Accounting for Share Repurchases: Evidence from Exogenous Variation in U.S. GAAP and State Laws*

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Abstract

The accounting treatment for share repurchases under U.S. GAAP varies based on a company's state of incorporation. We exploit this unique characteristic to study the valuation implications of accounting choice and under what circumstances the valuation effects are amplified or attenuated. We find that the existence of accounting choice, in states that allow it, is associated with a valuation premium. This is consistent with the notion that discretion in accounting, which can be used to communicate information to stakeholders, is valued by equity investors. We also document instances in which these valuation effects vary, such as when one accounting method can better convey a firm's underlying intent behind its share repurchase activity or when one accounting method has a more negative impact on certain financial statement accounts. Due to the exogenous variation in the accounting treatment of share repurchases, our study is the first to isolate valuation implications of the existence of accounting choice, a concept that has been elusive to date.

1. Introduction

We exploit the unique characteristics of the accounting treatment of share repurchases in the United States to study its capital market consequences. The accounting choices for share repurchases available to U.S. firms vary by a firm's state of incorporation. Specifically, under U.S. GAAP, share repurchases are accounted for either using the retirement method or the treasury method. Some states allow firms to choose between these two options (e.g., Delaware), while others only permit the retirement method (e.g., California). Such exogenous variation in possible accounting treatment under U.S. GAAP is extremely rare, allowing us to examine the valuation implications of the availability of accounting discretion for equity investors. We further examine why accounting discretion is important, which accounting methods are associated with higher equity values, and under what circumstances the valuation effects are amplified or attenuated.

It has long been argued in the literature that accounting rules that allow for managerial discretion provide incentives to communicate private information to external parties but also to opportunistically manage earnings (Watts and Zimmerman, 1986). However, capturing the value of accounting discretion has been empirically challenging (Fields et al., 2001). Normally, the accounting choice afforded by U.S. GAAP applies to all firms and, therefore, finding a setting in which this choice varies across firms has been elusive. Such possible variation could be captured by turning to international settings or by examining changes to existing accounting rules – either expansion or contraction of discretion – in a pre/post regulatory regime approach (e.g., Barth et al., 2008; Ahmed et al., 2013; Altamuro et al., 2005). Both of these approaches, however, are plagued with confounding effects that make it challenging to isolate the discretion effects from other factors. Historically, there has been no "consistent evidence supporting claimed valuation differences due to accounting methods," given the significant endogeneity concerns (Fields et al.,

2001). Accounting for stock repurchases in the U.S. is a unique opportunity where across-firm variation in accounting discretion levels exists for an inherently value-relevant transaction, allowing us to design tests that more effectively isolate the valuation implications that are associated with accounting discretion. We believe that identifying the value in accounting discretion is a central question whose answer is missing from the literature to date.

Share repurchases have become an increasingly popular way to return capital to shareholders and, therefore, their accounting treatment is becoming more relevant as well. Since the 1980s, the total dollar amount of share repurchases has grown exponentially (from $8 billion to $1.4 trillion), and the percentage of publicly traded firms engaging in share repurchases has grown from approximately 27% to 57%, according to aggregate Compustat data, as depicted in Figure 1. Moreover, regulators and legislators have expressed increased interest in these transactions (DeAngelo et al., 2025). For example, in August 2022, Congress passed the Inflation Reduction Act, which included the creation of a 1% excise tax on net share repurchases (KPMG, 2023).

Prior academic research on share repurchases has identified a variety of factors that lead firms to engage in these transactions (e.g., distributions of excess cash, undervaluation of the company's stock, prevention against unwanted takeovers) (Dittmar, 2000). The literature on the accounting treatment for share repurchases, however, has not evolved together with these economic trends. The empirical evidence to date on how firms account for share repurchases has been limited. Specifically, Banyi and Caplan (2016) study the determinants of Delaware firms' choice of accounting method for share repurchases. Relatedly, Hill et al. (2025) demonstrate the heterogeneity that exists in firms' retained earnings balances as a result of the varied accounting for share repurchases. Other work focuses on the recent increased disclosure requirements for

share repurchases and how these disclosures affect share repurchase activity (Banyi and Caplan, 2016; Bratten et al., 2025). Our study complements this stream of research by being the first to examine the valuation implications of the different ways in which firms can account for share repurchases, as well as the reasons for these different implications.

Our empirical approach draws on the value-relevance literature (e.g., Barth et al., 2001) and on the Ohlson (1995) empirical framework. We use the methodology in these studies to examine the relation between the market value of equity and the accounting measures of share repurchases, as they are reflected on the balance sheet. We follow Ball et al. (2020) by decomposing shareholders' equity and examining the valuation coefficients attributed to share repurchases as a whole, as well as separately based on the accounting methods adopted by firms. We find that the valuation coefficient associated with share repurchases accounted for under the retirement method (hereafter "retirement share repurchases") is about two and a half times greater than the valuation coefficient associated with share repurchases accounted for under the treasury method (hereafter "treasury share repurchases"). Using trading strategies that long firms that use the treasury method and short firms that use the retirement method, we find no evidence that these differential coefficients reflect the mispricing of firms using one method over another.

Given that the observed accounting methods may reflect firms' selection into them, we next leverage the exogenous nature of state law and the discretion (or lack thereof) that is associated with accounting for share repurchases. To that end, we examine the relationship between the valuation coefficients in states that allow choice in accounting for share repurchases and in states that do not. In particular, we find evidence that the valuation coefficient for retirement share repurchases is greater in states that allow accounting choice compared to states that do not. These results are robust to alternative research designs. For example, we reach similar conclusions

when using an entropy-balanced sample of firms, where we balance on the determinants of the share repurchase accounting method, as found by Banyi and Caplan (2016). We attribute this difference, at least in part, to the existence of accounting choice in states that allow it. In other words, it appears that investors value share repurchases more highly when the accounting treatment allows managers to communicate information through their choice of accounting methods. We find this result to be novel because isolating a difference in valuation attributable to accounting choice within a set of accounting standards is challenging.

We examine possible sources of variation in the valuation implications of accounting choice. Theory suggests that managers utilize accounting choices to communicate information to investors. Prior research shows that some firms engage in share repurchases to reduce the agency costs of excess cash (Jensen, 1986; Oswald and Young, 2008). Managers may try to communicate this reason through their choice of accounting method – for example, to signal that these share repurchases are a permanent reduction of capital and are not expected to reverse. This can be better achieved by using the retirement method. Indeed, we find that when a choice between accounting methods is available in a particular state, the valuation differential between the retirement and treasury method increases with the amount of cash the firm holds. That is, the difference is increasing in the value of the potential signal the retirement method sends.

The two accounting methods for share repurchases also differ by their effect on retained earnings. While the treasury method does not impact the balance of retained earnings at the time of repurchase, the retirement method reduces it.[1] Having a low balance of retained earnings (or even a deficit) may be viewed negatively by investors because it could limit a firm's ability to pay dividends or increase the likelihood of debt covenant violations. Firms that are more sensitive to

[1] One way in which the treasury method can affect retained earnings is when treasury shares are reissued, depending on the relative price of the shares at the time of the repurchase as compared to the time of reissuance.

low balances of retained earnings, therefore, may opt to choose the treasury method. Consistent with this explanation, we find that the valuation difference associated with the retirement method disappears in cases where using the retirement method leads to a negative retained earnings balance.

Our study contributes to several streams of the literature. The first consists of studies examining accounting choice. Much of the existing work has examined the individual components of the trade-off of accounting choice: (a) its use by managers in communicating private information about the firm and its future cash flows, and (b) its potential for manipulation by managers based on their incentives relating to compensation, debt covenants, and other areas (Watts and Zimmerman, 1986; Holthausen, 1990; Healy and Palepu, 1993). While other work has tried to evaluate whether the benefits of accounting choice outweigh the costs, the empirical work in this area is limited by endogeneity concerns due to the "self-selection bias" inherent when using ex-post data that reflects choices already made by firms (Fields et al., 2001). For example, examining changes in accounting standards that increase or decrease accounting discretion is limited by the lack of a true control group, since all firms are subject to the same accounting standards. Studying differences between international accounting regimes presents its own challenges, as regimes are part of a larger business environment within a country, which includes laws and enforcement, thereby posing challenges to inferences based on cross-country comparisons. By leveraging a novel setting within U.S. GAAP using firms incorporated in the United States, where the level of accounting discretion allowed to firms varies exogenously, we are able to better isolate the existence of a difference in valuation and attribute it to accounting choice.

We also contribute to the literature on accounting for share repurchases. While there is significant prior research on share repurchases, spanning both finance and accounting, including

the reasons for and consequences of these repurchases, the literature on the *accounting* for share repurchases is more limited. Existing work has focused on changes to the disclosures of share repurchases resulting from recent SEC rules requiring quarterly disclosures of firms' repurchases by month (Bratten et al., 2025; Banyi and Caplan, 2016). While some research has looked at the differences in the two methods of accounting for share repurchases, these papers focus mostly on the determinants of the choice between the two methods and their financial statement presentation outcomes (Banyi and Caplan, 2016; Hill et al., 2025). To our knowledge, ours is the first paper to document a difference in valuation implications between the two methods as well as to provide explanations for why this valuation difference exists.

Lastly, our work contributes to the burgeoning literature at the intersection of accounting and law. For example, prior studies have examined the relation between state contract law and the use of accounting information in debt contracts (Honigsberg et al., 2021), the use of debt covenants and legal institutions (Hong et al., 2016), and the properties of accounting earnings in code versus common law (Ball et al., 2000). Other work has also looked at the effect of specific laws or lawsuits on accounting, such as the relationship between accounting conservatism and new laws that change firms' incentives for conservatism (Manchiraju et al., 2021; Radhakrishnan et al., 2025), and whether accountants and auditors learn from past litigation (Lennox and Li, 2014). Generally speaking, this research focuses on the legal environment as a foundation or context within which accounting operates. Our work has a unique contribution to this stream of research because, in our setting, the state law actually *determines* the accounting for the transaction (share repurchases).

2. Share Repurchases: Overview and Institutional Background

2.1 Accounting for Share Repurchases: Overview

Share repurchases in the United States have increased in magnitude and frequency over time. As shown in Figure 1, the Dollar amount of aggregate share repurchases has increased from

$8 billion in 1981 to almost $1.4 trillion in 2022.[2] Furthermore, in 2022, over half of publicly traded firms engaged in share repurchases.[3] Firms repurchase shares for several reasons, including share undervaluation, capital distribution, corporate governance, capital structure adjustments, and obtaining shares for executive compensation (Dittmar, 2000). We refer the reader to section 3.1 for a broader literature review on share repurchases, which discusses in more detail why firms choose to engage in share repurchases. Recently, policymakers have attempted to disincentivize share repurchases. In August 2022, the passage of the Inflation Reduction Act of 2022 created a 1% excise tax on net share repurchases (KPMG, 2023).

U.S. GAAP on accounting for share repurchases has remained substantively unchanged over the last 60 years. We detail its history in Appendix B. There exist two different methods for accounting for share repurchases: (1) the retirement method and (2) the treasury method. When repurchased shares are retired, U.S. GAAP requires that the purchase price be allocated between retained earnings, common stock, and additional paid-in capital accounts (ASC 505-30-30-8) (referred to as the "retirement method").[4] Most retirement repurchases result in reductions to a firm's retained earnings balance (because the repurchase price per share tends to be larger than the price per share at original issuance). In some cases, this treatment can create a negative retained earnings balance despite a firm being historically profitable. For example, in Apple Inc.'s balance sheet for the period ending on September 28th, 2024, Apple reported an accumulated deficit of $19.154 billion. The statement of shareholders' equity shows that the accumulated deficit balance is mostly driven by share repurchases, which totaled $95.846 billion in fiscal year 2024.

[2] Prior to the 1980s, share repurchases were generally illegal in the United States. In 1982, the SEC adopted Rule 10b-18, which introduced a safe harbor rule allowing firms to engage in share repurchases (Williamson, 2020).
[3] Statistics are based on all firms in Compustat.
[4] Hill et al. (2025) show evidence that there is considerable diversity in practice in the specific accounts that are affected when accounting for share repurchases.

An alternative to the retirement method is the "treasury method." Under this approach, firms debit the cost of repurchases to a separate contra-equity account called treasury stock for repurchases made for "purposes other than retirement … or if ultimate disposition has not yet been decided" (ASC 505-30-30-6).[5] Regardless of whether a firm uses the retirement or treasury method, the accounting effect of the repurchase is a reduction in total stockholders' equity. The choice of accounting method only affects which accounts in stockholders' equity are impacted.

While there is a distinct accounting difference depending on whether a share is held as a treasury share or is retired, historically, there has been debate over whether there is an *economic* difference between a transaction to repurchase shares to be kept as treasury stock or to be retired (Ballentine, 1946; Buttimer, 1960; Ray, 1962; Paton, 1969). The SEC took the position in Accounting Series Release No. 6 (1938) that "…there appears to be no significant difference in the final effect upon the company between (1) the reacquisition and resale of a company's own common stock and (2) the reacquisition and retirement of such stock together with the subsequent issuance of stock of the same class."[6] However, in accounting practice, firms developed the treasury method to separately present shares held in treasury versus shares directly retired. So, while potentially economically indistinct, some firms have historically found utility in providing a presentational differentiation between the two methods to investors.

[5] Under the treasury method, the amount that is debited to the treasury stock account could be the total cost of the shares (the "cost method") or the par value of the repurchased shares ("par-value method").

[6] One potentially meaningful difference between the treasury stock and retirement method, from a legal standpoint, is that the treasury method does not reduce a firm's legal capital (Ballentine, 1946; Wixon, 1957). Par value was a concept that originated to protect shareholders from share dilution. Par value represents the minimum amount of legal capital per share that a firm must maintain in a corporation to be able to pay out to shareholders (Spiceland et al., 2011). The concept of par value, however, has become outdated because many firms set par value at such a low price that it does not protect investors. Furthermore, the concept of par value was removed from the Model Business Corporation Act on the basis that "…a statutory structure embodying 'par value' and 'stated capital' concepts does not protect creditors and senior security holders from payments to junior security holders (MBCA, comment on section 6.21). Given the elimination of the concept of legal capital in most states, and its irrelevance in others, the fact that treasury shares do not reduce legal capital no longer meaningfully differentiates treasury share repurchases from retirement share repurchases.

One possible reason that the two different methods have persisted is that the choice of accounting method provides a signal to investors about the company's future intentions regarding the repurchased shares. If a firm has not retired shares, it is presumed that the firm intends to reissue them at a future date (Banyi and Caplan, 2016). Therefore, a firm that accounts for repurchases under the treasury method may be providing an informative signal to investors that it intends to reissue those shares in the future. That being said, it is not clear whether, in practice, the choice of accounting method for share repurchases reflects a firm's intent to reissue those shares. According to a popular academic textbook, "….the choice is not dictated by the nature of the buyback, but by practical motivations of the company" (Spiceland et al., 2023, p. 1062). For example, a firm's choice of accounting method may be related to whether a repurchase would create a negative retained earnings balance. Banyi and Caplan (2016) show that some firm characteristics are related to the choice of repurchase accounting method; however, their evidence does not demonstrate whether the choice of accounting method reflects the firm's intention to reissue the repurchased shares.

2.2 State Law and Accounting for Share Repurchases

It is important to note that although formal accounting guidance under U.S. GAAP generally provides a choice to firms of whether to account for repurchases under either the treasury or retirement methods, accounting for share repurchases can be limited by state statutory corporate law. Specifically, not all states allow firms to hold repurchased shares as treasury shares. Some states require that all shares be retired upon acquisition, effectively eliminating a firm's ability to use the treasury method for accounting purposes. Furthermore, U.S. GAAP explicitly disallows the use of a repurchase accounting method that is not recognized by state law (ASC 505-30-25-2). Therefore, in effect, companies' ability to choose between accounting methods for share

repurchases is restricted by the state of their incorporation. This is a unique setting where U.S. GAAP varies exogenously by state.

The concept of treasury shares was eliminated in the 1980 and 1984 editions of the Model Business Corporation Act (Banyi and Caplan, 2016). Notably, currently 36 states have adopted some version of the MBCA,[7] which suggests that the restriction against using the treasury stock method for financial reporting is becoming widespread. States that disallow treasury shares have statutes that explicitly require all repurchased shares to be immediately retired. For example, Maryland disallows treasury shares through the following statute:

> *Shares acquired under paragraph (1) of this subsection constitute authorized but unissued shares.* [MD CORP & ASSNS § 2-310(a)(2)]

Given that treasury shares are considered authorized and *issued* (although not outstanding), this statute eliminates the possibility of a corporation holding shares in treasury. Alternatively, states that allow for treasury shares often reference the concept of treasury shares in their legal statutes. For example, Nevada includes a definition of treasury shares in its statutes:

> *As used in this section, "treasury shares" means shares of a corporation issued and thereafter acquired by the corporation or another entity, the majority of whose outstanding voting power to elect its general partner, directors, managers or members of the governing body is beneficially held, directly or indirectly, by the corporation, which have not been retired or restored to the status of unissued shares.* [NV ST 78.283(1)]

3. Literature Review

3.1 Stock Repurchases

There is significant work, particularly in finance, studying why firms repurchase their own shares and the financial and market effects of actual repurchases. Prior work shows that firms repurchase shares for a variety of reasons, including when their stock price is undervalued

[7] This statistic was obtained from the Model Business Corporation Resource Center website, accessed on March 1, 2025. The website can be accessed at the following: https://www.americanbar.org/groups/business_law/resources/model-business-corporation-act/

(Ikenberry et al., 1995; Peyer and Vermaelen, 2009), they do not have future growth opportunities (Grullon and Michaely, 2004), they want to convey a positive signal about the firm's future performance (Brav et al., 2005), and they want to lessen the dilutive effects of employee stock options (Kahle, 2002; Bens et al., 2003), among others. The accounting literature has also argued that firms repurchase shares to manage earnings per share (Hribar et al., 2006; Bens et al., 2003; Bratten et al., 2025).

The forms in which firms distribute capital (e.g., share repurchases or dividends) can vary based on several factors, including taxes or investor preferences. Prior literature has shown that firms' share repurchase decisions change in response to tax policy reform for both corporations and individuals, which can make either dividends or share repurchases more preferable from a tax perspective (Blouin et al., 2011; Albuquerque et al., 2025; Hanlon et al., 2019). Share repurchases can be advantageous over cash dividends because, unlike cash dividends, they do not create a commitment for future distributions (Brav et al., 2005).[8] In addition, capital distributions in the form of repurchases are taxed at capital gain rates, which are typically lower than ordinary rates, making repurchases tax advantageous for shareholders, relative to dividends (Moser, 2007). The increasing popularity of repurchases may also be driven by the removal of prior regulatory constraints (i.e., the adoption of SEC Rule 10b-18 in 1982), which previously made share repurchases less attractive due to firms' fear of being charged with market manipulation (i.e., the dividend substitution hypothesis, Grullon and Michaely, 2002).

Investors' reactions to firms' announcements of share repurchases tend to be positive (Grullon and Michaely, 2004; Bhattacharya and Jacobsen, 2016). In addition, most work finds evidence of a positive long-term market reaction following actual share repurchases (Ikenberry et

[8] While some firms adopt share repurchase plans, implying some commitment to engage in future repurchases, generally these plans are not binding (Bhattacharya and Jacobsen, 2016).

al., 1995; Peyer and Vermaelen, 2009; Ben-Rephael et al., 2014; Huang et al., 2023). However, other evidence suggests that this positive long-term reaction is not accompanied by a long-term improvement in firms' operating performance (Grullon and Michaely, 2004). Share repurchases have also been shown to make prices more efficient (Busch and Obernberger, 2017).

3.2 Accounting for Share Repurchases

Relative to the literature on the motivations for and effects of stock repurchases, there has been comparatively less academic research on how companies account for share repurchases. Banyi and Caplan (2016) explore the two different methods (the retirement method and the treasury method) by focusing specifically on Delaware-incorporated firms, which have a choice between the two methods. The authors find that the choice between methods is related to certain firm characteristics (e.g., industry, market-to-book ratio). However, the authors also find evidence that firms' choice of methods may not always be consistent with the intent of U.S. GAAP – namely, more mature firms tend to hold treasury stock on a more permanent basis, which may be inconsistent with the intended temporary nature of treasury stock.

Other work in this area focuses on the amendment to SEC Rule 10b-18, which took effect in 2004. This rule required firms to disclose detailed information about their monthly repurchase transactions in their quarterly and annual financial statements. Banyi and Caplan (2016) find that, following this new regulation, Delaware-incorporated firms that choose the retirement method become less distinguishable from firms that choose the treasury method. Bratten et al. (2025) find a reduction in firms' use of opportunistic share repurchases (i.e., repurchases that increase earnings per share) following the regulation.

Lastly, recent work by Hill et al. (2025) argues that the measurement of retained earnings has become meaningless due to the discretion allowed to firms in how to account for share repurchases. They suggest that future researchers should study the valuation effects related to

retained earnings as well as the role of state corporate statutes in firms' accounting for share repurchases—both of which we address directly in this paper.

To summarize, existing work in this area has mostly focused on the determinants of a firm's choice to elect the retirement method or the treasury method to account for repurchased shares, as well as the effects of increased disclosure around repurchases. Our work situates share repurchases within the broader context of accounting choice by bringing together the literature on share repurchase activity itself and the literature on the accounting methods applied to those repurchases. To our knowledge, ours is the first work to show that the choice between the two accounting methods for repurchased shares has a differential effect on firm value.

3.3 Accounting Choice

Discretion is inherent in accounting and typically relates to both discrete choices (i.e., choices between specific accounting methods, such as LIFO vs. FIFO or a variety of allowable depreciation methods) and continuous choices (e.g., measurement estimates, including accrual and fair value estimates). This discretion entails a fundamental trade-off between informational benefits and managerial opportunism. On one hand, managers' accounting choices can promote efficiency both through financial reporting information and contracting. Managers can convey private information about the company and its performance through their accounting choices, which are then reflected in financial statements and can be used for investing and monitoring purposes (Watts and Zimmerman, 1986; Holthausen, 1990; Healy and Palepu, 1993). These choices can, therefore, reduce information asymmetry and agency costs. On the other hand, allowing managers discretion in accounting can create incentives for opportunism and misreporting. For example, Watts and Zimmerman (1986) propose hypotheses that managers make accounting choices to increase their own compensation, avoid violating debt covenants, and report lower profits to avoid regulatory scrutiny.

Research in accounting choice spans many decades, methodologies, and accounting areas. We refer readers to more complete reviews of work in this area (Holthausen and Leftwich, 1983; Watts and Zimmerman, 1990; and Fields et al., 2001, among others). Comparatively little work has focused on whether there is value in the existence of discretion in accounting (i.e., do the benefits outweigh the costs?). We group the existing work in this area into three categories: theoretical models, changes in existing accounting standards, and comparisons of international accounting regimes. Several papers examine this question using theoretical models. For example, Dye and Verrecchia (1995) study the "uniformity vs. flexibility" debate and derive conditions under which increased discretion can be welfare-enhancing, which include the public observability of managers' compensation contracts and the measurement error in certain components of earnings. Similarly, Ewert and Wagenhofer (2005) examine the effects of tightening accounting standards to reduce discretion and find conditions under which there are significant negative consequences, such as increases in both accounting and real earnings management. These studies suggest there may be both positive and negative consequences of accounting discretion, indicating that empirical evidence would be useful.

Another way academics have historically tried to answer the question of whether there is value to accounting discretion is by empirically examining changes in accounting standards. When a standard is changed, the new standard may have more or less discretion available to managers vis-à-vis the legacy accounting rules, allowing an examination between the pre- and the post-periods. For example, Altamuro et al. (2005) and Srivastava (2014) both study changes to U.S. GAAP that reduced firms' discretion in the area of revenue recognition. This work shows trade-offs of such changes, including reduction of opportunism and earnings management but also a reduction in the informativeness of financial information and a substitution to other kinds of

earnings management. Another study, Guthrie et al. (2011), looks at whether banks opportunistically elect to use the fair value option for financial instruments upon adoption of SFAS 159. They do not find systematic evidence in support of opportunism (e.g., adoptions that resulted in increases to current and future earnings).

A concern with this stream of literature is an inherent endogeneity that limits precise inferences, as well as a lack of a true control group for comparison purposes. New accounting standards are not random, both in that they apply to all firms (who follow the standards) and that they are an outcome of a deliberation process that is shaped by a variety of factors, including economic events and constituent feedback (where constituents include firms and practitioners, among others). Therefore, there remains a significant opportunity to study this question under a novel research design that exploits scenarios in which the level of accounting discretion allowed to firms is exogenous.

A third stream of literature assesses whether there is value to accounting discretion by comparing different accounting regimes, which allow for varying levels of accounting discretion. For example, IFRS, which are principles-based standards, tend to allow for more discretion than U.S. GAAP, which is considered more rules-based and prescriptive. However, it can be difficult to determine if one regime allows for more discretion than another. For example, in considering the multinational adoption of IFRS from non-U.S. GAAP accounting standards in the 1990s and early 2000s, studies find mixed results when it comes to accounting quality. Barth et al. (2008) find that voluntary adoption of IFRS led to an increase in accounting quality, evidenced by less earnings management, more timely loss recognition, and higher value relevance of accounting amounts. The authors conclude that IFRS, therefore, limited discretion as compared to the previous accounting regimes. On the other hand, Ahmed et al. (2013) find that mandatory IFRS adoption

led to increased income smoothing, more aggressive reporting of accruals, and less timely loss recognition. The results of Ahmed et al. (2013) contrast with those of Barth et al. (2008) in that the former work considers IFRS to be "looser than domestic standards, on average," given the identified decrease in accounting quality.

There are several concerns with precisely identifying the value of accounting discretion when comparing different accounting regimes. First, as mentioned before, it can be difficult to assess if one regime allows for more discretion than another. Researchers can either go through individual rules and standards to compare discretion levels between two regimes (this can be labor-intensive, extremely subjective, and potentially unworkable to discern on a regime-level, given that discretion can vary by accounting topics or standards) or assume more or less discretion based on another outcome, such as accounting quality (which can prove equally difficult since there are "good" and "bad" components to discretion). Second, accounting standards are only one component of a firm's overall business environment, which includes legal rules and enforcement (La Porta et al., 1998). This makes it difficult to precisely attribute identified effects to the level of accounting discretion within an accounting regime, as opposed to other environmental factors.

Overall, there remains a significant question as to whether there is value in accounting discretion, given the fundamental trade-off between its potential for informativeness and its potential to be manipulated. The existing theoretical work provides a foundation to be able to answer this question in empirical work, but without an obvious answer. The existing empirical work has inherent endogeneity concerns that make it difficult to answer the question precisely. In their review of empirical research on accounting choice, Fields et al. (2001) assert that "our understanding of these questions [on the determinants and implications of accounting choice] remains limited despite improvements in research methods, data sources, and computing power."

Furthermore, the authors suggest that future researchers should "improve research designs" and "make better use of their expertise as accountants" to understand more about accounting choice, including whether "there is … consistent evidence supporting claimed valuation differences due to accounting methods." We believe our paper, which leverages a unique setting in U.S. GAAP (share repurchases) where the availability of accounting choice is exogenously assigned to firms within a single accounting regime, directly answers this call and helps to further advance our understanding of the value of accounting choice.

4. Data

4.1 Classifying and Measuring Stock Repurchases

Our main variable of interest is share repurchases. The amount of total repurchases (*REPURC*) is equal to the Compustat variable PRSTKC. Similar to Banyi and Caplan (2016), we classify share repurchases based on their accounting treatment method. We classify the entire repurchase amount as accounted for under the treasury method if there is a non-zero change in the treasury stock balance. If the change in treasury stock is equal to zero, we assume that all repurchases were accounted for under the retirement method. In robustness tests, we use alternative approaches to measure and classify share repurchases. We provide additional details on these alternative variable definitions in Appendix D.

4.2 Identifying States that Allow or Disallow Treasury Shares

To identify which states allow or disallow treasury shares, we examined the corporate legal statutes in all 50 states and Washington D.C. We used Thomson Reuters Westlaw to track the legislative history of each law to identify a time period range over which the laws regarding repurchases are effective.[9] Based on this analysis, 31 states and Washington, D.C. do not recognize

[9] We identified the current effective statute for each U.S. state that establishes whether the treasury method is allowed. We then used Westlaw to analyze the legislative history of each statute to determine when the statute first became

treasury shares, while 19 states provide the option to either retire shares or hold them as treasury shares.[10] While the majority of states do not allow for treasury shares, 8,446 unique firms in our sample are incorporated in states that allow repurchased shares to be either retired or held as treasury shares, and 1,991 unique firms are in states that disallow treasury shares. This difference is driven by the high number of firms incorporated in Delaware (on average, 55% of Compustat), which allows firms to hold treasury shares.

We include selected anecdotal evidence in Appendix C. In Section A, we include excerpts of firms' disclosures from their annual reports that illustrate that firms are aware of the corporate law in their state of incorporation in this topic area and disclose changes to these laws that may affect their accounting. In Section B, we include an example disclosure of a firm (Procter & Gamble) that changed from one accounting method for share repurchases to another. While this group of "switchers" is limited, it does exist, indicating that firms may have discretion (based on their state corporate law) in this topic area (Banyi and Caplan, 2016).

4.3 Sample and Descriptive Statistics

Our sample consists of 179,294 firm-year observations between 1982 and 2021. We begin the sample in 1982, when share repurchases became legal through the creation of the safe harbor rule adopted by the SEC in Rule 10b-18 (Williamson et al., 2020). We use data from the intersection of Compustat and CRSP. We determine firms' state of incorporation by using Bill

effective. We use the date of the earliest version of the statute as the starting point of the range during which the law is effective. In creating the range, the starting point is limited by the number of years of legislative history available on Westlaw. This limitation restricts us from performing a typical difference-in-differences regression around changes in state law, given that Westlaw provides us with the state corporate statutes as of a certain date, but the history available on Westlaw does not allow us to precisely pinpoint when many of the laws changed.

[10] Note that while 36 states adopted the MBCA, which currently disallows treasury shares, only 31 states and Washington D.C. disallow treasury shares. There are two explanations for this discrepancy. First, not every state adopted the 1980 version (or a more recent version) of the MBCA, which was the first version to disallow treasury shares. In addition, a state that adopts the MBCA can partially adopt the statute. That is, not all parts of the MBCA needs to be incorporated into the state statute.

McDonald's SEC header data that identifies firms' state of incorporation based on the front page of a firm's 10-K filing.[11] The state of incorporation data is limited to observations where a 10-K filing is available on SEC EDGAR. Therefore, in tests that use state of incorporation data, we drop observations with a missing value, resulting in a smaller sample of 79,693 firm-year observations beginning in 1994, when EDGAR became available. Consistent with Barth et al. (2023), we only include firms that trade on the NYSE, NASDAQ, or AMEX. We require non-missing data for all variables in our main tests. All continuous variables are winsorized at the 1st and 99th percentiles.

Table 1, Panel A, presents descriptive statistics of our main sample. The mean value of *MCAP* (market capitalization) is 20.29 dollars per share. This is similar to the average price reported in Barth et al. (2023), which is 19.96. Other variables, such as *EARN* (earnings), *BV* (book value of equity), and *DIV* (dividends), which have mean values equal to 0.70, 9.16, and 0.31, respectively, are also similar to those in Barth et al. (2023). Panel B presents Pearson correlations. The correlation between *MCAP* and *REPURC* (share repurchases) is positive and significant at the 5% level. This correlation suggests that while *REPURC* reduces book value, which has a positive association with *MCAP*, *REPURC* likely provides a signal to investors that is valued positively. Similarly, *MCAP* is also positively associated with both *REPURC_TS* (treasury share repurchases) and *REPURC_RT* (retirement share repurchases).

5. Empirical Analysis

5.1 Research Design Framework

Our research design borrows from the value-relevance literature (e.g., Barth et al., 2001, and references therein). To formalize the relationship between the market value of equity and

[11] The header data can be accessed at https://sraf.nd.edu/sec-edgar-data/10-x-header-data/.

accounting numbers, we employ the framework that builds upon models such as Ohlson (1995).[12] Specifically, we utilize the Ohlson (1995) framework to examine the relationship between the market value of equity and share repurchases as they are reflected on the balance sheet. We then augment the Ohlson (1995) framework by decomposing the shareholders' equity section into its components, including share repurchases that are accounted for either by the retirement method or by the treasury method. Thus, our basic model is:

$$MCAP_{i,t} = \alpha_{i,t} + \beta_1 EARN_{i,t} + \beta_2 BV_{i,t} + IndustryFE + \varepsilon_{i,t} \quad (1)$$

MCAP is a firm's market capitalization three months after the fiscal year *t*'s end. *EARN* is equal to income before extraordinary items in year *t*, and *BV* equals common shareholders' equity at the end of year *t* minus *EARN* for year *t*. Following Barth et al. (2023), we include Fama-French 10 industry fixed effects. Standard errors are clustered by firm. We scale all continuous variables by the number of shares outstanding at the balance sheet date (CSHO), consistent with Barth and Clinch (2009). The coefficients in this model provide an estimation of the valuation multiple placed on each dollar per share of the corresponding accounting item.

When we decompose shareholders' equity, we adopt the approach used in Ball et al. (2020) by progressively breaking down shareholders' equity. The first step is as follows:

$$MCAP_{i,t} = \alpha_{i,t} + \beta_1 EARN_{i,t} + \beta_2 CC_{i,t} + \beta_3 (RE_{i,t} - EARN_{i,t}) + \beta_4 TS_{i,t} + IndustryFE + \varepsilon_{i,t} \quad (2)$$

CC is the ending balance of contributed capital for year *t*, *RE* is the ending balance of retained earnings for year *t*, and *TS* is the ending balance of treasury stock for year *t*.[13]

[12] Some examples of studies utilizing the Ohlson (1995) framework are Aboody and Lev (1998), Barth et al. (1998), Hung and Subramanyam (2007), and Song et al. (2010).

[13] Note that, per Compustat's convention, RE includes Accumulated Other Comprehensive Income (AOCI) items, such as cumulative translation adjustments and unrealized gain/loss on investments.

Next, we decompose shareholders' equity accounts further by including their ending balances at period *t-1*, and their related flow items in year *t*. For example, we include RE_{t-1}, together with the items that impact it during year *t* – $EARN_t$ and DIV_t. Similarly, we include CC_{t-1} and TS_{t-1}, together with the repurchases (*REPURC*) and issuances (*ISSUE*) during year *t*. All variables are defined in Appendix A.

$$MCAP_{i,t} = \alpha_{i,t} + \beta_1 RE_{i,t-1} + \beta_2 CC_{i,t-1} + \beta_3 TS_{i,t-1} + \beta_4 EARN_{i,t} + \beta_5 DIV_{i,t} + \beta_6 REPURC_{i,t} + \beta_7 ISSUE_{i,t} + \beta_8 OTHER_{i,t} + IndustryFE + \varepsilon_{i,t} \quad (3)$$

Our interest lies in β_6, which estimates the valuation multiple of each dollar per share of repurchases.

Finally, we assess the value relevance of share repurchases, while distinguishing between amounts recorded under the treasury method (*REPURC_TS*) from amounts recorded under the retirement method (*REPURC_RT*).

$$MCAP_{i,t} = \alpha_{i,t} + \beta_1 RE_{i,t-1} + \beta_2 CC_{i,t-1} + \beta_3 TS_{i,t-1} + \beta_4 EARN_{i,t} + \beta_5 DIV_{i,t} + \beta_6 REPURC\_TS_{i,t} + \beta_7 REPURC\_RT_{i,t} + \beta_8 ISSUE_{i,t} + \beta_9 OTHER_{i,t} + IndustryFE + \varepsilon_{i,t} \quad (4)$$

In this model, we are interested in the difference between β_6 and β_7. If the coefficients are different, then investors view repurchases as having a different valuation multiple depending on the accounting method used. If the coefficients are the same, investors view repurchases as having the same valuation multiple regardless of the accounting method used.

5.2 Basic Model Results

We report the estimation results of our base model in column (1) of Table 2, following the basic specification of the original Ohlson (1995) model. We find that the coefficient on earnings

is 4.850, and the coefficient on book value is 1.046. These values are similar in magnitude to those reported in prior studies utilizing a similar model (e.g., Table 1 in Hanlon et al., 2003).

In column (2), we begin our shareholders' equity decomposition. We include in this initial decomposition the ending balances of contributed capital (CC_t), retained earnings (RE_t), after subtracting the earnings of year *t*, and treasury stock (TS_t). We find that both CC_t and RE_t sport positive coefficients. The treasury stock account reflects the cumulative amount of prior share repurchases under the treasury method for which shares have not been reissued. Although it is an account that reduces shareholders' equity, it has a positive and significant coefficient, consistent with treasury stock signifying an increase in market value. This can be due to share repurchases signaling information regarding undervaluation or intent to reissue shares in the future at higher share prices (Brav et al., 2005; Peyer and Vermaelen, 2009; Bhattacharya and Jacobsen, 2016).

In column (3), we further break down shareholders' equity components by including their beginning balance (end of year *t-1*) and their year *t* flow counterparts. For example, we separately examine RE_{t-1} and the accounts that influence its year *t* balance – dividends (DIV_t), earnings ($EARN_t$), and, depending on the accounting treatment, share repurchases ($REPURC_t$). We find that all components are positively associated with market value. The beginning balances of RE_{t-1} and CC_{t-1} represent an increase to shareholders' equity and, naturally, larger amounts in these accounts are positively associated with the market value of equity. The magnitudes of these coefficients, 0.640 on RE_{t-1} and 0.787 on CC_{t-1}, are similar to those reported in past studies (e.g., Table 3 in Hanlon et al., 2003).

In contrast, the other three accounts decrease the value of shareholders' equity, yet they are positively associated with the market value of equity. Dividends and repurchases' positive coefficients (3.992 and 3.138, respectively) are consistent with both activities signaling

management's optimistic outlook regarding future performance. In the case of dividends, signaling involves the commitment to distribute future cash to shareholders based on profitability estimates (Bhattacharya, 1979; Miller and Rock, 1985). In the case of share repurchases, the signaling could also be consistent with management's assessment of the stock's undervaluation (Brav et al., 2005; Peyer and Vermaelen, 2009; Bhattacharya and Jacobsen, 2016). Note that the beginning balance of treasury stock, which also involves a reduction in shareholders' equity, has a positive coefficient (0.410), consistent with the signaling explanation as well.

In the final column, we separate stock repurchases that occurred during year *t*, based on the accounting treatment used. *REPURC_TS* is the Dollar amount of repurchases accounted for using the treasury method (scaled by shares outstanding), and *REPURC_RT* is the Dollar amount of repurchases accounted for using the retirement method (scaled by shares outstanding). We describe the measurement of these variables in section 4.1. We continue to find that the coefficients on both variables are positive and significant. Interestingly, we find that the coefficients on repurchases vary based on their accounting treatment, such that the coefficient on *REPURC_RT* (6.012) is more than two and a half times larger than the coefficient on *REPURC_TS* (2.384). An F-test rejects the hypothesis that these two coefficients are equal. In theory, one might expect that these two coefficients, representing the same economic transaction, would be equal. In the following sections, we explore possible reasons for their difference.

We also perform a variety of additional tests to evaluate whether the difference in valuation coefficients between share repurchases accounted for using the treasury or retirement methods is robust and present these results in Appendix D. These additional tests address a variety of possible concerns, including variable scaling and measurement, time-specific effects, and tighter identification using firm fixed effects.

5.3 Can Mispricing Explain Valuation Differences Across Accounting Methods?

The results in Table 2 suggest that the market might value share repurchases differently depending on the accounting method used. Next, we examine the possibility that the difference in valuation between treasury share repurchases and retirement share repurchases is due to mispricing. If there is no difference in the economic substance of a treasury share repurchase compared to a retirement share repurchase, and if there is no signaling value in the accounting choice, then investors should value the two types of repurchases the same. If they do not, this would suggest mispricing.

To evaluate the mispricing explanation, we create portfolios to assess if it is possible to earn abnormal returns by exploiting the relative differential valuations of treasury and retirement share repurchases. In our data, *REPURC_TS* (*REPURC_RT*) is set equal to the total Dollar value of repurchases during the year when the firm is classified as a treasury (retirement) share repurchaser, and otherwise is set equal to zero. To test for evidence of mispricing, we combine the variables *REPURC_TS* and *REPURC_RT* into a single variable, *REPURC_RT&TS* by multiplying *REPURC_RT* by -1 and stacking it on *REPURC_TS*. In creating this variable, we scale repurchases by assets.[14] This creates a variable that measures the "intensity" of share repurchases by method, where a more positive (negative) value indicates a firm-year with larger amounts of treasury (retirement) share repurchases. We include only firm-years in which there was a share repurchase transaction. Finally, we rank order *REPURC_RT&TS* into 5 quintiles.

We provide descriptive statistics in Table 3, Panel A. There are approximately 13,575 observations in each quintile. In the lowest (highest) quintile, the average value of

[14] We note that the scaling variable used in this test (assets) is different from the scaling variable used in our main test (common shares outstanding). We use a different scaling variable here to better compare similar firms.

REPURC_RT&TS is -0.06 (0.08).[15] The last two columns note the composition of each quintile. The lowest quintile consists of firms with a large amount of retirement share repurchases, and the highest quintile contains firms with a large amount of treasury share repurchases. The middle quintile contains a mix of observations with both treasury and retirement share repurchases, but where the average amount of share repurchases is close to zero.

If the difference in the valuation coefficients of treasury share repurchases and retirement share repurchases reported in Table 2 is a result of mispricing, we expect retirement share repurchases to be overvalued and treasury share repurchases to be undervalued. If this is the case, firms with a large amount of retirement share repurchases should lose value over time as the valuation of retirement share repurchases reverses downward, and, similarly, firms with a large amount of treasury share repurchases should gain value over time as the valuation of treasury share repurchases reverses upward.

To test this, we analyze returns in the five portfolios of *REPURC_RT&TS* and consider a trading strategy of going long in treasury share repurchases (quintile 5) and short in retirement share repurchases (quintile 1). We calculate returns as the annual buy-and-hold return in excess of the risk-free rate starting three months after the balance sheet date. The results are presented in Table 3, Panel B. We also present results using alphas from the Fama-French three-factor model, the Carhart model (four-factor), and the Fama-French five-factor model.

Overall, there does not appear to be much variation in returns across the five portfolios. Looking at the returns in column 1 of Panel B, the return in quintile 1 is 11.2 percent, whereas the

[15] Note that the variables *REPURC_RT* and *REPURC_TS* each only consist of values that are greater than or equal to zero. The negative value of *REPURC_RT&TS* in quintile 1 is due to multiplying *REPURC_RT* by negative 1 before stacking it on *REPURC_TS*. Therefore, a negative mean value of *REPURC_RT&TS* in a quintile suggests that the quintile predominantly consists of retirement share repurchases. The value of -0.06 in quintile 1 means that firm-year observations in quintile 1 have repurchases that are, on average, 6% of total assets.

return in quintile 5 is 12.1 percent. The difference in returns between portfolios 5 and 1 is 0.9 percent, which is not statistically significantly different from zero (p-value = 0.369). Similarly, in our results using the Fama-French three-factor model presented in column 2, we observe that the difference between the top and bottom portfolios, 0.8 percent, is not statistically significantly different from zero (p-value = 0.488).[16] The results in columns 3 and 4 for the Carhart model and the Fama-French five-factor model similarly show no significant difference between the top and bottom portfolios. Overall, these tests do not provide evidence consistent with mispricing. Therefore, we do not believe that mispricing is a viable explanation for the valuation difference between treasury and retirement share repurchases. In the following sections, we continue to explore reasons for this valuation difference, assuming fair and efficient pricing.

5.4 Value Implications of Accounting Choice for Share Repurchases

In Table 2, we observed a consistent pattern whereby the valuation coefficient on share repurchases that were accounted for using the retirement method was significantly larger than the coefficient on share repurchases that were accounted for using the treasury method. In Table 3, we concluded that such a difference is not a result of mispricing. One remaining reason for the valuation differences between repurchased shares that are accounted for using the treasury method or the retirement method might be firms' ability to choose between the methods, given that such ability varies by state of incorporation.

Fields et al. (2001) state that accounting choice is inevitable because standard setters cannot prescribe exact choices for managers to apply in every situation. Moreover, imposing constraints on accounting choice may cause the accounting numbers to be less informative. Thus, the

[16] We winsorize variables at the 1st and 99th percentiles in the mispricing test. In an untabulated robustness test, we truncate values at the 1st and 99th percentiles and do not observe a significant difference between the top and bottom portfolios.

accounting literature has generally viewed accounting choice as beneficial because it allows for more optimal contractual design and for more information value to financial statement users (Watts and Zimmerman, 1986). The literature has also recognized that accounting choice has costs, particularly around information manipulation. However, isolating the value of choice has been a challenge. We believe that our setting provides an opportunity to design tests that isolate the value of choice and measure its net benefits (or costs).

In particular, the choice of methods to account for share repurchases is dictated by the firm's state of incorporation, as discussed in section 2.2. Recall that, in certain states, firms are free to choose between the two methods, while in other states, treasury shares are not allowed, and therefore, firms must account for share repurchases using the retirement method (i.e., accounting choice is constrained by law). As a result, it is possible that the valuation implications of accounting for share repurchases originate, at least in part, from a premium (or discount) that is assigned to the *ability to choose* between methods. Isolating the valuation implication of the ability to choose is rarely possible for researchers within a sample of firms that use the same accounting rules, such as U.S. GAAP. In contrast, in this unique setting, the accounting rules in the U.S. for share repurchases vary based on a firm's state of incorporation, providing some empirical variation that has the potential to isolate the valuation implications of the *ability to choose*.

Our goal is to evaluate whether the valuation coefficient on stock repurchases differs between companies that are incorporated in states that restrict the accounting choice, compared to companies that are incorporated in states that allow a choice. Any differences between the two groups could be attributed to an incremental value attributed to the ability to choose methods. For example, Apple is incorporated in California, a state that does not allow a choice. Therefore, Apple must account for share repurchases under the retirement method. However, Darden Restaurants, a

company incorporated in Florida, has a choice between the treasury method and the retirement method. Since 2014, Darden Restaurants has chosen to account for its share repurchases using the retirement method. Therefore, by comparing the valuation implications of repurchases made in states that do not allow a choice (e.g., Apple in California) to those made in states that allow a choice (e.g., Darden Restaurants in Florida), we can better isolate and examine whether the existence of a choice in accounting method for share repurchases has some valuation implications.

Of course, any comparison between the two groups must account for any choices that lurk in the background and also affect the difference between the groups. One such choice is the state of incorporation. If companies chose their state of incorporation based on the approach used to account for share repurchases, then our comparison might be problematic. However, we believe a firm's chosen state of incorporation is relatively exogenous to its accounting for share repurchase activities for several reasons. First, we do not believe the accounting treatment of share repurchases is a prime factor for companies when deciding where to incorporate. Prior literature has identified several other factors for a firm's state of incorporation decision—including firm location, state anti-takeover statutes, state shareholder protection laws, political "leaning" of states, and legal advice—that are much more fundamental to the decision than corporate law on how to account for share repurchases (Bebchuk and Cohen, 2003; Daines, 2002).[17]

Second, the elimination of treasury shares in state law stems from states' partial or full adoption of the Model Business Corporation Act (MBCA), which is a comprehensive legal framework for state corporate law. The 1984 revision of the MBCA, which eliminated treasury shares, is over 400 pages long and spans topics including shareholder meetings and voting, election

[17] Bebchuk and Cohen (2003) specifically find that states that adopted versions of the Model Business Corporation Act (MBCA), which generally disallow treasury shares, are not "more successful in attracting incorporations either from local firms or from out-of-state firms."

and removal of directors from the board of directors, mergers and sales of assets, and foreign corporations, among others. The elimination of treasury shares constituted a single subparagraph (2 lines) within this framework. Therefore, we believe that states' adoption of the MBCA and firms' choices to incorporate in particular states that have or have not adopted the MBCA likely relate to a variety of other legal factors that are much more foundational to firms than whether or not there is a choice in how to account for share repurchases. Lastly, firms choose their state of incorporation at the earliest stage of firm establishment, likely before firms know if they will even engage in share repurchases in the future, let alone how they will account for them. In untabulated results, we find that few firms change their state of incorporation during our sample period.[18]

A second choice that firms make endogenously is whether to engage in stock repurchases. If that choice relates to the expected accounting treatment (with a choice or without it), then inference based on comparing the two groups of firms may be problematic. We do not believe that this choice is a primary consideration in firms' decisions to repurchase shares, especially when compared with other reasons already identified in the literature, such as undervaluation and signaling (Ikenberry et al., 1995; Peyer and Vermaelen, 2009; Brav et al., 2005).[19]

In Table 4, we estimate versions of the valuation model used in Table 2, separately for states that allow using either method to account for share repurchases (*TREASURY_OPT=1*) and

[18] We note that our results below in Table 4 are robust to dropping firm-years of firms that switched their state of incorporation during our sample period.

[19] In untabulated tests, we find that firms incorporated in states that allow a choice in accounting method make more repurchases (both in Dollar terms and number of shares) than firms incorporated in states that disallow treasury shares. However, this effect is wholly attributable to firms incorporated in Delaware. When we exclude Delaware-incorporated firms, we find no statistically significant difference in the Dollar amount or number of shares repurchased by firms incorporated in states that allow a choice in accounting method compared to firms incorporated in states that disallow treasury shares. The "Delaware effect" may arise from a variety of factors, including that Delaware-incorporated firms have been shown to have higher firm values and be more likely to receive takeover bids (Daines, 2001).

for states that do not provide the option (*TREASURY_OPT=0*).[20] In column (1), we find that, in states that provide the option to choose, the coefficient on *REPURC_RT* is positive and significant (5.758) and nearly three times larger than the coefficient on *REPURC_TS* (1.995). This pattern is similar to the one shown in Table 2. An F-test confirms that the difference between the coefficients is statistically significant. In column (2), we estimate the model for states that do not allow treasury shares. First, note that while these states ban treasury shares, we still have some firms that use the method, but the coefficient on *REPURC_TS* is not significant.[21] We assess whether the market assigns a valuation premium (or discount) to the existence of accounting choice by comparing the coefficient on *REPURC_RT* across the two columns (5.758 vs. 3.974). The F-statistic of this comparison is 3.59, indicating a statistically significant difference at the 10% level. This evidence is consistent with a valuation difference attributable to having an option to choose between accounting methods for share repurchases.

To help address the endogeneity issues we discussed previously, we also estimate the same models as in Table 4 on an entropy-balanced sample, where we obtain covariate balance between the firm-years in option states (*TREASURY_OPT=1*) and non-option states (*TREASURY_OPT=0*), consistent with Hainmueller (2012). We reweight the observations to help control for the observable determinants of accounting method choice as determined by Banyi and Caplan (2016). These include market-to-book ratio, size, leverage, and an indicator for future acquisitions, among others. We present the results on the entropy-balanced sample in Table 5. The results in Table 5 are similar to those in Table 4. All coefficients have a similar magnitude after entropy balancing.

[20] We note that, while we present these as two separate regressions in the table for ease of readability, the coefficient estimations and F-test values are obtained using a single regression model (equivalent to interacting all covariates with *TREASURY_OPT*.

[21] The existence of treasury shares in firms incorporated in these states can be due to non-compliance, measurement error, or both.

Furthermore, the difference in coefficient magnitude between retirement and treasury share repurchases remains statistically significant in both option states and non-option states. Importantly, the magnitude of the coefficient for retirement share repurchases is still significantly larger in option states compared to non-option states, consistent with the results in Table 4. This result helps mitigate concerns over endogeneity because, after weighting observations such that firms in option and non-option states are similar, there is still a difference in the magnitude of the coefficient for retirement share repurchases between legal regimes. This provides additional evidence that the driver of the different coefficient magnitudes is the availability of an option to choose between different methods when accounting for share repurchases.

To further bolster our inferences of the relationship between the valuation of stock repurchases and the accounting treatment at the state level, we perform, in Table 6, a placebo test. In this test, we randomly assign firms to states. We then estimate the same model as in Table 4, but with firm-years that are randomly assigned to one of the two columns, based on their "placebo" state of incorporation. Under this random assignment, one does not expect to observe a valuation difference if the valuation difference is truly related to the actual choice (or lack thereof) in accounting treatment available to sample firms. We do, however, still expect to find, within each column, a general difference between the value implications of share repurchases depending on the accounting method used. This is because the valuation implications do not wholly depend on the availability of accounting choice.

We find that, in both columns, the coefficients on *REPURC_RT* are positive and significant (5.144 and 5.821), and are over two times larger than the coefficients on *REPURC_TS* (2.347 and 1.782). More importantly, we find that the F-test comparing the coefficients on *REPURC_RT*

across the two columns indicates no difference between them, as we expect when the assignment to states of incorporation is random.

In summary, the results in this section suggest that firms incorporated in states that allow a choice in accounting for share repurchases possess a valuation premium that is closely tied to the existence of this choice. This evidence is important, as heretofore the literature has not been able to uncover such a relationship.

5.5 Why is Accounting Choice Important and Valued by Investors?

In the previous section, we documented that firms incorporated in states that allow a choice between accounting methods for share repurchases carry a valuation premium that is associated with their share repurchases. In this section, we explore several mechanisms that can give rise to this valuation premium.

One possible reason for such a premium is that the availability of choice allows firms to communicate information to investors, which they, in turn, find valuable. Eliminating such discretion prevents the transfer of information to investors, thereby restricting investors' ability to interpret the repurchases through the lens of accounting choice. Another possible explanation for the premium is that the suppression of retained earnings under the retirement method is undesirable to some, either because it has the potential to curtail the payments of future dividends or trigger debt covenants that are reliant on retained earnings (directly or indirectly). In this section, we develop cross-sectional tests that explore explanations for the valuation premium documented in the previous section.

5.5.1 Signaling Explanations

The accounting choice for share repurchases could convey the economic reason underlying the transactions, signal managers' private information about valuation, express managers' intent

to engage in certain future activities (e.g., more repurchases, more M&As), or a combination of any of these explanations. Thus, the ability to signal the information effectively might be important to the firm and investors. In this section, we evaluate whether the valuation premium we identified varies cross-sectionally with variables presumably correlated with the signals that are potentially conveyed to investors through accounting choices.

One reason for engaging in stock repurchases is to eliminate a firm's excess cash (Jensen, 1986; Oswald and Young, 2008; DeAngelo et al., 2025). By distributing cash back to shareholders, the firm acknowledges that it has more cash than is needed to fund new positive NPV projects, and shareholders are better off utilizing this cash on their own. The retirement method, where shares are permanently retired, conveys such information more convincingly than the treasury method, where shares are "temporarily parked" and are potentially expected to be reissued (McConnell, 1966). We note that signaling using the retirement method can be costly, as the method itself has a more negative effect on retained earnings, and the retirement of shares may result in firms having to subsequently receive board approval to approve (and issue) more shares. If, however, a firm has no choice between accounting methods, it will always use the retirement method. In such a scenario, where all firms use the retirement method, the value of the signal is lost.

We expect, then, that the valuation premium associated with accounting choice, when available, would increase with the information value of the signal. In this case, the signal is more informative for firms with more severe agency costs of cash, that is, when firms have large amounts of cash on their balance sheet.

We examine this proposition by estimating model (4) for firms that are incorporated in states that allow a choice between methods. We do so separately for firms with low, medium, and

high levels of cash. We report these estimation results in Table 7. Our focus, again, is on the coefficients on *REPURC_TS* and *REPURC_RT*. In the first column, for firms with low levels of cash, the coefficients are 2.361 and 3.663, respectively. An F-test suggests that they are not significantly different from each other. Moving to the second column, the gap between these coefficients increases (2.065 vs. 6.775), and the difference becomes statistically significant. Finally, in the third column, the coefficient on *REPURC_RT* (7.183) is almost ten times larger than the coefficient on *REPURC_TS* (0.781), with a strong and statistically significant difference per the F-test. Thus, it appears that the gap between the coefficients becomes larger as the agency costs of cash become more severe and the signaling value of the choice of the retirement method becomes more meaningful. It is worth noting that the gap is formed from both a significant reduction in the coefficient on *REPURC_TS* and a significant increase in the coefficient on *REPURC_RT* as we move from column 1 to column 3.

5.5.2 Retained Earnings Suppression

Another reason for preferring one accounting method over another is the desire of some firms to avoid reductions in the retained earnings account. First, the retained earnings balance may affect, directly or indirectly, a firm's debt covenants, which the firm would prefer not to violate to prevent costly renegotiation and the possibility of the lender calling the debt. Second, having a negative retained earnings balance may constrain a firm's ability to pay dividends to its shareholders. Corporate law differs between states as to the conditions under which a firm can make distributions to shareholders. For example, under New York Business Corporation Law, dividends can be declared or paid either out of "surplus" or out of the current or preceding year's earnings (NY BUS CORP § 510(b)). While the legal definition of "surplus" varies by state and can be more complex than merely the balance of the retained earnings account, it seems evident

that a firm with a negative balance in retained earnings may encounter additional complications in being able to pay dividends compared to a firm with a positive balance in retained earnings. Lastly, a negative retained earnings balance may optically provide a negative signal about the firm if looking at a firm's balance sheet in isolation. A negative retained earnings balance is typically labeled as "accumulated deficit" on the face of a firm's financial statements. Further, if retained earnings is considered a proxy for a firm's underlying earnings yield, having a negative balance may not provide investors confidence about a firm's potential (Ball et al., 2020).

If avoiding a negative balance in a firm's retained earnings account is the objective, then the advantages of the treasury method, where retained earnings are not affected, will be most pronounced in firms that would have a negative balance in retained earnings if they accounted for share repurchases using the retirement method. In Table 8, we explore this possibility by estimating regression model (4) on two groups of firms, separated by the variable *FLIP*. We define *FLIP* as an indicator variable that takes a value of 1 when a firm's beginning balance of retained earnings is positive and the beginning balance of retained earnings plus earnings for the year minus dividends during the year, minus repurchases during the year, results in a negative balance for "pro forma" ending retained earnings. The intention of *FLIP* is to capture firm-years in which a firm would "flip" from a positive to a negative balance in retained earnings as a result of using the retirement method to account for share repurchases. We note that it is not common for *FLIP* to take a value of 1, and that our focus in this test is on a particular subset of firms. However, these firms face a unique circumstance where their choice of accounting method could significantly affect the face of their financial statements (i.e., whether or not to avoid a negative balance in retained earnings), creating a particular set of incentives, which we aim to study.

In column (1), for firms with *FLIP*=0, we find the "regular" pattern, whereby the coefficient on *REPURC_RT* (6.650) is larger and statistically different from the coefficient on *REPURC_TS* (1.964). In contrast, in column (2), for firms that ran the risk of switching to negative retained earnings, we no longer observe a difference between the coefficients. The coefficient on *REPURC_RT* declines from column (1) to column (2), and the difference between the two is statistically significant. The coefficient on *REPURC_TS* increases, but the increase is not statistically significant. Overall, we conclude that the valuation "premium" attached to the retirement method in column (1) disappears in column (2) when the retirement method is less desirable because it results in a negative retained earnings balance. We view these results as additional evidence for why there is a value to accounting choice in this setting. Allowing firms to choose provides them with flexibility, such that when they make a choice that is consistent with shareholders' desires, that has valuation implications.

6. Conclusion

Share repurchases have gained popularity over the past few decades, and academic literature in accounting and finance has followed suit. However, much of the existing work focuses on the reasons for and consequences of share repurchases with little attention paid to the ways in which firms account for share repurchases in their financial statements. Our study helps to fill this gap in the literature and also makes a novel contribution to the literature on discretion in accounting, using share repurchases as a setting.

We present empirical evidence that investors differentially value firms' share repurchases based on the accounting method used. Specifically, investors appear to place a differential value on share repurchases accounted for using the retirement method (where repurchased shares are effectively retired and the repurchase price is allocated between retained earnings, common stock,

and additional paid-in capital accounts) as compared to the treasury method (where repurchased shares are "parked" in treasury stock, a contra-equity account). After showing that this differential valuation does not stem from mispricing, we demonstrate that this premium can be attributed to the accounting discretion available to firms in choosing an accounting method using plausibly exogenous variation in accounting discretion afforded by corporate statutory law, which varies by state of incorporation. The value in the choice of accounting methods for share repurchases extends the evidence in Hill et al. (2025), which shows diversity in practice in this area. Lastly, we examine why this discretion is important and valued by investors. We present evidence consistent with firms using the choice of accounting method to provide a signal to investors – namely, a signal about the permanence of a distribution to investors to reduce agency costs of capital. We also show evidence of variation of the valuation difference for retirement method repurchases when the retirement method may be less preferable – specifically, if the use of the retirement method causes a firm's retained earnings to become negative.

Our work provides implications for researchers, firms, standard-setters, and regulators. We use a novel setting (share repurchases) with plausibly exogenous variation to document a net benefit to accounting discretion. The setting enables a tighter and more enhanced design compared to prior literature in this area. We dig deeper into understanding an area of accounting (accounting for share repurchases) that has remained unchanged since the 1960s, despite significant changes in the underlying phenomenon itself (share repurchases) over that time. Our work is relevant to both accounting standard-setters and corporate lawmakers in individual states in understanding how accounting and the law interact around share repurchases and in showing that there is value to accounting discretion, even though many states have been eliminating the opportunity for this

discretion. In eliminating this discretion, lawmakers may have an effect on the amount of information provided to and the efficiency of markets.

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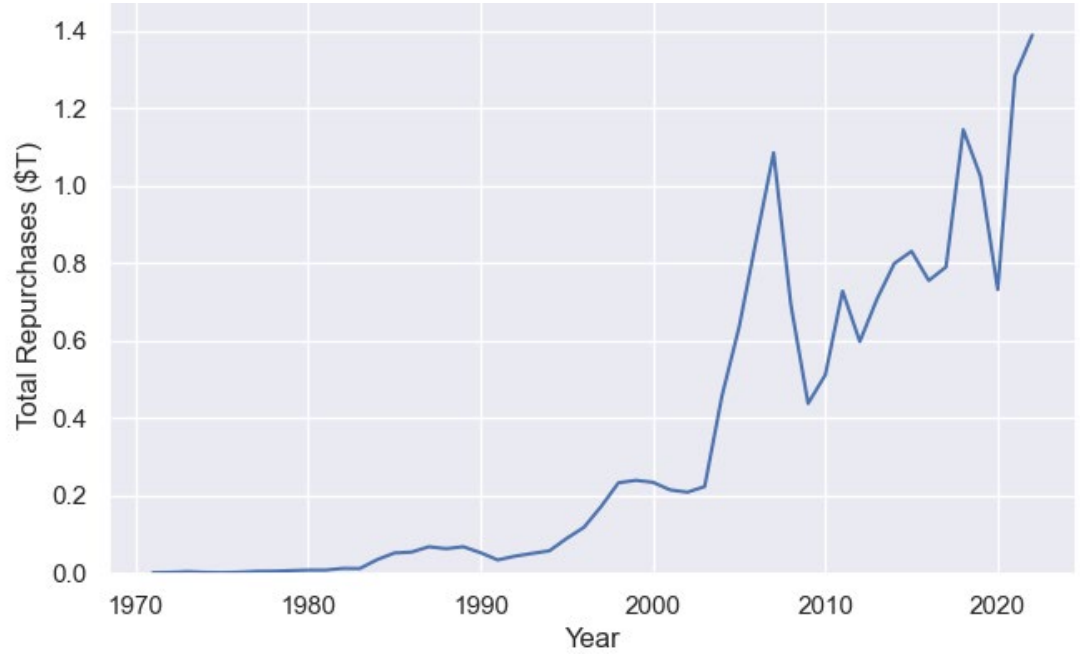
Figure 1. Share Repurchases Over Time

Figure 1 shows the trend in share repurchases over time. Panel A displays the total dollar amount of repurchases (in trillions) between 1970 and 2022. The data is based on all firms in Compustat with data availability. Panel B displays the trend in the proportion of firms that have a share repurchase between 1970 and 2022.

Panel A: ***Firm Repurchases Over Time in Dollars***



Panel B: ***Proportion of Firms with Repurchases Over Time***

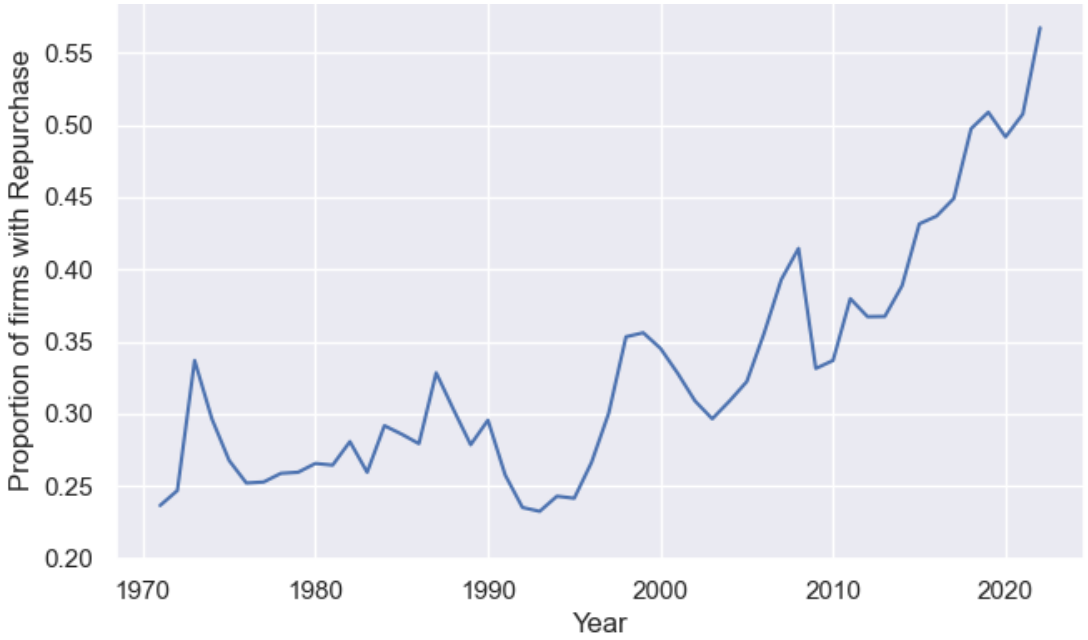


Table 1. Descriptive Statistics

Table 1 provides univariate statistics for variables used in this study. Panel A presents the mean, standard deviation, and several percentiles. Panel B presents Pearson correlations. All continuous variables are winsorized at the 1st and 99th percentiles and are scaled by shares outstanding as of the balance sheet date. For variable definitions, refer to Appendix A. In Panel B, * represents two-tailed significance at the 5% level.

Panel A: Descriptive Statistics

Variable	count	mean	std	1%	25%	50%	75%	99%
MCAP	179,294	20.29	26.18	0.13	3.88	11.50	26.35	160.00
EARN	179,294	0.70	2.11	-6.70	-0.20	0.45	1.49	9.16
BV - EARN	179,294	9.16	10.19	-3.87	2.44	6.05	12.33	57.14
CC	179,294	7.24	8.03	0.06	2.26	4.74	9.19	49.21
RE - EARN	179,294	3.11	9.96	-26.60	-1.09	0.85	5.62	47.93
TS	179,294	1.07	3.48	0.00	0.00	0.00	0.24	23.96
DIV	179,294	0.31	0.61	0.00	0.00	0.00	0.37	3.14
REPUR	179,294	0.34	0.97	0.00	0.00	0.00	0.12	6.29
REPUR_TS	179,294	0.21	0.72	0.00	0.00	0.00	0.00	4.91
REPUR_RT	179,294	0.11	0.46	0.00	0.00	0.00	0.00	3.32
ISSUE	179,294	0.52	1.25	0.00	0.00	0.05	0.29	7.31
OTHER	179,294	0.23	1.45	-5.25	-0.01	0.04	0.29	8.07
TREASURY_OPT	79,693	0.80	0.40	0.00	1.00	1.00	1.00	1.00

Panel B: Pearson Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) MCAP	1												
(2) EARN	0.547*	1											
(3) BV - EARN	0.549*	0.441*	1										
(4) CC	0.348*	0.112*	0.537*	1									
(5) RE - EARN	0.449*	0.490*	0.700*	-0.086*	1								
(6) TS	0.390*	0.290*	0.280*	0.274*	0.467*	1							
(7) DIV	0.426*	0.475*	0.480*	0.251*	0.385*	0.244*	1						
(8) REPURC	0.433*	0.386*	0.289*	0.222*	0.316*	0.468*	0.249*	1					
(9) REPURC_TS	0.349*	0.319*	0.239*	0.212*	0.327*	0.615*	0.202*	0.778*	1				
(10) REPURC_RT	0.230*	0.201*	0.157*	0.071*	0.081*	-0.065*	0.143*	0.544*	-0.067*	1			
(11) ISSUE	0.135*	-0.035*	0.094*	0.191*	-0.066*	-0.025*	0.054*	0.051*	0.016*	0.051*	1		
(12) OTHER	0.127*	0.018*	0.142*	0.166*	0.033*	0.020*	-0.006*	0.078*	0.050*	0.057*	0.003	1	
(13) TREASURY_OPT	0.006	-0.038*	-0.054*	0.003	0.012*	0.143*	-0.141*	0.012*	0.120*	-0.155*	-0.042*	0.027*	1

Table 2. Main Result: Value Relevance Regressions

Table 2 presents the results from estimating equations (1) through (4). The dependent variable is price per share three months after the end of the fiscal period (*MCAP*). The independent variables are income before extraordinary items (*EARN*), book value (*BV*) and decompositions of those variables, which includes contributed capital (*CC*), retained earnings (*RE*), treasury stock (*TS*), dividends (*DIV*), share repurchases (*REPURC*), treasury share repurchases (*REPURC_TS*), retirement share repurchases (*REPURC_RT*), share issuances (*ISSUE*), and other book value of equity (*OTHER*). All variables are scaled by shares outstanding as of the balance sheet date. Detailed variable definitions are provided in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, * represent two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively. T-statistics are presented in parentheses and are based on clustering standard errors by firm.

	(1)	(2)	(3)	(4)
	MCAP	MCAP	MCAP	MCAP
$EARN_t$	4.850***	4.625***	3.789***	3.790***
	(41.507)	(43.542)	(44.037)	(43.831)
BV_t - $EARN_t$	1.046***			
	(38.497)			
CC_t		1.054***		
		(35.535)		
RE_t - $EARN_t$		0.741***		
		(22.652)		
TS_t		0.514***		
		(6.059)		
RE_{t-1}			0.640***	0.637***
			(19.406)	(19.410)
CC_{t-1}			0.787***	0.787***
			(25.968)	(26.121)
TS_{t-1}			0.410***	0.568***
			(4.989)	(6.914)
DIV_t			3.992***	3.852***
			(9.765)	(9.469)
$REPURC_t$			3.138***	
			(15.694)	
$REPURC\_TS_t$				2.384***
				(10.250)
$REPURC\_RT_t$				6.012***
				(15.519)
$ISSUE_t$			2.986***	2.989***
			(34.604)	(35.096)
$OTHER_t$			1.895***	1.884***
			(25.127)	(25.127)
REPURC_TS = REPURC_RT				
F-Stat				72.07
P-Value				<.001
N	179,294	179,294	179,294	179,294
Adj. R^2	0.430	0.463	0.497	0.499
FF10 Fixed Effects	Y	Y	Y	Y

Table 3. Mispricing

Table 3 presents the results from testing for the mispricing of share repurchases based on the accounting method used by a firm. Portfolios are formed by ranking the REPURC_RT&TS variable into five quintiles. Twelve-month returns are calculated starting three months after the balance sheet date. Panel A provides descriptive statistics for each portfolio. Panel B reports annual returns in excess of the risk-free rate and three-factor, four-factor, and five-factor alphas for each portfolio. It also presents the difference between the top and bottom portfolios, representing a long-short trading strategy return.

Panel A: Portfolio Descriptive Statistics

REPURC_RT&TS Portfolio	N	*REPURC_RT&TS*	% Observations with Retirement Repurchase	% Observations with Treasury Repurchase
1	13,576	-0.060	0%	100%
2	13,576	-0.003	0%	100%
3	13,575	0.001	97%	3%
4	13,576	0.012	100%	0%
5	13,575	0.079	100%	0%

Panel B: Portfolio Tests

	(1)	(2)	(3)	(4)
REPURC_RT&TS Portfolio	Returns	Alpha (FF 3 Factor)	Alpha (Carhart)	Alpha (FF 5 Factor)
1 (Low)	0.112	0.013	0.018	-0.026
2	0.095	-0.008	0.002	-0.017
3	0.096	-0.008	-0.003	-0.020
4	0.108	0.001	0.007	-0.025
5 (High)	0.121	0.021	0.029	-0.013
High minus Low	0.009	0.008	0.011	0.012
t-stat	0.898	0.693	0.955	0.749
p-value	0.369	0.488	0.340	0.455

Table 4. Sub-Sample Analysis Based on State Laws

Table 4 presents the results from estimating equation (4) in two subsamples. The first subsample consists of firm-years incorporated in states that allow a choice between the treasury method and the retirement method (*TREASURY_OPT* = 1). The second subsample consists of firm-years incorporated in states that only allow the retirement method (*TREASURY_OPT* = 0). The dependent variable is price per share three months after the end of the fiscal period (*MCAP*). The independent variables are income before extraordinary items (*EARN*), and decompositions of book value of equity (*BV*), which includes contributed capital (*CC*), retained earnings (*RE*), treasury stock (*TS*), dividends (*DIV*), share repurchases (*REPURC*), treasury share repurchases (*REPURC_TS*), retirement share repurchases (*REPURC_RT*), share issuances (*ISSUE*), and other book value of equity (*OTHER*). All variables are scaled by shares outstanding as of the balance sheet date. Detailed variable definitions are provided in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, * represent two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively. T-statistics are presented in parentheses and are based on clustering standard errors by firm.

	TREASURY_OPT = 1 (1)	TREASURY_OPT =0 (2)
	MCAP	*MCAP*
$EARN_t$	4.525***	5.409***
	(27.819)	(15.682)
RE_{t-1}	0.752***	1.056***
	(14.537)	(10.284)
CC_{t-1}	0.874***	0.948***
	(18.934)	(10.500)
TS_{t-1}	0.080	-0.308
	(0.773)	(-1.090)
DIV_t	7.637***	6.732***
	(11.536)	(6.773)
$REPURC\_TS_t$	1.995***	-1.407
	(6.480)	(-1.424)
$REPURC\_RT_t$	5.758***	3.974***
	(8.525)	(5.942)
$ISSUE_t$	3.889***	2.042***
	(20.913)	(10.901)
$OTHER_t$	2.086***	2.162***
	(15.772)	(11.636)
REPURC_TS = REPURC_RT		
F-Stat	28.25	22.41
P-Value	<.001	<.001
REPURC_TS, Option versus no Option		
F-Stat	10.88	
P-Value	0.001	
REPURC_RT, Option versus no Option		
F-Stat	3.59	
P-Value	0.058	
N	63,622	16,071
Adj. R^2	0.540	0.630
FF10 Fixed Effects	Y	Y

Table 5. Sub-Sample Analysis Based on State Laws with Entropy Balancing

Table 5 presents the results from estimating equation (4) in two subsamples. The observations in each subsample are weighted based on entropy balancing on the determinants of using the treasury method, following the model in Table 4 of Banyi and Caplan (2016). The first subsample consists of firm-years incorporated in states that allow a choice between the treasury method and the retirement method (*TREASURY_OPT* = 1). The second subsample consists of firm-years incorporated in states that only allow the retirement method (*TREASURY_OPT* = 0). The dependent variable is price per share three months after the end of the fiscal period (*MCAP*). The independent variables are income before extraordinary items (*EARN*), and decompositions of book value of equity (*BV*), which includes contributed capital (*CC*), retained earnings (*RE*), treasury stock (*TS*), dividends (*DIV*), share repurchases (*REPURC*), treasury share repurchases (*REPURC_TS*), retirement share repurchases (*REPURC_RT*), share issuances (*ISSUE*), and other book value of equity (*OTHER*). All variables are scaled by shares outstanding as of the balance sheet date. Detailed variable definitions are provided in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, * represent two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively. T-statistics are presented in parentheses and are based on clustering standard errors by firm.

	TREASURY_OPT = 1	TREASURY_OPT =0
	(1)	(2)
	MCAP	MCAP
$EARN_t$	4.883***	5.522***
	(28.859)	(12.661)
RE_{t-1}	0.768***	1.164***
	(14.402)	(8.125)
CC_{t-1}	0.839***	0.991***
	(18.012)	(9.889)
TS_{t-1}	0.048	-0.438*
	(0.471)	(-1.655)
DIV_t	7.251***	7.387***
	(10.531)	(6.590)
$REPURC\_TS_t$	1.609***	-1.656*
	(5.227)	(-1.720)
$REPURC\_RT_t$	5.669***	3.933***
	(8.099)	(5.700)
$ISSUE_t$	4.757***	2.917***
	(17.832)	(8.771)
$OTHER_t$	2.743***	2.632***
	(17.411)	(10.621)
REPURC_TS = REPURC_RT		
F-Stat	31.08	27.44
P-Value	<.001	<.001
REPURC_TS, Option versus no Option		
F-Stat	10.46	
P-Value	0.001	
REPURC_RT, Option versus no Option		
F-Stat	3.17	
P-Value	0.075	
N	56,713	14,591
Adj. R^2	0.575	0.643
FF10 Fixed Effects	Y	Y

Table 6. Sub-Sample Analysis Using Placebo Assignment of States

Table 6 presents the results from estimating equation 4 in two subsamples. The first subsample consists of firm-years, where firms are randomly assigned to a state that allows a choice between the treasury method and the retirement method (*PLACEBO_OPT* = 1). The second subsample consists of firm-years, where firms are randomly assigned to a state that only allows the retirement method (*PLACEBO_OPT* = 0). The dependent variable is price per share three months after the end of the fiscal period (*MCAP*). The independent variables are income before extraordinary items (*EARN*), and decompositions of book value of equity (*BV*), which includes contributed capital (*CC*), retained earnings (*RE*), treasury stock (*TS*), dividends (*DIV*), share repurchases (*REPURC*), treasury share repurchases (*REPURC_TS*), retirement share repurchases (*REPURC_RT*), share issuances (*ISSUE*), and other book value of equity (*OTHER*). All variables are scaled by shares outstanding as of the balance sheet date. Detailed variable definitions are provided in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, * represent two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively. T-statistics are presented in parentheses and are based on clustering standard errors by firm.

	PLACEBO_OPT = 1 (1)	PLACEBO_OPT = 0 (2)
	MCAP	*MCAP*
$EARN_t$	4.269***	4.629***
	(23.132)	(26.446)
RE_{t-1}	0.843***	0.740***
	(16.783)	(13.289)
CC_{t-1}	0.873***	0.830***
	(16.483)	(18.353)
TS_{t-1}	-0.122	0.138
	(-0.971)	(1.110)
DIV_t	6.750***	7.085***
	(8.314)	(11.203)
$REPURC\_TS_t$	2.347***	1.782***
	(5.643)	(4.721)
$REPURC\_RT_t$	5.144***	5.821***
	(6.709)	(9.117)
$ISSUE_t$	3.382***	3.257***
	(13.849)	(18.528)
$OTHER_t$	2.279***	2.017***
	(12.469)	(14.701)
REPURC_TS = REPURC_RT		
F-Stat	10.84	33.57
P-Value	0.001	<.001
REPURC_TS, Option versus no Option		
F-Stat	1.01	
P-Value	0.3149	
REPURC_RT, Option versus no Option		
F-Stat	0.46	
P-Value	0.4975	
N	26,251	38,738
Adj. R^2	0.549	0.568
FF10 Fixed Effects	Y	Y

Table 7. Cross Sections Based on Cash Holdings

Table 7 presents the results from estimating equation (4) across subsamples based on the level of cash holdings (*CASHQ*) for firm-years incorporated in states that allow a choice between the treasury method and the retirement method (*TREASURY_OPT* = 1). The dependent variable is price per share three months after the end of the fiscal period (*MCAP*). The independent variables are income before extraordinary items (*EARN*), and decompositions of book value of equity (*BV*), which includes contributed capital (*CC*), retained earnings (*RE*), treasury stock (*TS*), dividends (*DIV*), share repurchases (*REPURC*), treasury share repurchases (*REPURC_TS*), retirement share repurchases (*REPURC_RT*), share issuances (*ISSUE*), and other book value of equity (*OTHER*). All variables are scaled by shares outstanding as of the balance sheet date. Detailed variable definitions are provided in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, * represent two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively. T-statistics are presented in parentheses and are based on clustering standard errors by firm.

	TREASURY_OPT = 1, CASHQ = 1	TREASURY_OPT = 1, CASHQ = 2	TREASURY_OPT = 1, CASHQ = 3
	(1)	(2)	(3)
	MCAP	*MCAP*	*MCAP*
$EARN_t$	4.760***	4.664***	4.348***
	(19.666)	(21.908)	(13.826)
RE_{t-1}	0.698***	0.788***	0.830***
	(8.265)	(11.438)	(10.188)
CC_{t-1}	0.823***	0.866***	0.960***
	(13.701)	(13.554)	(12.552)
TS_{t-1}	0.016	0.017	0.026
	(0.110)	(0.125)	(0.135)
DIV_t	8.614***	8.616***	5.294***
	(9.197)	(9.284)	(4.319)
$REPURC\ \ TS_t$	2.361***	2.065***	0.781
	(5.107)	(5.187)	(1.206)
$REPURC\_RT_t$	3.663***	6.775***	7.183***
	(4.156)	(5.989)	(5.565)
$ISSUE_t$	2.806***	3.383***	4.440***
	(10.798)	(10.086)	(16.368)
$OTHER_t$	1.595***	2.184***	2.381***
	(11.068)	(9.704)	(10.869)
REPURC_TS = REPURC_RT			
F-Stat	2.02	16.85	21.82
P-Value	0.155	<.001	<.001
REPURC_TS, High v. Low Cash			
F-Stat		3.98	
P-Value		0.046	
REPURC_RT, High v. Low Cash			
F-Stat		5.07	
P-Value		0.024	
N	20,695	20,694	20,694
Adj. R^2	0.623	0.589	0.468
FF10 Fixed Effects	Y	Y	Y

Table 8. Cross Sections Based on Firms with Retained Earnings Close to Zero

Table 8 presents the results from estimating equation 4 across subsamples based on whether total share repurchases would cause retained earnings to become negative if the entire repurchase amount was debited to retained earnings under the retirement method (*FLIP*). This analysis includes only firm-years incorporated in states that allow a choice between the treasury method and the retirement method (*TREASURY_OPT* = 1). The dependent variable is price per share three months after the end of the fiscal period (*MCAP*). The independent variables are income before extraordinary items (*EARN*), and decompositions of book value of equity (*BV*), which includes contributed capital (*CC*), retained earnings (*RE*), treasury stock (*TS*), dividends (*DIV*), share repurchases (*REPURC*), treasury share repurchases (*REPURC_TS*), retirement share repurchases (*REPURC_RT*), share issuances (*ISSUE*), and other book value of equity (*OTHER*). All variables are scaled by shares outstanding as of the balance sheet date. Detailed variable definitions are provided in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, * represent two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively. T-statistics are presented in parentheses and are based on clustering standard errors by firm.

	TREASURY_OPT = 1, FLIP = 0	TREASURY_OPT = 1, FLIP = 1
	(1)	(2)
	MCAP	*MCAP*
$EARN_t$	4.649***	2.135***
	(25.753)	(4.683)
RE_{t-1}	0.713***	1.404**
	(13.580)	(2.360)
CC_{t-1}	0.852***	0.742***
	(17.742)	(5.588)
TS_{t-1}	0.088	0.321
	(0.857)	(0.772)
DIV_t	8.172***	3.445***
	(11.720)	(2.767)
$REPURC\_TS_t$	1.964***	2.508***
	(6.122)	(3.186)
$REPURC\_RT_t$	6.650***	3.904***
	(8.704)	(2.740)
$ISSUE_t$	4.108***	1.871***
	(20.847)	(3.843)
$OTHER_t$	2.038***	2.151***
	(14.820)	(5.839)
REPURC_TS = REPURC_RT		
F-Stat	35.18	0.88
P-Value	<.001	0.348
REPURC_TS, Flip v. no Flip		
F-Stat	0.45	
P-Value	0.5034	
REPURC_RT, Flip v. no Flip		
F-Stat	3.25	
P-Value	0.0716	
N	61,542	2,080
Adj. R^2	0.542	0.381
FF10 Fixed Effects	Y	Y

Appendix A
Variable Definitions

Variable	Definition	Data Source
MCAP	Market capitalization three months after the end of the fiscal period, scaled by shares outstanding on the balance sheet date.	Compustat, CRSP
EARN	Income before extraordinary items (IB), scaled by shares outstanding on the balance sheet date.	Compustat
BV	Book value of common equity (CEQ), scaled by shares outstanding on the balance sheet date.	Compustat
CC	Contributed capital (CSTK + CAPS), scaled by shares outstanding on the balance sheet date.	Compustat
RE	Retained earnings (RE), scaled by shares outstanding on the balance sheet date. *(Note: Per Compustat's convention, RE includes Accumulated Other Comprehensive Income [AOCI] items, such as cumulative translation adjustments and unrealized gain/loss on investments.)*	Compustat
TS	Treasury stock balance (TSTK), scaled by shares outstanding on the balance sheet date.	Compustat
DIV	Dividends (DVC), scaled by shares outstanding on the balance sheet date.	Compustat
REPURC	Purchases of shares (PRSTKC), scaled by shares outstanding on the balance sheet date.	Compustat
REPURC_TS	Purchases of shares accounted for under the treasury method, following Banyi and Caplan (2016). This amount is equal to PRSTKC if there is a non-zero change in the treasury stock balance (TSTK). If there is no change in treasury stock, this amount is set to zero. This amount is scaled by shares outstanding on the balance sheet date.	Compustat
REPURC_RT	Purchases of shares accounted for under the retirement method, following Banyi and Caplan (2016). This amount is equal to PRSTKC if there is no change in the treasury stock balance (TSTK). If there is a non-zero change in treasury stock, this amount is set to zero. This amount is scaled by shares outstanding on the balance sheet date.	Compustat
ISSUE	Issuance of shares (SSTK), scaled by shares outstanding on the balance sheet date.	Compustat
OTHER	The balance of the book value of equity not captured in other variables included in the value relevance regression. The amount is calculated as $CEQ_t - (RE_{t-1} + CC_{t-1} - TS_{t-1} + EARN_t - DIV_t - REPURC_t + ISSUE_t)$.	Compustat
TREASURY_OPT	An indicator equal to 1 if the firm is incorporated in a state that allows the choice between accounting for repurchases under either the retirement or treasury method, otherwise set to zero.	Westlaw
RE < 0	An indicator equal to 1 if retained earnings is less than zero, otherwise set to zero.	Compustat
PLACEBO_OPT	An indicator equal to 1 if a firm is randomly assigned to a state that allows the choice between accounting for repurchases under either the retirement or treasury method, otherwise set to zero.	N/A
CASHQ	Tercile ranking of a firm's cash holdings, which is equal to cash and cash equivalents scaled by sales (CHE / SALE).	Compustat
FLIP	An indicator equal to 1 if a firm's beginning balance of retained earnings (RE_{t-1}) is not negative and RE_{t-1} plus income before extraordinary items ($EARN_t$) minus dividends (DIV_t) minus $REPURC_t$ is negative. The intention of this variable is to determine if a firm accounting for its repurchases using the retirement method (i.e., a reduction to retained earnings) would cause its retained earnings balance to "flip" from positive to negative.	Compustat

Appendix B
History of Accounting for Stock Repurchases

The retirement method of accounting for repurchased shares is described in ASC 505-30-30-8:

> *When a corporation's stock is retired, or repurchased for constructive retirement (with or without an intention to retire the stock formally in accordance with applicable laws), an excess of repurchase price over par or stated value may be allocated between additional paid-in capital and retained earnings. Alternatively, the excess may be charged entirely to retained earnings in recognition of the fact that a corporation can always capitalize or allocate retained earnings for such purposes. If a portion of the excess is allocated to additional paid-in capital, it shall be limited to the sum of both of the following:*
>
> *a. All additional paid-in capital arising from previous retirements and net gains on sales of treasury stock of the same issue*
> *b. The pro rata portion of additional paid-in capital, voluntary transfers of retained earnings, capitalization of stock dividends, and so forth, on the same issue. For this purpose, any remaining additional paid-in capital applicable to issues fully retired (formal or constructive) is deemed to be applicable pro rata to shares of common stock.*
>
> (ASC 505-30-30-8)

The treasury method of accounting is also allowable under U.S. GAAP, according to the guidance in ASC 505-30-30-6 and ASC 505-30-45-1:

> *Once the cost of the treasury shares is determined under the requirements of this Section, and if a corporation's stock is acquired for purposes other than retirement (formal or constructive), or if ultimate disposition has not yet been decided, paragraph 505-30-45-1 permits the cost of acquired stock to either be shown separately as a deduction from the total of capital stock, additional paid-in capital, and retained earnings, or be accorded the following accounting treatment appropriate for retired stock.*
> (ASC 505-30-30-6)

> *If a corporation's stock is acquired for purposes other than retirement (formal or constructive), or if ultimate disposition has not yet been decided, the cost of acquired stock may be shown separately as a deduction from the total of capital stock, additional paid-in capital, and retained earnings, or may be accorded the accounting treatment appropriate for retired stock specified in paragraphs 505-30-30-7 through 30-10.*
> (ASC 505-30-45-1)

The earliest standard setting for share repurchases in the United States is found in a 1938 edition of the *Journal of Accountancy*, which published a report of the AICPA's Committee on Accounting Procedure (CAP). This report summarized a question from the New York Stock Exchange on

where the difference between issue price and repurchase price should be recognized—in stockholder equity, directly in retained earnings, or in retained earnings through net income. The CAP affirmed in this report that repurchases should not be accounted for in net income. The contents of this report were included verbatim in Accounting Research Bulletin (ARB) number 1, issued by the CAP in September 1939.

The accounting guidance on repurchases appeared again in ARB 43, issued in 1953, which was a standard from the CAP that restated the prior 42 ARBs.[22] Again, the prior language on accounting for repurchases is reprinted verbatim in this ARB (Chapter 1, Section B).

In October of 1965, the Accounting Principles Board issued APB 6, which added two paragraphs to the guidance on accounting for repurchases. The first paragraph describes the retirement method and treasury method of accounting for repurchases. ***The second additional paragraph notes that the accounting method chosen cannot conflict with state law.*** The APB's explanation for why they added these two paragraphs is that "The Board considers that the following accounting practices, in addition to the accounting practices indicated in Chapter 1B, are acceptable, and that they appear to be more in accord with current developments in practice." The language included in these two additional paragraphs is still present in today's codification as cited above (with a few minor terminology changes).[23] To our knowledge, there has been no substantive innovation in the area since APB 6. In summary, the guidance on the retirement method and treasury method of accounting for share repurchases has not changed substantively in 60 years.

[22] Specifically, the preface to ARB 43 states that: "The purposes of this restatement are to eliminate what is no longer applicable, to condense and clarify what continues to be of value, to revise where changed views require revision, and to arrange the retained material by subjects rather than in the order of issuance."

[23] For example, instead of "additional paid in capital" which is used in the codification, APB 6 uses the term "capital surplus."

Appendix C
Anecdotal Evidence of Firms' Disclosures Relating to Share Repurchase Accounting

Section A: Examples of firm disclosures referencing state corporate law that affects the availability of discretion for share repurchase accounting

Company Name	Fiscal Year	Report	State of Incorporation	Disclosure Text (**emphasis added** by authors)
Thoratec Corporation	2013	10-K	CA	"We are incorporated in California, and as **California law does not recognize treasury stock**, the shares repurchased decreased the common shares outstanding."
Mesa Laboratories Inc.	2012	10-K	CO	"Under applicable law, **Colorado corporations are not permitted to retain treasury stock**."
Global Payments Inc.	2012	10-K	GA	"During the three months ended August 31, 2011 we determined that **our presentation of repurchased shares as** a separate component of shareholders' equity ("**Treasury stock**") in previously issued financial statements **was at variance with Georgia incorporation law**. As such, our shares repurchased during fiscal year 2010 and the first quarter of fiscal 2011 should have been accounted for as constructively retired, and the cost of repurchased shares should have been charged to paid-in capital in accordance with our accounting policy at that time."
Akorn, Inc.	2016	10-K	LA	"Companies incorporated under Louisiana law are subject to the Louisiana Business Corporation Act ("LBCA"). **Provisions of the LBCA eliminate the concept of treasury stock**. As a result, all stock repurchases are presented as a reduction to issued shares of common stock, the stated value of common stock and retained earnings."
Churchill Downs Inc.	2017	10-K	KY	**"Share repurchases constitute authorized but unissued shares under the Kentucky laws under which we are incorporated**."
Century Bancorp Inc.	2012	10-K	MA	"Effective July 1, 2004, companies incorporated in Massachusetts became subject to Chapter 156D of the **Massachusetts Business Corporation Act, provisions of which eliminate the concept of treasury stock** and provide that shares reacquired by a company are to be treated as authorized but unissued shares."
Sara Lee Corp.	2010	10-K	MD	**"The corporation is incorporated in the state of Maryland and under those laws reacquired shares are retired."**
MGC Diagnostics Corp.	2012	10-K	MN	"The Company records share repurchases at cost. **Under Minnesota law, there are no treasury shares."**
Reynolds American Inc.	2009	10-K	NC	"Due to RAI's incorporation in **North Carolina, which does not recognize treasury shares**, the shares repurchased are cancelled at the time of repurchase."
Measurement Specialties Inc.	2012	10-K	NJ	**"In accordance with our bylaws as a New Jersey corporation, repurchased shares revert to authorized but unissued status."**
Starbucks Corp.	2010	10-K	WA	**"Under applicable Washington State law, shares repurchased are retired and not displayed separately as treasury stock on the financial statements."**

Section B: Examples of a disclosure where a firm switched from one method of accounting for share repurchases to another

Procter & Gamble, 10-Q for the quarterly period ended September 30, 2005

"8. Change in Method of Accounting for Treasury Stock – On July 1, 2005, we elected to change our method of accounting for Treasury Stock. We previously accounted for share repurchases as if the Treasury Stock was constructively retired by reducing Common Stock and Additional Paid-In Capital. Our new method of accounting will present Treasury Stock as a separate component of Shareholders' Equity. We believe that our new accounting method is preferable as it more closely depicts the underlying intent of the share repurchases in which the shares are not retired. In addition, we believe that our new presentation of Shareholders' Equity provides greater visibility of our share repurchase activity, including our share buyback plan announced in connection with the Gillette acquition [sic]."

Appendix D: Additional Analyses

We perform a variety of additional tests to evaluate whether the difference in valuation coefficients between share repurchases accounted for using the treasury or retirement methods is robust. In Table D1, we present the results of our additional robustness tests. In column (1), we estimate model (4), but without scaling all variables by the number of shares outstanding, as we did in Table 2 (Barth and Clinch, 2009). We still find that the coefficient on *REPURC_RT* is significantly larger than the coefficient on *REPURC_TS,* with an F-test value of 102. In column (2), we examine the results for the sub-period after 2000, when share repurchases became more prevalent, as can be seen in Panel A of Figure 1. The results here resemble those of the full sample, with the coefficient on *REPURC_RT* still significantly larger than the coefficient on *REPURC_TS.* Thus, our result applies to the period where share repurchases have been more commonplace, and is not limited to the early sample period.

In column (3), we utilize an alternative approach to measuring the amount of share repurchases, different from the main method. Within a single year, it is difficult to determine if the entire repurchase amount was accounted for under the treasury method or the retirement method. Banyi and Caplan (2016) assume that if there is any change in treasury stock, all repurchases are accounted for as treasury share repurchases. In practice, however, a firm may account for some repurchases using the treasury method and other repurchases using the retirement method within the same fiscal period. One way to get around this is to measure repurchases on a net basis and use the net change in treasury stock balance as the amount of treasury method repurchases. In cases where there is no change in the treasury balance, we use the net change in repurchases (PRSTKC minus SSTK) as the measure of net repurchases and classify it as being accounted for under the retirement method. Under this netting approach, we find that the coefficient on *REPURC_RT* continues to be significantly larger than the coefficient on *REPURC_TS* (7.328 vs. 2.749).

In column (4), we perform an additional robustness test for the classification of share repurchases between the treasury and retirement methods. This test relies on firm disclosures that are available through XBRL tagging for a subset of our sample observations. While firms are not required by U.S. GAAP to disclose this policy election, some firms include this information in their disclosures.[24] For this approach, we identify 72 XBRL tags for shareholders'-equity-related firm disclosures and use Calcbench to collect the disclosures for our sample of firm-years (as described in section 4.3) beginning after 2008, based on XBRL data availability.[25] This collection fielded at least one disclosure for 31,899 firm-years. For each firm-year observation, we then performed a simple textual search to determine if the identified disclosure(s) related to the treasury stock method (search terms: "treasury share" and "treasury stock"), the retirement method (search terms: "retire_," "retired," and "cancel"), or both. For each firm-year observation with positive gross repurchases (i.e., PRSTKC>0), we classified the repurchases as either using the treasury stock method or the retirement method based on the disclosure indicator variables.[26] Estimation results of our model, where share repurchases are classified using firm disclosures, reveal similar findings. In column (4), the coefficient on *REPURC_RT* continues to be significantly larger than the one on *REPURC_TS* (7.705 vs. 3.430).

When we add firm fixed effects, in column (5), we continue to find a similar relationship between *REPURC_RT* and *REPURC_TS.* Finally, in column (6), we add as a control an indicator

[24] For example, in 2021, H&E Equipment Services disclosed the following in the Significant Accounting Policies footnote of their annual report: "Purchases of our common stock are accounted for as treasury stock in the accompanying consolidated balance sheets using the cost method. Repurchased stock is included in authorized shares, but is not included in shares outstanding."

[25] The identified XBRL tags include CommonStockRepurchasesPolicyTextBlock, DescriptionOfAccountingPolicyForEquityExplanatory, ShareRepurchasesPolicyTextBlock, and TreasuryStockPolicyTextBlock, among others.

[26] We dropped two kinds of observations under this classification robustness approach: (1) the firm had positive gross repurchases, but both the retirement and treasury disclosure indicator variables took a value of 1, and (2) the firm had positive gross repurchases, but both the retirement and treasury disclosure indicator variables took a value of 0. In both of these cases, we could not determine the classification (treasury vs. retirement) from the disclosures.

variable equal to one if retained earnings are negative, following Ball et al. (2020). In column (6), we find that the coefficient on negative retained earnings is negative and significant. However, the coefficients on *REPURC_RT* and *REPURC_TS* continue to exhibit a similar relation as in previous columns.

To summarize, our finding that the valuation coefficient on retirement share repurchases is statistically significantly larger than the valuation coefficient on treasury share repurchases continues to be robust in all of our specifications in Table D1, which address a variety of possible concerns, including variable scaling and measurement, time-specific effects, and tighter identification using firm fixed effects.

Table D1. Main Result: Robustness

Table D1 presents the results of robustness tests on equation 4. The dependent variable is price per share three months after the end of the fiscal period (*MCAP*). The independent variables are income before extraordinary items (*EARN*), and decompositions of book value of equity (*BV*), which includes contributed capital (*CC*), retained earnings (*RE*), treasury stock (*TS*), dividends (*DIV*), share repurchases (*REPURC*), treasury share repurchases (*REPURC_TS*), retirement share repurchases (*REPURC_RT*), share issuances (*ISSUE*), other book value of equity (*OTHER*), and an indicator variable for negative retained earnings (*RE<0*). Detailed variable definitions are provided in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, * represent two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively. T-statistics are presented in parentheses and are based on clustering standard errors by firm.

	No Scaling	After 2000	Net Repurchases	XBRL ID	Firm FE	Neg RE Control
	(1)	(2)	(3)	(4)	(5)	(6)
	MCAP	MCAP	MCAP	MCAP	MCAP	MCAP
$EARN_t$	4.391***	4.103***	3.853***	4.837***	3.203***	3.745***
	(15.972)	(29.913)	(42.263)	(15.303)	(49.681)	(40.622)
RE_{t-1}	0.038	0.682***	0.635***	0.735***	0.773***	0.620***
	(0.473)	(13.956)	(19.283)	(8.768)	(25.255)	(17.008)
CC_{t-1}	0.505***	0.858***	0.789***	0.836***	0.847***	0.790***
	(6.739)	(20.528)	(26.664)	(11.557)	(28.341)	(26.476)
TS_{t-1}	2.496***	0.398***	0.587***	-0.112	0.116	0.577***
	(10.289)	(3.817)	(7.043)	(-0.698)	(1.581)	(6.936)
DIV_t	3.181***	4.642***	4.160***	5.968***	4.426***	3.913***
	(3.268)	(7.953)	(10.177)	(5.215)	(11.714)	(9.525)
$REPURC\_TS_t$	5.141***	2.279***	2.749***	3.430***	0.346**	2.385***
	(6.690)	(6.591)	(12.035)	(4.576)	(2.299)	(10.235)
$REPURC\_RT_t$	21.286***	6.885***	7.328***	7.705***	2.174***	6.026***
	(14.341)	(13.157)	(15.463)	(6.363)	(7.959)	(15.517)
$ISSUE_t$	8.143***	3.439***		4.974***	2.112***	2.998***
	(13.186)	(22.096)		(11.427)	(31.950)	(35.187)
$OTHER_t$	2.423***	1.927***	2.281***	3.264***	1.321***	1.880***
	(11.686)	(18.493)	(39.257)	(9.436)	(24.305)	(24.988)
$RE_t < 0$						-0.838***
						(-3.029)
REPURC_TS = REPURC_RT						
F-Stat	102.00	61.81	82.62	10.32	35.26	72.41
P-Value	<.001	<.001	<.001	0.001	<.001	<.001
N	179,315	95,756	179,294	20,115	179,294	179,294
Adj. R^2	0.681	0.497	0.494	0.530	0.704	0.499
Firm Fixed Effects	N	N	N	N	Y	N
FF10 Fixed Effects	Y	Y	Y	Y	N	Y