



Source: Compustat Fundamentals Annual, FRED Interest Rates.

Notes: Firms with repurchases are firms with positive net repurchases. Leverage is defined as the ratio of total debt to firm value, which is the sum of the book value of total liabilities, preferred stock, and market capitalization. Interest rates are defined as the 10-Year Treasury Constant Maturity Rate (see Board of Governors of the Federal Reserve System (US), 10-Year Treasury Constant Maturity Rate [DGS10], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/DGS10>).

Increased levels of repurchases without increasing leverage ratios are consistent with higher levels of repurchases at times when equity values are high (see Exhibit 1), suggesting the costs of both debt and equity have fallen in the recent environment of low rates.

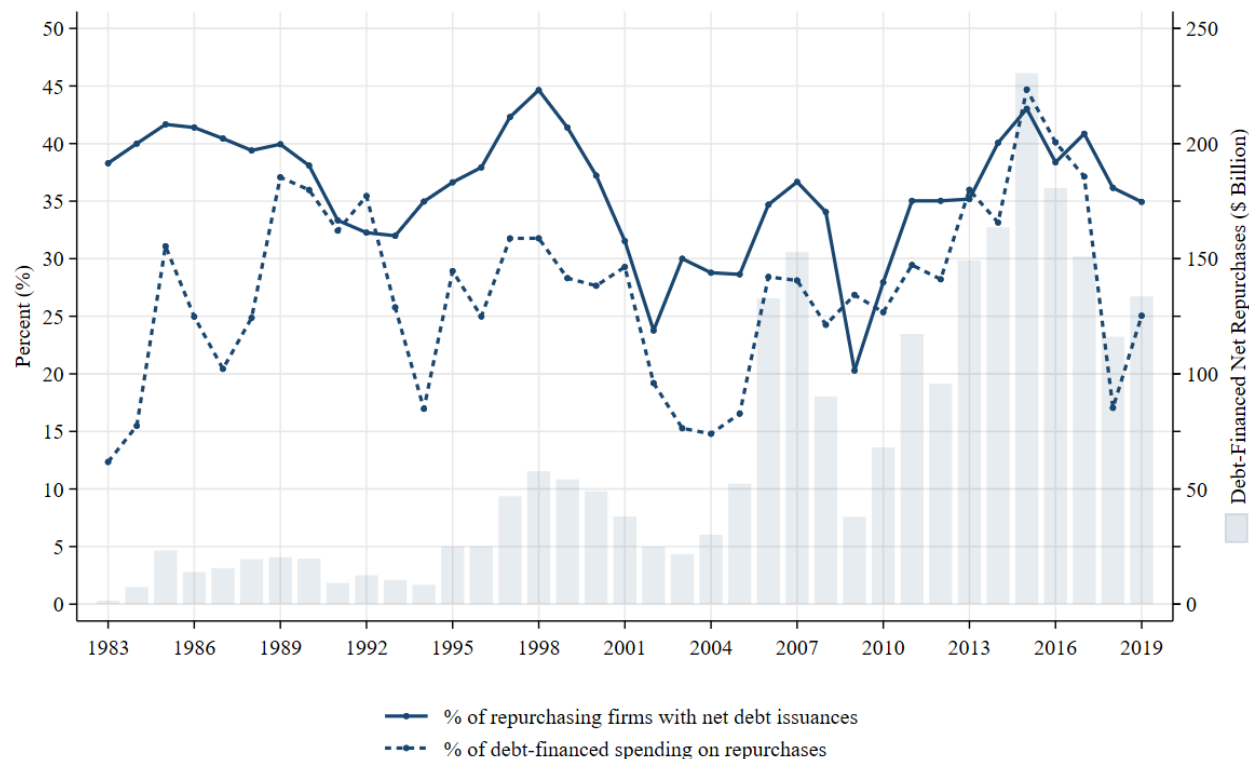
Debt-funded repurchases will increase leverage more than repurchases paid for with cash on hand. Academic research suggests that roughly half of repurchases are funded through external capital rather than cash, with debt issuances being the most common source.⁸⁶

Consistent with the capital structure motivation for repurchases, approximately 30% of firms

⁸⁶ See Joan Farre-Mensa, Roni Michaely & Martin Schmalz, *Financing Payouts* (Ross School of Business, Paper No. 1263, Feb. 21, 2018), available at <https://ssrn.com/abstract=2535675>. Retrieved from SSRN Elsevier database.

with positive net share repurchases contemporaneously had positive net debt issuances in the past several years. The simultaneous issuance of debt to raise cash suggests that these repurchases are not entirely due to the need to distribute excess cash.⁸⁷

Exhibit 12: Debt-Financed Share Repurchases



Source: CRSP/Compustat Merged Fundamentals Annual.

Notes: Repurchasing firms are firms with positive net share repurchases and total spending on share repurchases each year is the sum of net share repurchases of all repurchasing firms. This report classifies a repurchasing firm as having a contemporaneous net debt issuance if the total amount of proceeds raised through long-term debt issuance exceeds spending on retiring long-term debt in the same year as the positive net repurchase.

In the past decade, the aggregate value of debt-financed repurchases tracks overall spending on repurchases, with the exception of the repurchases conducted in 2018 and 2019.

⁸⁷ A firm’s reliance on internal funding—cash reserves—versus external funding through debt or equity is a topic that has generated substantial amounts of research. Optimal levels of cash holdings depend on the uncertainty of cash flows and expenses, the level of asymmetric information about the firms’ prospects, macro-economic trends, and other factors, *See, e.g.* Murray Z. Frank & Vidhan K. Goyal, *Testing the pecking order theory of capital structure*, 67 J. FIN. ECON. 217 (2003); *see also supra* note 2. Further analysis of the literature on drivers of a firm’s capital structure could provide additional insights.

C. Signaling Theories

1. *Correcting mispricing*

Managers likely have a superior understanding of their business and industry. Academic research has yielded several theories in which managers use increases in distributions, such as new repurchase programs, to signal their view that the stock is undervalued.⁸⁸ An important aspect of some signaling theories is that the signaling comes at a cost so that only managers of undervalued firms find it advantageous to signal through repurchases. If repurchasing stock imposes costs, then only sufficiently undervalued firms will engage in this type of signaling.⁸⁹ There is some evidence that managerial ownership or purchases of the firm's stock may strengthen the credibility of such signals.⁹⁰

A related explanation for repurchases is that they are an effort to provide price support by supplying liquidity when selling pressure is high.⁹¹ Empirical findings are consistent with this theory: repurchasing firms have improved price efficiency—i.e. the speed with which stock

⁸⁸ For analysis of signaling with repurchases, see, e.g., Theo Vermaelen, *Common Stock Repurchases and Market Signaling: An Empirical Study*, 9(2) J. FIN. ECON. 139 (1981); Theo Vermaelen, *Repurchase Tender Offers, Signaling, and Managerial Incentives*, 19 J. FIN. & QUANTITATIVE ANALYSIS 163 (1984); George Constantinides & Bruce Grundy, *Optimal Investment with Stock Repurchase and Financing as Signals*, 2 REV. FIN. STUD. 445 (1989); Donald Hausch & James Seward, *Signaling with Dividends and Share Repurchases: A Choice Between Deterministic and Stochastic Cash Disbursement*, 6 REV. FIN. STUD. 121 (1993); William McNally, *Open Market Stock Repurchase Signaling*, 28(2) FIN. MGMT. 55 (1999). In some studies, authors find that repurchases send a stronger signal than dividends. See, e.g., Aharon Ofer & Anjan Thakor, *A theory of stock price responses to alternative corporate cash disbursement methods: stock repurchases and dividends*, 42 J. FIN. 365 (1987); John Persons, *Heterogeneous Shareholders and Signaling with Share Repurchases*, 3(3) J. CORP. FIN. 221-249 (1997).

⁸⁹ For example, the cost of the signal could be that the firm must cut profitable investment (Merton Miller & Kevin Rock, *Dividend Policy Under Asymmetric Information*, 40 J. FIN. 1031 (1985)) or that the firm must commit to costly fund raising in the future (Sudipto Bhattacharya, *Imperfect information, dividend policy, and "the bird in the hand" fallacy*, 10 BELL J. ECON. 259 (1979)).

⁹⁰ Announcement returns are positively related to past insider purchases, especially for firms that are priced less efficiently. See, e.g., Iлона Babenko, Yuri Tserlukevich & Alexander Vedrashko, *The credibility of open market share repurchase signaling* J. FIN. & QUANTITATIVE ANALYSIS 1059 (2012); Alice Bonaimé & Michael Ryngaert, *Insider trading and share repurchases: do insiders and firms trade in the same direction?*, 22 J. CORP. FIN. 35 (2013) (finding that net insider buying reinforces the undervaluation signal conveyed by repurchases while net insider selling weakens it); Peter Cziraki, Evgeny Lyandres & Roni Michaely, *What do insiders know? Evidence from insider trading around share repurchases and SEOs*, J. CORP. FIN. 101544 (2019) (showing that "pre-event insider trading contains information regarding future changes in the cost of capital for repurchasing firms").

⁹¹ See, e.g., Harrison Liu & Edward Swanson, *Is price support a motive for increasing share repurchases?*, 38 J. CORP. FIN. 77 (2016).

prices respond to news. A recent study shows that these results hold even when manipulation concerns might be highest, such as those that occur prior to insider sales.⁹²

2. Efforts to manipulate stock prices

Some have suggested that managers may take advantage of positive stock price reactions to non-binding repurchase announcements and use disingenuous repurchase announcements to manipulate share prices.⁹³ If repurchase announcements were primarily motivated by manipulation efforts, one would expect to see share prices correct to the pre-announcement level. On the contrary, academic research shows that announcements generally tend to be followed by positive abnormal returns in the years following repurchase announcements.⁹⁴ There is also evidence that announcement returns are higher for firms that have historically high completion rates⁹⁵ and are predictive of how many shares are eventually repurchased, suggesting that market participants are able to extract informative signals from companies' repurchase announcements.⁹⁶ This research suggests that firms tend to engage in repurchases when their shares are undervalued.

Exhibit 13 provides a breakdown of stock price changes preceding and following repurchase announcements, broken down by repurchase status (completed, withdrawn, or pending/intended). The average announcement return is highest (about 3%) for the repurchase announcements that are subsequently completed, while the smallest announcement return corresponds to plans that are subsequently withdrawn (about 2%). This difference is statistically significant and may suggest that market participants are able to assess the credibility of announcements about future plans to repurchase stock.

⁹² Pascal Busch & Stefan Obernberger, *Actual Share Repurchases, Price Efficiency, and The Information Content Of Stock Prices*, 30 REV. FIN. STUD. 324 (2017).

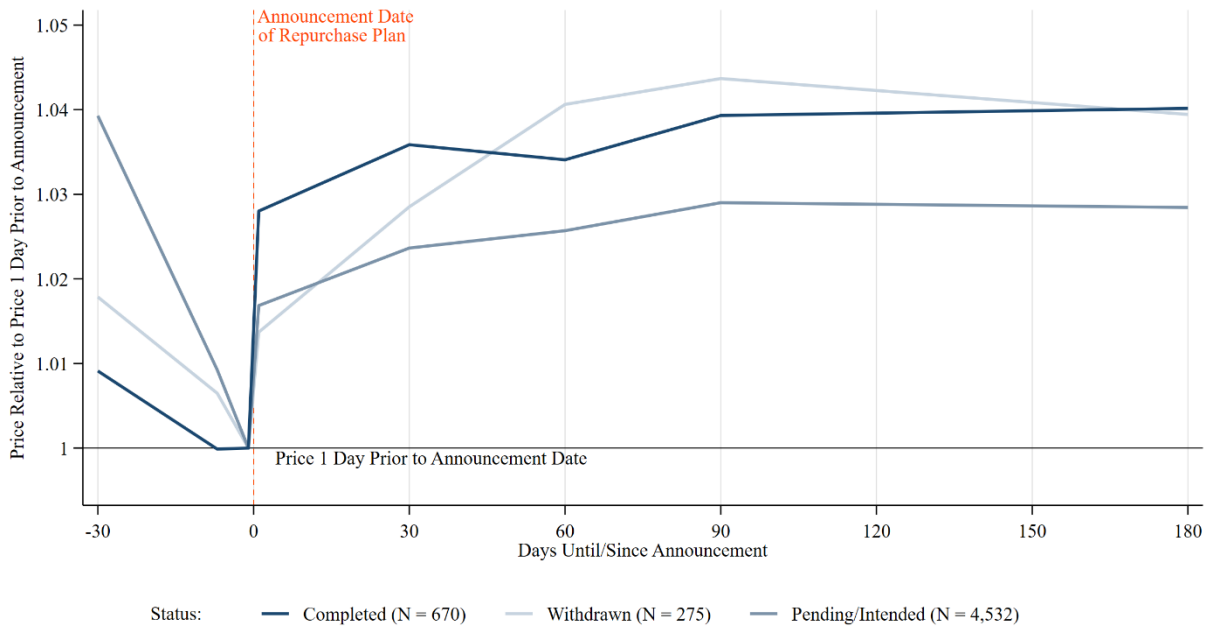
⁹³ See, e.g., Konan Chan, David Ikenberry, Inmoo Lee & Yanzhi Wang, *Share repurchases as a potential tool to mislead investors*, 16 CORP. FIN.137 (2010) ("Chan et. al. (2010)") (finding in 1980-2000 data that a limited number of managers may have used repurchases in a misleading way as "cheap talk"). This conduct would be inconsistent with Exchange Act Sections 9(a) and 10(b) and managers could face liability for repurchases motivated by a desire to manipulate the market.

⁹⁴ See *supra* note 29.

⁹⁵ See Bonaimé (2012), *supra* note 26.

⁹⁶ See Stephens & Weisbach (1998), *supra* note 26.

Exhibit 13: Returns for Repurchase Plans by Ex-Post Plan Completion



Sources: SDC Platinum sample of repurchase announcements for U.S. Issuers, CRSP, Compustat.

Notes: Returns are market adjusted by subtracting the value-weighted market portfolio return obtained from CRSP (vwretd). Includes announcements for all firms from 2001 to 2020 that are in the Compustat sample used for the remaining results (see discussion of methodology at beginning of Section II.B).

Positive announcement returns of repurchase plans that are subsequently withdrawn may be evidence of successful manipulation. But it is also possible that even disingenuous or “cheap-talk” repurchase announcements may reflect genuine efforts to correct mispricing by attracting additional market scrutiny.⁹⁷ Exhibit 13 also shows that plans are more likely to be withdrawn if stock prices continue to appreciate after the repurchase plan is announced, consistent with the theory that managers consider the price of the stock when deciding whether to implement repurchases.

⁹⁷ Andres Almazan, A., Sanjay Banerji & Adolfo De Motta, *Attracting attention: cheap managerial talk and costly market monitoring*, 63 J. FIN. 1399 (2008); Utpal Bhattacharya & Stacey Jacobsen, *The Share Repurchase Announcement Puzzle: Theory and Evidence*, 20 REV. FIN. 725 (2016).

D. Compensation practices

Some believe that managers engage in repurchases to increase their own compensation.⁹⁸ As discussed in the prior section, stock prices typically increase in response to repurchase announcements. Because compensation committees consider the performance of the stock when determining performance-based compensation, and because most compensation plans include equity-based awards, the positive stock price reaction that typically accompanies repurchase announcements may increase the value of compensation plans. Accordingly, one motivation for repurchases may be to increase the stock price in an effort to increase the value of compensation. There are two additional features of compensation plans, described below, that may further incentivize repurchases even absent any impact on stock prices.

1. *EPS-linked performance compensation*

To the extent other forms of compensation, such as cash bonuses, are tied to share price or EPS targets, repurchases may make such targets more easily achieved because repurchases could be used to meet such targets by lowering the number of shares outstanding.⁹⁹ The compensation committee members that set equity compensation levels and performance targets are generally aware of how repurchases would affect compensation targets and the value of equity compensation.¹⁰⁰

⁹⁸ See Section II.A for a discussion of the relevant regulations and directors' obligations.

⁹⁹ For evidence on the use of repurchases as a method of real earnings management, see, e.g., Brian Burnett, Bradrick Cripe, Gregory Martin & Brian McAllister, *Audit Quality and The Trade-Off Between Accretive Stock Repurchases and Accrual-Based Earnings Management*, 87 ACCT. REV. 1861 (2012); For evidence on the use of repurchases to influence compensation tied to per-share measures, see, e.g., Steven Young & Jing Yang, *Stock repurchases and executive compensation contract design: the role of earnings per share performance conditions*, 86 ACCT. REV. 703–733 (2011); Yingmei Cheng, Jarrad Harford & Tianming Zhang, *Bonus-driven repurchases*, 50 J. FIN. & QUANTITATIVE ANALYSIS 447 (2015); Sunyoung Kim & Jeff Ng, *Executive Bonus Contract Characteristics and Share Repurchases*, 93 ACCT. REV. 289 (2018).

¹⁰⁰ CFO survey responses indicate that increasing EPS is an important factor affecting share repurchase decisions according to Brav et. al. (2005), *supra* note 33. These survey respondents were not asked whether their attention to EPS was motivated by compensation concerns versus other motives to meet or beat EPS targets. Some have speculated that earnings management may motivate repurchases, regardless of whether compensation plans rely on per-share targets. It is not clear whether such repurchases would influence the views of market participants. For example, For example, Paul Hribar, Nicole Jenkins & W. Bruce Johnson, *Stock Repurchases As an Earnings Management Device*, 41 J. ACCT. & ECON. 3 (2006) find that the market discounts EPS announcements in situations in which EPS would have been shy of analyst expectations but for share repurchases (and where repurchases are disclosed along with quarterly earnings). Kurt (2018) studies the use of ASRs for real earnings

Repurchases motivated by influencing executive compensation tied to EPS and other share price metrics could undermine economic growth by siphoning money away from profitable investments. There is evidence that repurchases used to push EPS above analyst expectations are accompanied by a 10% decrease in capital expenditures and a 3% decrease in R&D.¹⁰¹

Table 2 summarizes compensation policies as they relate to EPS performance targets (as described in the firms' definitive proxy statements filed with the Commission on Schedule 14A) for the 50 firms that repurchased the most stock in 2018 and 2019.¹⁰² Those firms accounted for over 68% of the aggregate amount spent on repurchases.

Table 2. Review of Compensation Policies for Top 50 Repurchasing Firms: 2018-2019.

Note: Repurchase values reflect gross repurchases, rather than repurchases net of sales and issuances.

| | Number of Firms | Spending on Repurchases | Percentage of Total Spending on Repurchases | Percentage of Reviewed: Spending | Percentage of Reviewed: Firms |
|--|-----------------|-------------------------|---|----------------------------------|-------------------------------|
| Total with Repurchases | 1,372 | 1,083,988 | | | |
| Reviewed | 50 | 735,466 | 68% | | |
| <u>EPS Performance Target?</u> | | | | | |
| No | 26 | 463,831 | 43% | 63% | 52% |
| Yes, and disclosed consideration of repurchases | 15 | 192,117 | 18% | 26% | 30% |
| Yes, and did not disclose consideration of repurchases | 9 | 79,518 | 7% | 11% | 18% |

Approximately half of the firms reviewed have EPS-linked performance targets. Nearly two thirds of the firms with EPS targets explicitly disclose that the board considered repurchases

management and concludes investors “are not fooled” by managers’ use of ASRs as an earnings management device.

¹⁰¹ See, e.g., Heitor Almeida, Vyacheslav Fos, & Mathias Kronlund, *The Real Effects of Share Repurchases*, 119 J. FIN. ECON. 168 (2016). Note that these findings do not necessarily generalize to repurchases at companies outside the range of EPS approaching the earnings target or to repurchases unrelated to EPS manipulation.

¹⁰² We focus our analysis on EPS because it is the most common per-share metric used in compensation plans; however our analysis may not capture the impact of other types of per-share targets.

when determining whether performance targets were met or in setting performance targets. Those disclosures take a variety of forms, including but not limited to disclosure that the board made an adjustment to EPS for all repurchases, made adjustments for only unplanned repurchases, considered repurchases, including in setting EPS targets, but did not make adjustments,¹⁰³ or generally retained discretion to consider repurchases.¹⁰⁴ These disclosures also suggest a variety of methods that firms use to take repurchases into account and a general awareness of the impact of repurchases on compensation decisions. When repurchases are taken into account at the time of the awards, there would be no need to provide for adjustments and, although some firms disclose this consideration, many may not because there is no adjustment mechanism to describe. In conclusion, collectively, 82% of the firms reviewed either did not have EPS-linked compensation targets or had EPS targets but their board considered the impact of repurchases when determining whether performance targets were met or in setting the targets. This potentially suggests that most repurchase activity does not represent an effort to influence the value of EPS-linked compensation.

2. *Considerations related to stock options*

Compensation plans that rely on stock options that do not adjust for dividends¹⁰⁵ may create incentives to switch from dividends to repurchases (even if dividends would otherwise be

¹⁰³ Some companies disclosed that the board considered planned repurchases in setting EPS targets at the beginning of the year, suggesting that planned repurchase activity was factored into the EPS targets set for the year.

¹⁰⁴ It is possible that some boards may have policies in place to adjust compensation for share repurchases or to consider planned repurchases in setting compensation targets but do not disclose these policies in their proxy statements.

¹⁰⁵ This mechanism would not apply to stock awards but would be applicable to grants of restricted stock units (RSUs), which would not receive dividend payments. The academic research has focused on the relation between repurchases and option-based compensation rather than other forms of compensation. This focus may be partly due to the fact that companies often pay dividend equivalents on outstanding RSUs, which removes the disincentive from paying dividends. *See, e.g.,* Dan Zhang, *CEO Dividend Protection*, 45 J. EMPIRICAL FIN. 194 (2018), at Table 1.

preferable).¹⁰⁶ This choice would not exacerbate under-investment issues since the money spent on repurchases would have alternatively been spent on dividends.¹⁰⁷

A second way that stock options could affect repurchases is if managers' concerns about EPS dilution prompt them to repurchase shares to offset option exercises.¹⁰⁸ There is evidence that firms with more executive and employee stock options are more likely to conduct repurchases and that the amount of outstanding options predicts the level of repurchases.¹⁰⁹ This theory does not explain the increasing trend in repurchases while option-based compensation has become less popular over the past 20 years.¹¹⁰ Exhibit 14 compares total stock versus option compensation for firms that conduct repurchases versus those that do not. The aggregate level of option awards has declined in value since 2000 for both repurchasing firms and non-repurchasing firms. The aggregate level of stock awards, conversely, has increased in value, particularly for firms conducting repurchases.

¹⁰⁶ See, e.g., Charles Cuny, Gerald Martin, & John Puthenpurackal, *Stock Options and Total Payout*, 44 J. FIN. & QUANTITATIVE ANALYSIS 391 (2009). However, it is possible that other firm characteristics drive both option-based compensation and repurchases: See, e.g., Fabrizio Ferri & Nan Li, *Does Option-Based Compensation Affect Payout Policy? Evidence from FAS 123R*, 55 J. FIN. & QUANTITATIVE ANALYSIS 291 (2020).

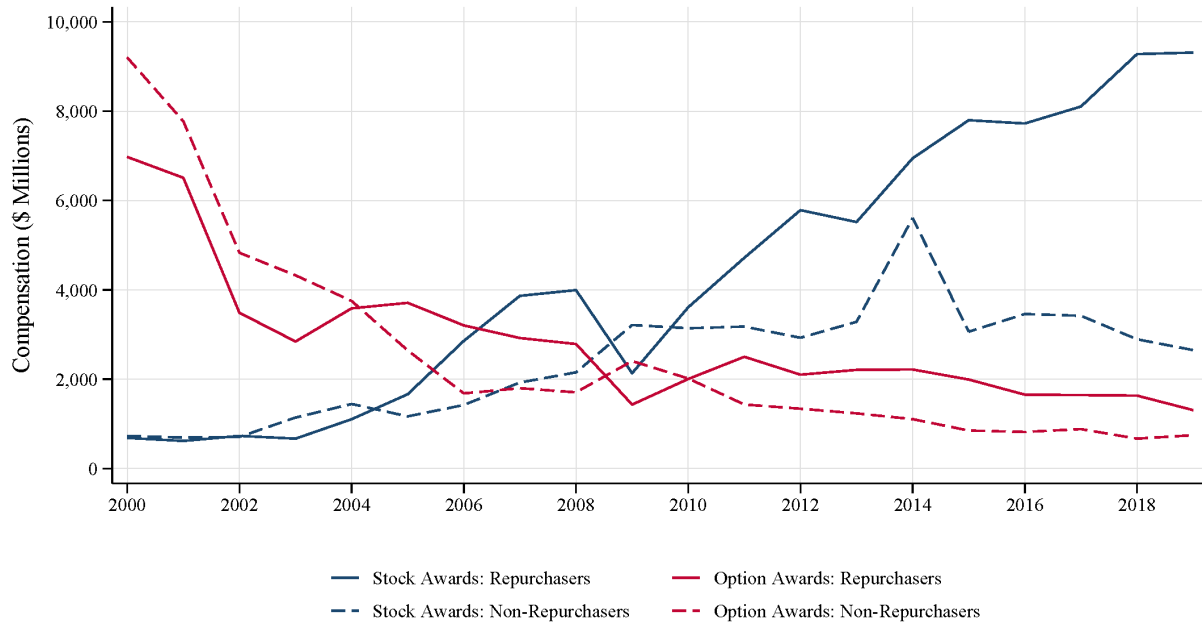
¹⁰⁷ If anything, a shift from dividends to repurchases would better align a manager's incentives with shareholders since they would own a higher proportion of the firm. See Jensen & Meckling (1976), *supra* note 80.

¹⁰⁸ Other forms of equity compensation would also create concerns related to dilution. However, the number of underlying shares will be several times higher for option awards than for stock awards of equivalent value. This is because the value of a single share is several times higher than the value of an at-the-money option on that share (At-the-money means the strike price of the option is equal to the current price of the stock. Option awards are typically granted at-the-money). The exact multiple depends on features of the option and underlying stock. For example, a three-year call option on a stock that does not pay dividends and that has an annualized volatility of 35% will be worth about 25% the value of a share of that stock, assuming a risk-free rate of 2% and based on the valuation model in Fischer Black & Myron Scholes, *The Pricing of Options and Corporate Liabilities*, 81 J. POL. ECON. 637 (1973). In this example, option awards would result in the creation of approximately four times more shares than equivalently valued stock awards.

¹⁰⁹ See, e.g., Daniel Bens et al., *Employee stock options, EPS dilution, and stock repurchases*, 36(1-3) J. ACCT. & ECON. 51 (2003).

¹¹⁰ Alex Edmans, Xavier Gabaix & Dirk Jenter, *Executive Compensation: A Survey of Theory and Evidence*, in THE HANDBOOK OF THE ECONOMICS OF CORPORATE GOVERNANCE 383 (2017).

Exhibit 14: Equity Compensation for Repurchasing versus Non-Repurchasing Firms



Sources: Compustat Fundamentals Annual, Compustat Executive Compensation – Annual Compensation

Notes: This chart reflects the sum of all equity-based compensation for all named officers and executives. Stock awards are equal to STOCK_AWARDS or RSTKGRNT if STOCK_AWARDS is missing or equal to zero (data prior 2006). Option awards are equal to OPTION_AWARDS_FV or OPTION_AWARDS_RPT_VALUE if OPTION_AWARDS_FV is missing or equal to zero (data prior 2006). Repurchasing firms are firms with positive net repurchases.

V. Conclusion

Over the past four decades, corporate spending on distributions through repurchases and dividends repurchases has increased substantially. Share repurchases generally tracked the growth in the size of the public equity market: Repurchase activity was lower during the financial crisis and during the first three quarters of 2020. Because repurchases largely tracked market capitalization, the overall increase in the level of spending on repurchases in particular has not led to a marked increase in corporate leverage. Rather, two facts suggest that the increase in repurchases reflects a substitution away from dividends. First, total distributions have remained relatively steady at about 4% of aggregate market capitalization. Second, the proportion of firms that conduct dividends has fallen over time, and the proportion that conducts repurchases has increased, with roughly half of repurchasing firms buying back stock in each of the preceding four quarters.

There are several possible reasons why firms conduct repurchases, only some of which are consistent with efficient investment. Three facts suggest that the theories inconsistent with firm value maximization cannot account for the majority of repurchase activity. First, repurchase announcements are accompanied by stock price increases. This announcement effect does not dissipate over time, as one would expect if repurchases were based on efforts to manipulate share prices. Second, most of the money spent on repurchases over the past two years was at companies that either do not link managerial compensation to EPS-based performance targets or whose boards considered the impact of repurchases when determining whether EPS-based performance targets were met or in setting the targets, suggesting that other rationales motivated the repurchases. Third, option-based managerial compensation cannot account for the increased substitution from dividends to repurchases, since option pay has declined over the past 20 years. Collectively, these findings potentially suggest that most repurchase activity does not represent an effort to artificially inflate stock prices or influence the value of option-based or EPS-linked compensation.

Instead, it seems that most repurchases are conducted by companies with excess cash relative to investment opportunities and by those that may benefit from leverage increases. As a result, firms that repurchase stock tend to have higher cash holdings and lower leverage ratios. Furthermore, increased reliance on repurchases has not been accompanied by decreases in aggregate cash holdings or increases in leverage. Rather, repurchases may be a tool to help companies achieve target levels of leverage and cash holdings.

Appendix. Variable Definitions

| Measure | Description ¹¹¹ | COMPUSTAT Definition |
|--|--|---|
| Gross repurchases | Purchases of stock | PRSTKC |
| Net repurchases (a.k.a. “repurchases”) | Purchases of stock less sales of common stock | PRSTKC - SSTK |
| Market capitalization ¹¹² | Price times shares of common stock outstanding | MKVALT |
| Book value of equity | Assets minus liabilities and preferred stock | AT – PSTK – LT |
| Firm value | The sum of total liabilities, preferred stock, and market capitalization | LT+PSTK+MKVALT |
| Market-to-book | Market capitalization scaled by book value of equity | (MKVALT)/(AT-PSTK-LT) |
| Leverage | Total debt ¹¹³ scaled by firm value | DT/(LT+PSTK+MKVALT) |
| Return on equity | Net income scaled by the book value of common equity | NI/(AT – PSTK – LT) |
| Total investment ¹¹⁴ | Investment in physical capital, research & development, and operational capital. | XRD + CAPX + 0.3*(XSGA – (XRD + RDIP)*Indicator(XRD > COGS XRD > XSGA)) |

¹¹¹ Variable definitions follow Gutiérrez & Philippon (2016), *supra* note 56.

¹¹² MKVALT is replaced with PRCC*CSHO if MKVALT is missing.

¹¹³ DT is replaced with DLTT + DLC if DT is missing.

¹¹⁴ Ryan Peters & Lucian Taylor, 123(2) *Intangible Capital and the Investment-Q Relation*, J. FIN. ECON. 251 (2017) (“Peters & Taylor (2017)”), we replace negative and missing values of XRD, CAPX, RDIP, and XSGA with zero.